Atikokan Hydro Inc.

Distribution System Plan

2017-2021

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List of Attachments

Attachment A: Atikokan Hydro Inc. Renewable Generation Plan (per section 5.2.2.c)

Attachment B: Comment Letter from IESO on REG Plan (per section 5.2.2.c)

5.0 About this Document

Atikokan Hydro Inc. has prepared this Distribution System Plan in accordance with the Ontario Energy Board's Chapter 5 Consolidated Distribution System Plan Filing Requirements and as such has been created as part of Atikokan Hydro Inc. 2017 Cost of Service Rate Application; EB-2016-0056. This Distribution System Plan is for the period of 2017 through 2021. This is Atikokan Hydro's first Distribution System Plan; therefore, there are no previously filed plans to compare to. The plan discloses Atikokan's approach to collecting, tabulating and assessing formation on physical assets. A detailed capital expenditure plan has been created in support of Atikokan's asset management.

The Distribution System Plan includes historical data; 5 years, portraying Atikokan's distribution system as well as its asset condition, inspection and maintenance.

Chapter 5 section references are provided in each section for clarification.

5.2 Distribution System Plan

Atikokan Hydro Inc. has prepared this Distribution System Plan in accordance with the Ontario Energy Board's Chapter 5 Consolidated Distribution System Plan Filing Requirements. This Distribution System Plan is for the period of 2017 through 2021. This is Atikokan Hydro's first Distribution System Plan; therefore, there are no previously filed plans to compare to. Atikokan Hydro's Distribution System Plan supports the Cost of Service Rate Application.
Atikokan has organized the required information using the section headings in the Distribution System Plan Filing Requirements. Investment categories and activities have been grouped into one of the four OEB defined investment categories below, based on the trigger driver of the expenditure:

- ***System access*** investments are modifications (including asset relocation) to a distributor's distribution system a distributor is obligated to perform to provide a customer (including a generator customer) or group of customers with access to electricity services via the distribution system

- ***System renewal*** investments involve replacing and/or refurbishing system assets to extend the original service life of the assets and thereby maintain the ability of the distributor's distribution system to provide customers with electricity services.

- ***System service*** investments are modifications to a distributor's distribution system to ensure the distribution system continues to meet distributor operational objectives while addressing anticipated future customer electricity service requirements

- ***General plant*** investments are modifications, replacements or additions to a distributor's assets that are not part of its distribution system; including land and buildings; tools and equipment; rolling stock and electronic devices and software used to support day to day business and operations activities

The purpose of this Distribution System Plan is to present good distributor planning and provide evidence for capital-related expenditures required to maintain supplying electrical services to Atikokan Hydro Inc. customers. In adherence to the Filing Requirements, good planning must support the Board's assessment as to whether a distributor has and will continue to achieve the four performance outcomes established by the board;

- Customer Focus
- Operational Effectiveness
- Public Policy Responsiveness
- Financial Performance

The Distribution System Plan must support the Cost of Service Rate Application; Atikokan confirms both have been prepared in support of one another.

Utility Overview

Atikokan Hydro Inc. is wholly owned by the shareholder, The Town of Atikokan. The Hydro Electric Commission of the Township of Atikokan was originally formed in 1956 when the Town of Atikokan formerly the Township of Atikokan purchased the distribution system from Ontario Hydro. Since then it has evolved into Atikokan Hydro Inc. In 2000, Atikokan Hydro Inc. became incorporated; the assets and operations of the former commission were transferred to the new corporation on October 31, 2002. Electricity is transmitted from Hydro One's Moose Lake TS to Atikokan Hydro's

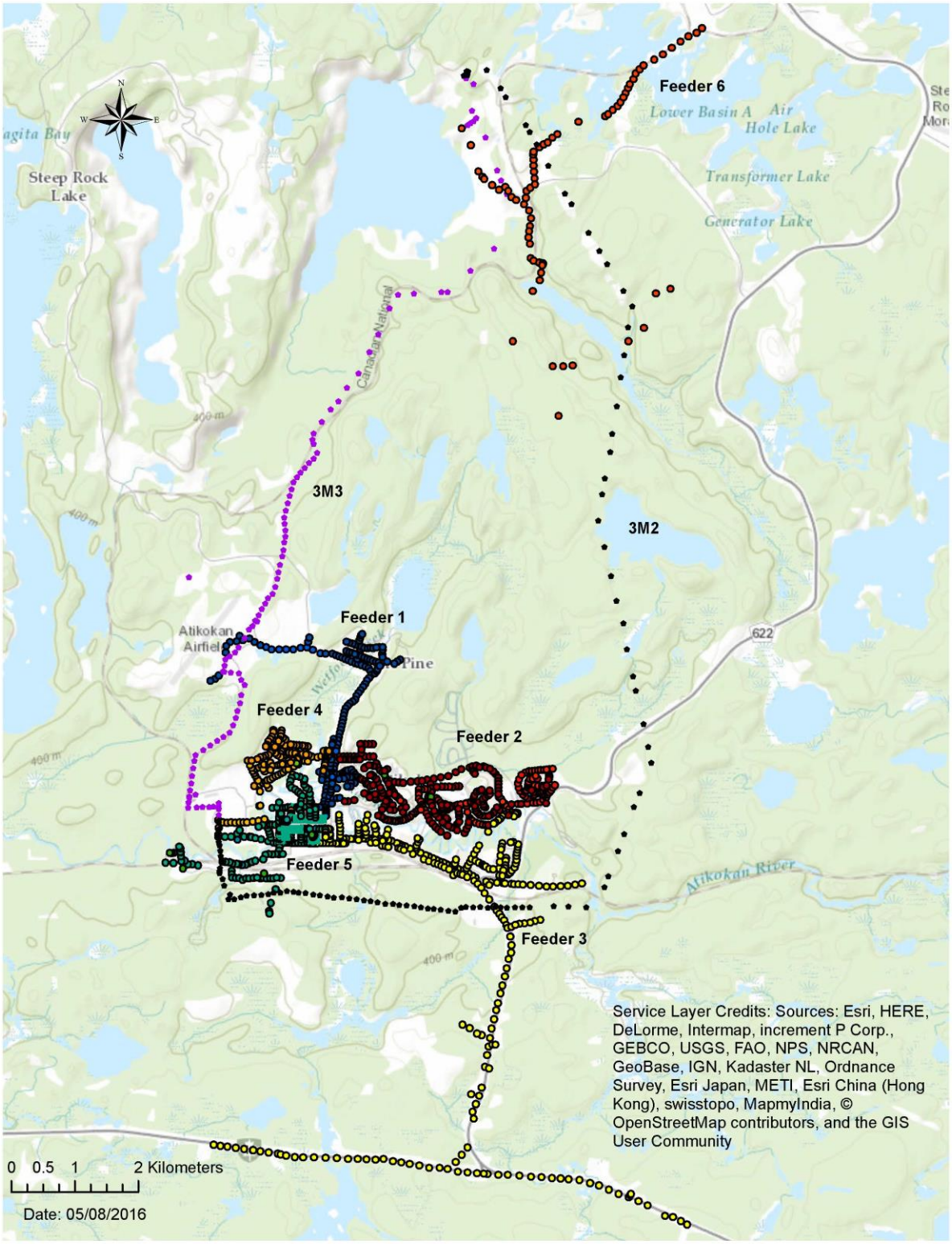
substations via Atikokan Hydro's two 44 KV circuits. The two circuits (known as 3M2 and 3M3) creates a redundancy source of supply. The lines are paralleled in that the open point can be variable. Mostly the two lines are kept at open point in the middle but the two lines create greater reliability as an alternative electricity source in event one line is down. Atikokan Hydro has three substations in the most densely populated customer area that distributes the electricity at 8320/4800 volts. Atikokan Hydro has one substation in a sparsely populated area that delivers electricity at 4160 volts. Atikokan Hydro's distribution system then delivers electricity, stepping down at the appropriate voltage to residential and commercial customers. As of July 1, 2016, Atikokan Hydro's customer base totals a count of 166d includes 1398 residential customers, 231 small commercial (GU < 50), 17 large commercial customer (GS > 50), 13 renewable generation connections (rooftop micro FIT solar) and 1 municipal street lighting account with 625 connections (streetlights). Atikokan's customer base generally does not fluctuate too much year over year; however, Atikokan's customer base has changed since its last cost of service Rate Application. A decline in residential customers and an increase in large commercial customers demand have contributed to a change in Atikokan Hydro's customer base. Atikokan maintains 90 kilometres of overhead lines and 2 Km of underground.

The following picture on the next page illustrates the two circuits (feeders) as mentioned above, 3M2 and 3M3; these circuits outline the entire service area for Atikokan Hydro.

Table 2-1: Overview of Service Area

Amongst these two lines that are paralleled to Atikokan's supply point; Atikokan has 6 feeders of lines. The following map illustrates the poles and area of each feeder. Looking at the illustration, it is also apparent that feeders 1 through 5 are in more dense area of Atikokan (inside town limits) but feeder 6 and the feeder lines 3M2 and 3M3 extend outside of town. Both the illustration above and below are supported and produced by Atikokan's asset management software, ESRI.

Table 2-2: Overview of Feeders



5.2.1 Distribution System Plan Overview

This section provides a high overview of the information filed in this plan.

a) (5.2.1a) Key Elements of the DS Plan

Key elements of the DS Plan that affect its rates proposal, especially prospective business conditions driving the size and mix of capital investments needed to achieve planning objectives.

In review of Atikokan Hydro's historical capital investments, it is obvious several years Atikokan did not invest in distribution assets but heavily invested in non-distribution assets and also investment in capital did not exceed annual amortization. A few major non-distribution purchases were incurred and significant dollars were allocated to installing smart meters. For this reason, the key elements of the DS Plan are system renewal, to replace distribution assets that have exceeded their useful life but also general plant purchases for non-distribution assets will be required. As providing a safe and reliable electricity service, workers must have safe and reliable equipment to maintain the distribution system. The distribution system plan must be balanced to maintain a safe and reliable supply of electricity to its ratepayers but at a pace to keep the financial health of the LDC including positive cash follows and manageable debt to equity ratios.

Historically, significant dollars are not spent on system access as Atikokan does not experience growth in its customer base thereby modifications or expansions for customer connections is not required. It is strictly maintaining existing service connections. However, with smart meter seals expiring during the DS Plan period, investments will be made to this System Access. Additionally, where it cannot be quantified at this time, planning and resources will be needed towards system access in the near term for an environmental reason. Thus far at the time of this filing, only preliminary discussions have occurred around an environmental situation affecting future service reliability. No formal consultations have occurred to allocate specific investments and timelines. The planning and resources mentioned will be required for addressing Steep Rock Reclamation concerns. History of the Steep Rock Reclamation is described next providing greater explanation of the situation.

Steep Rock Reclamation can be identified as water management both during mine operations and after Mine Abandonment. *"The Steep Rock Iron Mines at Atikokan, Ontario operated from 1944 to 1979. The iron ore was location at the bottom of Steep Rock Lake and water management*

was a key factor in developing the mines. Open pit mining required a massive water diversion scheme, including the diversion of the Seine River, draining of Steep Rock Lake, and construction of various dams and other diversion structures. In order to abandon the mine, the Province of Ontario required a suitable abandonment and long-term water management plan, and assessment of the condition of various water control and diversion structures. Reclaiming of the Seine River to its original course was not possible and, consequently, the water control structures, primarily dams and tunnels, will be operating in perpetuity."

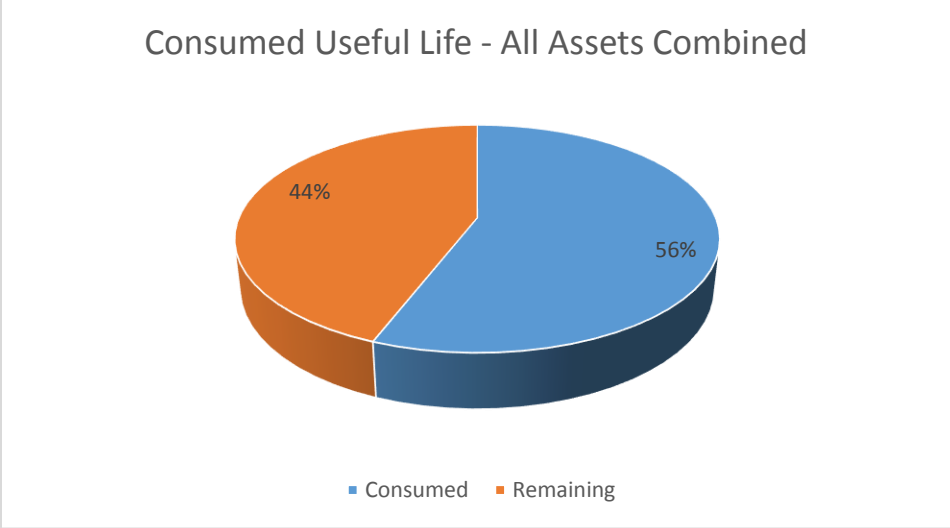
"In 1985, the coal-fired Atikokan Electrical Generating Station, constructed by Ontario Power Generation…. Took over many of the dams and water control structures constructed from the mine as part of the water control system for the Atikokan Generation Station. Ontario Power Generation has assumed responsibility for pumping the water that collects upstream of the Fairweather Dam." 1 [1Reference: Water management of the Steep Rock Iron Mines at Atikokan, Ontario during construction, operations and after mine abandonment, Sowa, Victor A.; Adamson, R. Bruce; Chow, Allan W. , 2001]

Atikokan Hydro delivers electricity to Ontario Power Generation (OPG) running the pump to control the water levels. A substation located at the old Caland Ore Mine Site exists to supply OPGs s pump and a few other customers in the area but OPGs pump being the largest customer. The cost to maintain the substation and hydro lines for the few customers has had much debate over the years. The pumping of the water as water management has been vital to public safety, protecting existing developments and environmental protection as a result of dredge spoil material impounded during the mining operation. The Ministry of Natural Resources has been monitoring elevations and the rate at which the mines pits are filling up. Recent informal discussions with the Ministry of Natural Resources have indicated flooding will be unavoidable. Recent research has suggested within a 5 to 7 year timeframe Atikokan Hydro will see infrastructure and road access to its distribution substation [Caland] compromised. Because of the latest timelines, the MNR is now evaluating potential temporary solutions (if possible) and notifying affected parties. Since preliminary [informal] discussions Atikokan Hydro has requested the MNR confirm details in writing but at the time of this application has not heard any communications in writing. From a planning and regulatory perspective, Atikokan Hydro needs a letter to support its Distribution System Plan filing. As per the Distribution System Code and noted in the Transmission System Code, Atikokan Hydro must notify the affected customers of the impacts and significant costs that will be incurred. Further Atikokan Hydro will be applying to the Ontario Energy Board with a rate application to recover these costs incurred upon greater evidence and a source of plan of action.

Formerly, the Ministry of Natural Resources and Forestry indicates that the risk of flooding of the Moose Lake TS is not expected to occur until 2070. Comments were made to aid Regional planning in the end of life refurbishment of the Moose Lake TS; however, the timeframes and impacts on other infrastructure in the area was not clear. In light of the latest information, Atikokan Hydro is trying to gather the evidence and push for a sense of urgency with the MNR to provide responses in writing to evaluate the situation and possible solutions and how reliability of power supply can be maintained. Atikokan intends to stay abreast of this situation.

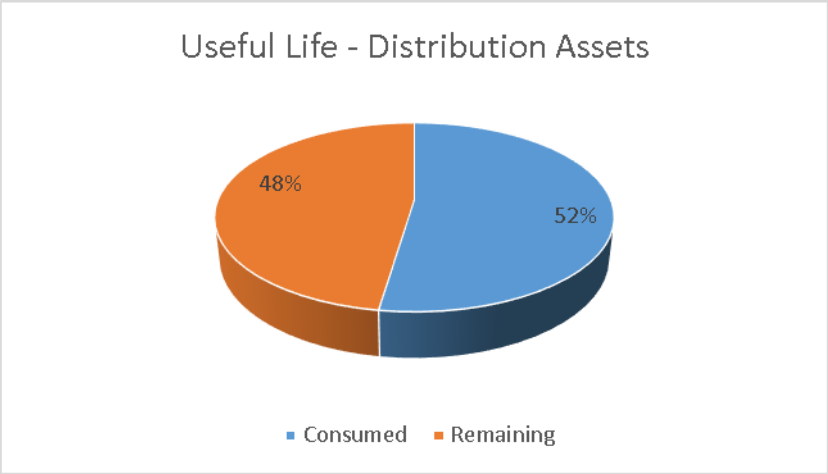
The following graph illustrates the remaining and consumed useful life of Atikokan Hydro's assets combined. The data used for illustration was December 31, 2015 asset valuation figures from the financial statements. As the visual graph shows, Atikokan Hydro's infrastructure is aging and needs renewing. Over half of the assets have fulfilled the deemed asset useful life. As the illustration reflects; the aging infrastructure; system renewal, is the main driver of Atikokan Hydro's Distribution System Plan.

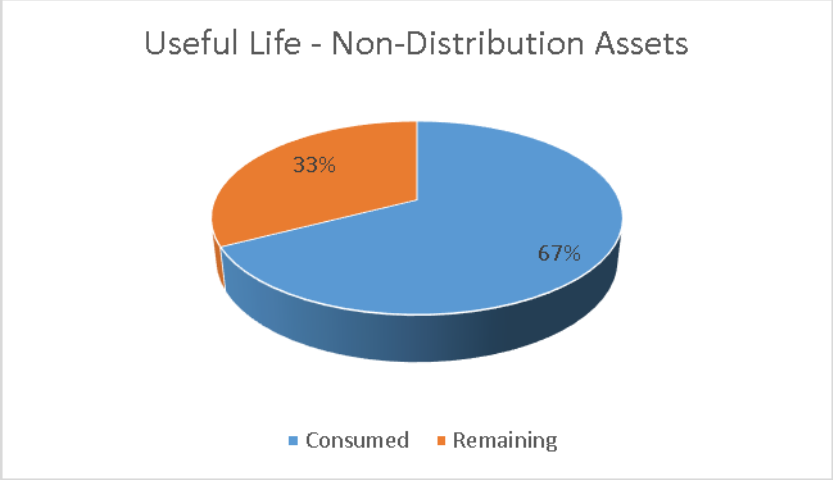
Table 2-3: All Assets Consumed Useful Life



The next two illustrations show the overall remaining useful life of assets broken down by distribution and non-distribution assets. Again year end December 31, 2015 financial asset valuations were used as a data source. Both distribution and non-distribution assets require immediate and future investments.

Table 2-4: Useful Life – Distribution & Non-Distribution Assets





Atikokan's asset management database also supports the above figures indicating diminished life expectancy of assets and this information was used in the capital planning process to develop Atikokan's 2017 to 2021 Capital Investment Plan. Atikokan must continue in a capital rebuild mode and to invest in its assets greater than the year's amortization amount to keep up with the aging infrastructure and continue to provide a safe and reliable supply of electricity to the Town of Atikokan. Based on the last five years (2011-2015) historical amortization, asset investments must meet or exceed at a minimum of $183,176.

Atikokan does not have total asset replacement cost of all of its existing assets managed. This could be an item for the future as the asset management plan evolves; however, using insurance

replacement costs; records indicate Atikokan's asset valuation of $3,908,358. Based on this evaluation, a reinvestment period of 20 years would indicate an annual reinvest of $195,417. Since Atikokan's last Cost of Service Application, Atikokan has at a minimal met or exceeded this annual reinvestment rate. Due to the nature and condition of the assets, a level of this investment rate must be maintained.

b) (5.2.1b) Sources of Cost Savings Expected

Sources of cost savings expected to be achieved over the forecast period through good planning and DS Plan execution

Through proactive planning it is believed to achieve both operational financial and nonfinancial effectiveness. Proactive planning lowers the risk of unexpected maintenance and operational expenses as a result of proactively planning. Planning allows expenses to be proactive in nature as opposed to reactive. Reactive measures for example as a result of failed equipment often results in missed cost saving opportunities and greater incurred often unbudgeted expenses including call outs for after hours as an example. Further good distributor planning may allow for repairs that will extend the useful life and condition of the asset without outright replacement of the asset. This can be achieved and supported through continuing to perform asset condition inspections and upkeep of compiling data collected in Atikokan's asset management database.

Tree trimming maintenance and vegetation control has limited the number of outages as a result of fallen trees. This maintenance is enforcing public safety and reliability. Atikokan Hydro takes an aggressive tree trimming and vegetation control approach to be both cost effective and efficient. Vegetation controls introduces less risk and related trouble calls of trees falling on the lines or house services. Again, a preventative and proactive measure. Three (3) outages in 2012 resulted from tree contact and none were reported for 2013, 2014 and only one outage in 2015 caused from tree contact. As a result of this trend, it is believed to be correlated to Atikokan Hydro's tree trimming and maintenance. In many cases, Atikokan Hydro will remove the tree as opposed to trimming which is also cost effective. The following two illustrations support the finding that outages have been reduced as a result of tree and vegetation control achieving the utility's goal to ensure public safety and reliability; further lessening additionally incurred operational expenses and customer rate impacts.

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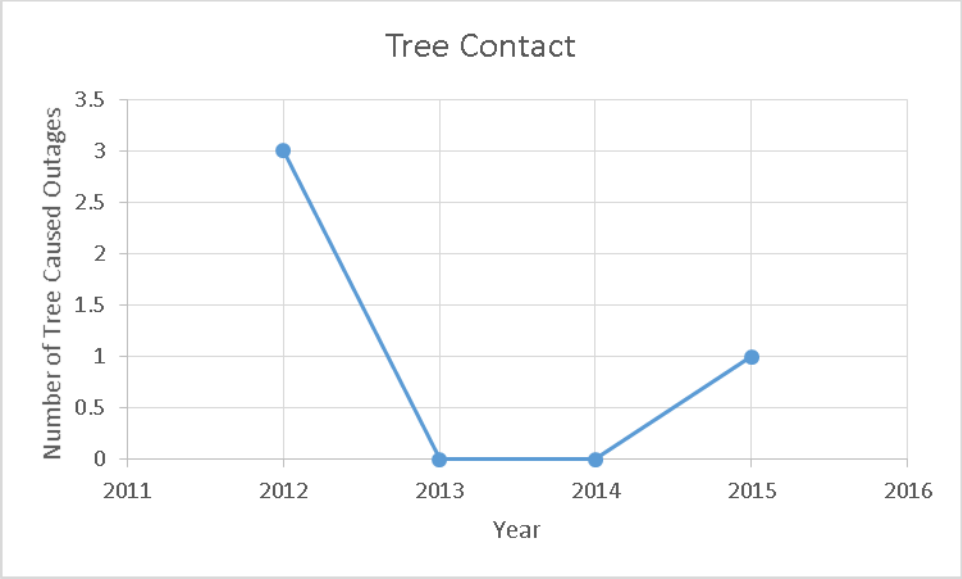
Table 2-5: Outage Causes

Most Frequent Outage Cause						
	Year					
Cause of Fault	2012	2013	2014	2015	Total	% Cause
Scheduled	2	9	8	0	19	30.65%
Weather	5	6	0	2	13	20.97%
Human Element	2	3	2	4	11	17.74%
Defective Equipment	3	0	1	1	5	8.06%
Tree Contact	3	0	0	1	4	6.45%
Lightning	0	2	1	0	3	4.84%
Foreign Interface	2	1	0	0	3	4.84%
Unknown	0	0	1	1	2	3.23%
Enviroment Code	1	0	0	0	1	1.61%
Supply Loss	0	0	0	1	1	1.61%
Total	18	21	13	10	62	100.00%

Table 2-6: Tree Contact Outages



Atikokan currently paints transformers and will continue to do such maintenance activities to extend the life of equipment as opposed to outright replacement; this is one other example of what Atikokan believes to be a source of cost savings although it cannot be quantified.

Historically Atikokan Hydro has collaborated with the Northwest Group (Fort Frances Power Corp, Kenora Hydro, Sioux Lookout Hydro and Thunder Bay Hydro Electricity Distribution Inc. on

various capital and operational expenditures to share costs and lower the overall impact to customer rates. This has proven to provide cost savings and Atikokan will continue to partner with the northwest group through the period of this plan. Examples of collaboration include the purchase of smart meters and sharing the costs of transitioning to a new billing system to support the implementation of the smart meters. Atikokan continues to split monthly support services from its Meter Service Provider, Thunder Bay Hydro. Atikokan also partners with the Northwest Group for Conservation Demand Management initiatives utilizing a combined effort of resources and lower costs passed onto customers.

c) (5.2.1c) Period covered by the Distribution System Plan

The period covered by the DS Plan (historical and forecast years)

This distribution system plan covers the historical period of 2012-2016, 2016 being the bridge year and the forecast period of 2017-2021.

d) (5.2.1d) Vintage of information used to prepare this Distribution System Plan

An indication of the vintage of the information on investment 'drivers' used to justify investments identified in the application (ie the information should be considered "current" as of what date?)

The asset information utilized in preparation of this plan included the historical data reported in this plan (2012-2015) and asset characteristics including asset conditions for poles collected during 2015 and quarter 1 and 2 of 2016. The capital plans for the forecast period were prepared in 2016 with known data at the time.

e) (5.2.1e) Changes to distributors asset management process

Where applicable, an indication of important changes to the distributor's asset management process (e.g. enhanced asset data quality or scope; improved analytic tools; process refinements; etc.) since the last DS Plan filing

This is Atikokan Hydro's first Distribution System Plan filing under the new Chapter 5 requirements. This alone is an important change and step to Atikokan's asset management process.

The accounting changes moving from Canadian Generally Accepted Accounting Practices (CGAAP) to International Financial Reporting System (IFRS) as of January 1, 2012; pushed Atikokan Hydro to use the opportunity to complete a detailed analysis of its major assets including value, age and amortization policy as part of the conversion from CGAAP to IFRS. Atikokan Hydro hired the firm of LLP BDO to assist with the conversion. The need to have a more formalized asset management plan including greater reporting abilities and to fulfill the requirements of this filing encouraged Atikokan Hydro to go a step further and revisit poles. Atikokan Hydro allocated significant resources to re-inspect asset conditions, age and tagging the poles with asset ID. This has allowed planning and reporting to be more efficient and effective than ever before. Capital projects are now assigned to specific feeders and poles based on the asset ID tabulated. Completion of this Distribution System Plan has guided Atikokan Hydro through identifying its asset base and needs; refining processes of longer range planning. Further as a result of accounting system conversion and asset management for completion of the DSP Atikokan now has software for recording both quantitative and qualitative measures. As demonstrated from the narrative above, Atikokan Hydro has vastly improved its asset management process abilities and quality of data since its last Cost of Service Application. Prior to these years, an asset management plan basically was non-existent; plans were short term in nature and no existence of an asset management database.

f) (5.2.1f) Aspects of the DS Plan that relate to or are contingent

Aspects of the DS Plan that relate to or are contingent upon the outcome of ongoing activities or future events, the nature of the activity (e.g. Regional Planning Process) or event (Board decision on LTLT) and the expected dates by which such outcomes are expected or will be known.

In formalizing Atikokan's Distribution System Plan, Atikokan used best efforts to capture current, known and forecasted activities and factors impacting decisions and plans for the Distribution System Plan. It should be noted, while Atikokan has tried to gather asset conditions and ages unbudgeted items may occur deviating from the original DS Plan. Planned activities and projects may need to be re-evaluated in event of unbudgeted expenditures.

No formal consultations have started and for this reason Atikokan cannot quantity any dates or values at this time but during preparation of the DSP Atikokan Hydro was notified by the Ministry of Natural Resources of an environmental situation that needs to be followed up and planned accordingly as a result. See section 5.2.1a of this DS Plan, for greater explanation for the

environmental situation known as the Steep Rock Reclamation water management. Once plans have been arranged, Atikokan's submitted DS Plan may need to be re-evaluated accordingly.

Atikokan owns and operates two lines of 44KV lines through XX of rugged terrain and bush. This drives up the cost per customer. With a line crew of 4, and customer count of XX , these lines are difficult to maintain. Atikokan lacks some of the equipment required to maintain these poles and as a result must use third parties to complete the repairs, becoming costly. Atikokan Hydro tries to utilize all internal resources to complete capital projects in these areas. If any of the poles and structures in this area fail or deteriorate outside of the scope of the original forecasted plan, there is potential to incur additional expenses than originally budgeted. Because of the complexity of this area, Atikokan previously approached regional planning in efforts to coordinate and collaborate with Atikokan to relocate the Moose Lake transformer station (TS). Atikokan is in belief, if the TS could be relocated to town it is believed significant savings could be utilized. However, the regional planning working group agreed due to the high cost to relocate the TS at this time, relocation would not occur. Due to the high cost and the impacts it would have on customers, Atikokan's rate base cannot solely fund such a project. For decision making, customer needs and impacts including but not limited to service needs, financial impacts and reliability must be considered. Regional planning agreed the costs associated with this request were not feasible at this time. Given the Steep Rock Reclamation water table rising and the age of Atikokan's Caland substation, decisions and further plans need to be formulated in the period of this DS Plan; for the interest of all stakeholders involved. However, as noted above and in Section 5.2.1.a of this plan, Atikokan used best efforts at this time

Per amendments to the Distribution System Code, all load transfer arrangements must be eliminated by transferring the load transfer customers to the physical distributor by June 21, 2017. The OEB has record that Atikokan Hydro has one Long Term Load Transfer (LTLT) Agreement. Atikokan Hydro being the geographic distributor and Hydro One being the physical distributor. Atikokan is collaborating with Hydro One to follow the Ontario Energy Guidelines to eliminate LTLT's. In discussion with Hydro One where it has historically been treated as an LTLT, Atikokan and Hydro One believe this is a settlement billing that cannot be resolved; however, both parties intend to communicate with the Board to have this recorded LTLT removed from the list of LTLTs.

5.2.2 Coordinated planning with third parties

To demonstrate that a distributor has met the Board's expectations in relation to coordinating infrastructure planning with customers, the transmitter, other distributors and/or the OPA or other third parties where appropriate.

a) (5.2.2.a) Description of Consultations

The purpose of the consultation e.g. Regional Planning Process; whether the distributor initiated the consultation or was invited to participate in it; the other participants in the consultation process e.g. customers; transmitter; OPA; the nature and prospective timing of the final deliverables, if any, that are expected to result from or otherwise be informed by the consultation(s) e.g. Regional Infrastructure Plan; Integrated Regional Resource Plan; and will the consultation(s) have or are they expected to affect the distributor's DS Plan as filed and if so, a brief explanation as to how.

In preparation of Atikokan's Distribution System Plan, Atikokan considered the needs of its customers (Town of Atikokan), Hydro One, Telecommunication third parties and the IESO.

Atikokan Hydro's system investments primarily are system renewal. Atikokan Hydro interacts and cooperates with the Town of Atikokan and its ratepayer's requests and needs but Atikokan has little if any growth or change. Therefore, primarily Atikokan spends funds on renewing its existing infrastructure to provide and maintain reliable service to the Town of Atikokan. This follows the Ontario Distribution Sector Review Panel of Putting Consumers First. Customers from time to time request changes to services including but not limited to underground service or line clearance letters when constructing a building such as a garage. Atikokan Hydro strives to respond to the customer in a timely manner meeting their needs and maintaining public safety and reliability. Atikokan engages with its larger commercial customers and there are no identified future requirements for system changes. Customers are primarily concerned with keeping the lights on and the costs of electricity. These concerns were evident with Atikokan's Customer Satisfaction Survey completed early of 2016. Atikokan Hydro's office is open five days a week and allows customers to setup new accounts, arrange for account changes, pay bills and make other inquiries as required; or similarly contact the office staff by telephone, email and fax.

Atikokan Hydro corresponds regularly with Telecommunication third parties including Bell and Shaw who joint use agreements are in place. With infrastructure rebuilds, Atikokan Hydro notifies the telecommunication company attached to the poles that are going to be replaced. Atikokan

Hydro prepares a transfer service request. Often telecommunication company requests are completed within the same year unless they require greater resources and planning; other arrangements may be made. Atikokan also communicates and coordinates with the Union Gas utility where and when applicable. With the Call before you dig rules, Atikokan regularly is in contact with Union Gas for construction and replacement of assets. The same applies with the Town of Atikokan water and sewer public works department.

As required, Atikokan Hydro consults with the regional planning working group, IESO and Hydro One transmitter. Consultations are dependent on activity levels and concerns or planning processes in place. Atikokan Hydro has participated with the Local Advisory Committee West of Thunder Bay including the IESO in preparation of the final IRRP Report. Atikokan Hydro has been communicating with Hydro One having discussions around reliability of supply. Atikokan Hydro June of 2016 and July of 2015 endured over 5 hour power outages due to loss of supply from Hydro One transmitter. In support of customer preferences and customer impact concerns, Atikokan Hydro requests responses and explanations for events of the outages. Discussions around the plans to refurbish Moose Lake TS have also occurred. Atikokan also further had discussions with Hydro One around the investment and planning required to potentially relocate the TS station inside to town limits. This same discussion has occurred historically in the past but continues to have the same result; remain status quo due to the high cost involved in pursuing such an option and alternative.

b) (5.2.2.b) Regional Planning Process

Where a final deliverable of the Regional Planning Process is available, the final deliverable: where a final deliverable is expected but not available at the time of filing, information including the role of the distributor in the consultation, the status of the consultation process and where applicable the expected dates on which final deliverables are expected to be issued.

Regional planning has identified replacement of the transformers at Moose Lake TS in the early 2020s; owned by Atikokan Hydro's upstream transmitter Hydro One. This should not result in distribution investments for Atikokan Hydro but result in greater reliability in the supply to Atikokan's feeds. The Final IESO West of Thunder Bay IRRP Report published July 27, 2016 supports this. The final report is 2016 West of Thunder Bay IRRP Report and Appendices is listed on the IESO website.

c) (5.2.2c) comment letter provided by the OPA in relation to REG investments

The comment letter provided by the OPA in relation to REG investments included in the distributor's DS Plan (see 5.2.4.2), along with any written response to the letter from the distributor, if applicable.

Atikokan Hydro submitted its Renewable Energy Generation Investments Plan to the OPA for comment July 15, 2016. Atikokan has 15 microFIT contracts and none under the FIT program. As concluded in Atikokan's Renewable Energy Generation Plan Atikokan Hydro is not aware of any future new connections or generation impacts. Provided the future is consistent with the last few years minimal to no activity, Atikokan Hydro does not find it prudent to make investments or apply for rates to support investments to support renewable FIT installations in this filing period. Therefore Atikokan has no investments included in this DSP relation to REG investments. Atikokan believes its existing configuration of its distribution system accommodates the current needs. See Attachment A for Atikokan's REG Plan submitted for comment. The letter of comment was received by Atikokan July 29, 2016. The IESO Letter of Comment is attached in Attachment B. As noted in the letter "Atikokan Hydro Inc.'s Plan is substantially consistent with that of the IESO."

5.2.3 Performance measurement for continuous improvement

Good distributor planning is an essential element of the Board's performance-based-rate setting approaches. The Board understands that distributors often use certain qualitative assessments and/or qualitative metrics to monitor the quality of their planning process, the efficiency with which their plans are implemented, and/or the extent to which their planning objectives are met. The Board expects that this information is used to improve continuously a distributor's asset management and capital expenditure planning processes.

Atikokan Hydro strives for continuous improvement and is motivated by internal and external influences.

a) (5.2.3a) Metrics used to monitor DS planning performance

Identify and define the methods and measures used to monitor distribution system planning process performance – include customer oriented performance (customer bill impacts; reliability, power quality) , cost efficiency and effectiveness with respect to planning quality and DS Plan implementation, asset and or system operations performance

Atikokan Hydro is continually working to improve performance and is motivated by the OEB's distributor benchmarks and Service Quality Requirements within Section 7 of the Distribution System Code but also driven by the paybacks to Atikokan Hydro's local ratepayers (consumers) as a result of improved performance. The OEB Scorecard is modelled to monitor performance and as such Atikokan utilizes it as a benchmark. See the following page for Atikokan Hydro's 2014 Scorecard as published by the OEB. The 2015 Scorecard was not finalized at the timing of this preparing this DS Plan.

Atikokan Hydro strives to meet or exceed OEB standards. Atikokan Hydro's decisions and efforts are driven by the following categories:

- Customer Oriented Performance [Customer Focus]
- Cost Efficiency and Effectiveness
- Asset/and or System Operations Performance

Scorecard - Atikokan Hydro Inc.

9/16/2015

Performance Outcomes	Performance Categories	Measures		2010	2011	2012	2013	2014	Trend	Target: Industry	Target: Distributor
Customer Focus Services are provided in a manner that responds to identified customer preferences.	Service Quality	New Residential/Small Business Services Connected on Time		100.00%		100.00%				90.00%	
		Scheduled Appointments Met On Time		100.00%	100.00%	100.00%	100.00%	100.00%	flat	90.00%	
		Telephone Calls Answered On Time		100.00%	100.00%	100.00%	100.00%	100.00%	flat	65.00%	
	Customer Satisfaction	First Contact Resolution						95%			
		Billing Accuracy						100.00%	flat	98.00%	
		Customer Satisfaction Survey Results						Favourable			
Operational Effectiveness Continuous improvement in productivity and cost performance is achieved; and distributors deliver on system reliability and quality objectives.	Safety	Level of Public awareness [measure to be determined]									
		Level of Compliance with Ontario Regulation 22/04		C	C	C	NI	C	flat		C
		Serious Electrical Incident Index	Number of General Public Incidents	0	0	0	0	0	flat		0
			Rate per 10, 100, 1000 km of line	0.000	0.000	0.000	0.000	0.000	flat		0.000
	System Reliability	Average Number of Hours that Power to a Customer is Interrupted		0.03	0.02	0.30	3.43	0.37	up		at least within 0.02 - 3.43
		Average Number of Times that Power to a Customer is Interrupted		0.03	0.15	0.47	1.12	0.09	up		at least within 0.03 - 1.12
	Asset Management	Distribution System Plan Implementation Progress						On Track			
	Cost Control	Efficiency Assessment				4	4	4			
		Total Cost per Customer [1]		$895	$854	$1,057	$908	$800			
		Total Cost per Km of Line [1]		$16,174	$15,418	$19,069	$16,430	$14,459			
Public Policy Responsiveness Distributors deliver on obligations mandated by government (e.g., in legislation and in regulatory requirements imposed further to Ministerial directives to the Board).	Conservation & Demand Management	Net Annual Peak Demand Savings (Percent of target achieved) [2]			8.05%	14.86%	19.57%	32.81%	target not met		0.20MW
		Net Cumulative Energy Savings (Percent of target achieved)			32.91%	52.67%	59.31%	79.12%	target not met		1.16GWh
	Connection of Renewable Generation	Renewable Generation Connection Impact Assessments Completed On Time									
		New Micro-embedded Generation Facilities Connected On Time								90.00%	
Financial Performance Financial viability is maintained; and savings from operational effectiveness are sustainable.	Financial Ratios	Liquidity: Current Ratio (Current Assets/Current Liabilities)		1.88	1.36	1.15	1.39	1.35			
		Leverage: Total Debt (includes short-term and long-term debt) to Equity Ratio		2.21	3.01	4.93	0.38	0.32			
		Profitability: Regulatory Return on Equity	Deemed (included in rates)		8.57%	9.12%	9.12%	9.12%			
			Achieved		-5.31%	-2.52%	11.28%	28.33%			

Notes:
1. These figures were generated by the Board based on the total cost benchmarking analysis conducted by Pacific Economics Group Research, LLC and based on the distributor's annual reported information.
2. The Conservation & Demand Management net annual peak demand savings include any persisting peak demand savings from the previous years.

Legend: up, down, flat, target met, target not met

- **Customer Oriented Performance [Customer Focus]**

Customer Focus measures have two main performance categories on the Scorecard: Service Quality and Customer Satisfaction. These specific scorecard measures that monitor performance based decisions with 'customer focus' in mind are as follows:

SERVICE QUALITY

New Residential/Small Businesses Connected on Time

Utility's must connect new services for customers within five 5 working days once all conditions of service are met 90 % of the time. Atikokan Hydro has few new connections. Historically, the number of connected services are declining. Atikokan has some seasonal disconnect and reconnects but rare to have a new service connection. In years 2010 through 2014, only 2010 and 2012 had new services connected and these were connected 100% on time. Atikokan Hydro takes pride in its ability to honour customer requests for connections and this includes reconnections after a scheduled disconnection that is not part of this connection measure. This is a means of providing excellence customer service. Due to the small size of the LDC, office staff directly engage with the outside crew and are aware of their schedules and abilities to complete work order requests. This practice is one example of Atikokan Hydro's customer focus.

Scheduled Appointments Met on Time

The Industry target for scheduled appointments being met on time is 90% but as the 2014 Scorecard reflects, Atikokan Hydro meets 100% of scheduled appointments on time. This is another measure of being customer focused.

Telephone Calls Answered on Time

The Ontario Energy Boards target for answering telephone calls on time is 65%; however, Atikokan Hydro exceeds this with answering 100% of calls on time and has historically been consistent. Answering the call on time is defined as being answered within 30 seconds of receiving the call directly or having the call transferred to them 65% of the time. These statistics are manually logged. Atikokan Hydro has two incoming telephone lines and typically three staff in the office to ensure incoming calls are answered in a targeted manner. Again this demonstrates Atikokan Hydro's focus on customers and excelling in service quality.

CUSTOMER SATISFACTION

Performance metrics were added by the OEB in 2014 include First Contact Resolution and Billing Accuracy. Historically, prior to 2014, Atikokan Hydro did not track these measures.

First Contact Resolution

This new measure is a measure of a distributor's effectiveness at satisfactory addressing customer's complaints. The OEB has permitted distributors discretion on how this measure is reported. Based on the 2014 Scorecard Atikokan Hydro resolves 95% of customer contact first time and does not require referral to management for resolution.

Billing Accuracy

OEB industry standard is to have 98% billing accuracy; Atikokan Hydro reported a 100% billing accuracy for 2014. Atikokan Hydro implemented a report in its billing system to assist in tracking billing accuracy for the year. It also requires coordinated manual tracking.

Customer Satisfaction Survey Results

Atikokan Hydro has had a portion of the bill dedicated to customer ability to express their satisfaction or dissatisfaction with Atikokan Hydro or make comments. Atikokan Hydro has not had customers respond to this feature and for this reason has interpreted this as favorable. Atikokan Hydro participated in its first customer satisfaction survey early in 2016. Overall of the customers that participated, results showed 97% are satisfied with the services provided by Atikokan Hydro. Atikokan was pleased with the results. Sixty-nine surveys were returned. This represents five (5) percent of residential customers.

- **Cost Efficiency and Effectiveness**

The performance categories for Operational Effectiveness from the OEB Scorecard include the following: Safety, System Reliability, Asset Management and Cost Control. Each of these categories have specific measures and will be discussed in greater detail.

SAFETY

Level of Public awareness

This is a new performance measure that did not have an identified measure for the 2014 Scorecard. For this reason Atikokan Hydro did not report or track this measure for the 2014

Scorecard. However, per the new requirement to report on Public Awareness of Electrical Safety and execute a survey every two years on public electrical safety awareness; Atikokan Hydro conducted the survey, using UtilityPulse. Survey completed March of 2016 indicated an Index Score of 82% reflecting many have good knowledge or have received some information pertaining to electrical safety including contact to overhead wires as an example. This index will be reported on Atikokan's 2015 Scorecard once finalized.

Level of Compliance with Ontario Regulation 22/04

Atikokan Hydro takes compliance with the Ontario Regulation 22/04 very seriously and strives to ensure that all aspects of Regulation 22/04 are met. The regulation establishes safety requirements and objectives for design, construction, and maintenance of electrical distribution systems owned by licensed distributors. Any needs improvement notations from the annual audit are implemented as soon as possible. Atikokan Hydro was compliant with the Ontario Regulation 22/04 for the 2015 audit and the historical years 2010 through 2014 with the exception of 2013 with a needs improvement.

In order to ensure compliance with Ontario Regulation 22/04, the Electrical Safety Authority performs Due Diligence Inspections (DDIs) of LDCs. Atikokan believes this measure to be a good measure of performance with respect to both public and employee safety. The DDIs focus on ensuring that construction in the field is in accordance with a plan, work instruction and/or standard design such that no undue hazards exist to the public of LDC personnel.

Atikokan Hydro recently joined Utility Standards Forum ("USF"). Prior to 2016, Atikokan Hydro was not a member and required to contract a professional engineer for approval of designs. This USF membership will be a yearly operational expense moving forward but does not materially affect the Distribution System Plan. Atikokan believes this will help meet regulation requirements and have greater in-house efficiencies while ensuring public and employee safety is met with approved design standards and guidelines. This also provides a source of networking on how other utilities conduct business creating an opportunity for continuous improvements.

Serious Electrical Incident Index

Atikokan Hydro is pleased to report zero serious electrical incidents and as the 2014 Scorecard indicates for the years prior to this as well. Atikokan Hydro believes safety of both staff and the

public to be of the highest importance. The results received from the ESA for 2015 Scorecard reporting and historical years are below. The table will also be consistent with the data provided in the finalized 2015 Scorecard.

Results					**Target**
Year	Number of Incidents	km of Line	Rate Default Value	Serious Incident Index	Serious Incident Index
2015	0	92	10	0.000	0.000
2014	0	92	10	0.000	0.000
2013	0	92	10	0.000	0.000
2012	0	92	10	0.000	0.000
2011	0	92	10	0.000	0.000
2010	0	92	10	0.000	0.000

Atikokan Hydro was presented a Certificate of Merit by Electrical Utility Safety Rules (EUSA) (now IHSA, Infrastructure Health & Safety Association) in recognition of the achievement of no lost time injuries for 46 years (January 1, 1963 to December 31, 2008). Lost time injury is defined as accidents or injuries that force the employee to remain away from his or her work beyond the day of the accident or for the next shift. To date, Atikokan still maintains its zero lost time injury of 53 plus years.

SYSTEM RELIABILITY

One of the questions asked in Atikokan Hydro's Customer Satisfaction Survey was "How satisfied are you with the reliability of the electricity supplied to you overall? Similarly to overall customer satisfaction, respondents indicated 97% satisfaction with the reliability of the electricity supplied. In the 69 responses, 67 were satisfied and 1 not satisfied and 1 respondent either satisfied or dissatisfied.

Atikokan Hydro uses the industry standard system reliability measures SAIDI, SIFI and CAIDI for assessing performance and reliability. The indices measure both the

- Average Number of Hours that Power to a Customer is Interrupted and
- Average Number of Times that Power to a Customer is Interrupted

The industry standard system reliability measures are explained in greater detail in the next section; 5.2.3.b.

Generally speaking, if the outage is town wide it is a result of loss of supply. Due to the configuration of Atikokan Hydro's distribution system it provides opportunity for added reliability

with the ability to complete switching, and keep parts of town with power from other operable sub stations.

While the Distribution System Code requires inspections of distribution assets once every 3 years, Atikokan Hydro inspects its feeders annually as part of its maintenance activities.

ASSET MANAGEMENT

Atikokan is continuing to work on its asset management processes and has completed its first Distribution System Plan. Atikokan's recent tagging and mapping coordinates of poles has contributed to both operational efficiencies and effectiveness.

COST CONTROL

Atikokan takes initiatives and measures to address cost control. These initiatives range from inside staff recycling paper to purchasing supplies on a need be basis, requesting quotes prior to purchasing, choosing the most cost effective choice but also considering freight charges.
Section 5.2.3.b of this document mentioned costs savings in greater detail but were a result of operational efficiencies and effectiveness including but not limited to purchasing of inventory and supplies, and tree trimming maintenance practices.

Total Cost per Customer / Total Cost per KM of Line

Compared to other industry LDC's Atikokan does have one of the higher cost per customer costs. Atikokan Hydro is conscious of this and tries to make decisions where possible to minimize the impacts to overall rates.

In review of the OEB 2015 Yearbook of Electricity Distributors. Atikokan Hydro has the second highest OM&A Cost per Customer. There were 71 LDCs reported in 2015. For discussion purposes Atikokan sorted the 71 LDCs in the OEB 2015 Yearbook and has included the 25 highest LDCs OM&A per Customer below.

LDC	Total Customers	Total Service Area (sq km)	Total km of Line	OM&A per Customer ($)	# of Customers per square km of Service Area	# of Customers per km of Line
Brant County Power Inc.	10,058	256	556	321.24	39.29	18.09
Toronto Hydro-Electric System Limited	758,311	630	10,348	321.74	1203.67	73.28
Canadian Niagara Power Inc.	28,713	357	1,028	331.46	80.43	27.93
PUC Distribution Inc.	33,386	342	744	337.80	97.62	44.87
Midland Power Utility Corporation	7,096	20	129	337.91	354.8	55.01
Bluewater Power Distribution Corporation	36,208	201	783	340.82	180.14	46.24
Innpower Corporation	16,157	292	833	344.90	55.33	19.4
Tillsonburg Hydro Inc.	7,059	24	134	354.28	294.13	52.68
Hydro 2000 Inc.	1,225	9	21	356.97	136.11	58.33
Haldimand County Hydro Inc.	21,407	1,252	1,733	359.86	17.1	12.35
Orillia Power Distribution Corporation	13,445	27	233	361.88	497.96	57.7
Rideau St. Lawrence Distribution Inc.	5,860	18	105	365.22	325.56	55.81
Lakeland Power Distribution Ltd.	13,345	163	367	385.23	81.87	36.36
Northern Ontario Wires Inc.	6,075	28	370	393.99	216.96	16.42
Espanola Regional Hydro Distribution Corporation	3,289	102	140	417.08	32.25	23.49
Kenora Hydro Electric Corporation Ltd.	5,569	24	98	418.11	232.04	56.83
Fort Frances Power Corporation	3,729	26	76	435.39	143.42	49.07
Wellington North Power Inc.	3,725	14	76	447.52	266.07	49.01
Hearst Power Distribution Company Limited	2,703	93	68	449.86	29.06	39.75
Hydro One Networks Inc.	1,257,016	960,800	121,209	451.85	1.31	10.37
West Coast Huron Energy Inc.	3,812	8	61	462.32	476.5	62.49
Sioux Lookout Hydro Inc.	2,780	536	275	511.72	5.19	10.11
Chapleau Public Utilities Corporation	1,229	2	27	599.82	614.5	45.52
Atikokan Hydro Inc.	1,653	380	92	622.59	4.35	17.97
Algoma Power Inc.	11,678	14,200	1,849	1,023.78	0.82	6.32

Atikokan Hydro has never been delighted of its cost per customer and one may argue this means Atikokan Hydro is one of the least cost efficient and effective; however, in review of the yearbook it is evident each LDC has its own contributors to costs and uniqueness. The yearbook data records both Total service area and KM. Visiting these indicators it substantiates a few reasons why Atikokan believes it has a higher OM&A compared to others. Atikokan's customers are much more spaced compared to other distributors especially those located in southern Ontario. Additionally, Atikokan only has a few apartment buildings. In looking at the 25 LDCs in the above table you can see Atikokan is one of the LDCs with fewer customers per square km of service area and fewer customers per km of Line. Atikokan historically has a declining customer count negatively impacting rates. Atikokan's 2012 Board Approved Customer count/connection of 2297 whereby the 2015 Actual count/connection was 2286 and the 2017 Forecast year is 2260. This is nearly a 2% reduction in customers.

Atikokan Hydro monitors its spending throughout the year and reports to the board of director's quarterly reports detailing activities that are over or under the year's budget in efforts to adhere to the year's budget. Atikokan has a very conscious staff compliment in bill impacts.

Efficiency Assessment

The total cost and efficiency ranking (efficiency assessment) was developed by Pacific Energy Group (PEG), an independent third party consultant of the OEB. The electricity distributors are divided into five groups based on the magnitude of the difference between their respective individual actual and predicted costs. In 2015 Atikokan Hydro was placed in Group 3, where a Group 3 distributor is defined as having actual costs within +/- 10 percent of predicted costs. Group 3 is considered "average efficiency" - - in other words Atikokan Hydro's costs are within the average cost range for distributors in the Province of Ontario. This 2015 grouping in group 3 is an improvement for Atikokan Hydro from the prior years 2012 through 2014 whereby Atikokan fell within Group 4 with actual costs 10-25% of predicted costs. Atikokan Hydro is continually striving to become more efficient and for greater accuracy of budgeting and reporting.

Bill Impact

Whereby Bill Impact is not a Scorecard measure, it is a measure utilized by both the utility and the Board in both the proposal and approval of rate design. In completion of Atikokan's first customer satisfaction survey, the general consensus when responding to the question 'What would you say is the most important energy or electricity-related issue facing the community of Atikokan today?; commonly was the price of electricity and delivery costs. In comparison to other utilities in the province, Atikokan ranks poorly in terms of customer rates as discussed in the previous section. Atikokan attributes the higher service charge compared to other neighboring LDC's to a small customer base, large service area for the customer size and reliability of the two sub transmission feeders to name a few reasons. Atikokan does however, make every reasonable effort to minimize bill impacts and follow the Board's 10% threshold for bill impacts.

- Public Policy Responsiveness Measures

These measures are categorized into Conservation & Demand Management and Connection of Renewable Generation on the OEB Scorecard. Atikokan's initiatives in regards to these public policy responsiveness measures are described below.

Conservation and Demand Management

In collaborate partnership with the Northwest Group (Atikokan Hydro Inc, Fort Frances Power Corp, Kenora Hydro, Sioux Lookout Hydro and Thunder Bay Hydro Electricity Distribution Inc.); Atikokan Hydro offered and delivered a mix of CDM programs to its customers but was unsuccessful in meeting its target for the 2010 to 2014 framework period; only meeting 79.1% of energy savings target. Atikokan believes the target was not met as a result of

- Late start of CDM programs; details not available
- Not enough funding and local presence
- Atikokan's residential customers average consumption is 27.3% below the average provincial (581 kWh vs 800 kWh) – [pre 2016]
    - (547 kWh vs 750 kWh) – [2016]
- Winter peaking LDC, programs focus on summer peaks
- Incentive values for contractors do not appeal

Moving forward, Atikokan will continue its efforts to offer the mix of CDM programs striving to meet its target. The Northwest group was recently approved for collaboration funding to hire a Regional Energy Manager who can aid in reaching targets. Atikokan Hydro employs eight employees in total and as a result has limited and split resources to meet all regulatory demands. The position addresses this barrier and is dedicated to working with customers; striving to reward both the customer with energy savings (lowering their total bill) and LDCs achieving mandated target energy savings.

Connection of Renewable Generation

In terms of Connection of Renewable Generation, as of July 1, 2016 Atikokan Hydro has 13 micro FIT generators and no FIT generation. As noted in Atikokan Hydro's REG Plan (Attachment B), Atikokan Hydro's upstream transmitter has constraints and no area availability. Atikokan Hydro believes its existing configuration leaves capcaity limited to micro FIT generators. Given constraints and the history of the previous connections and interest, Atikokan does not find it prudent to make investments or apply for rates in the next 5 years. In doing so it would have a negative impact on rates and reliability for Atikokan hydro considering load is not expected to grow significantly in the next 5 years. Again, thinking of customer preference and focus this decision supports decisions based on customer impacts.

- Financial Performances

Financial performance is categorized by financial ratios, measuring financial viability and sustainability.

For Atikokan, review of historical financial ratios demonstrates financial performance was an area of concern but has remarkably improved. Both years 2011 and 2012 showed a negative return on equity. Atikokan Hydro's last cost of service rate application signifiicantly affected cash flow as Atikokan required significant outside professional services to complete the application. Further, the province wide mandate to transition to smart meters required Atikokan Hydro to borrow funds, increasing Atikokan's debt to equity ratio. It became apparent to Atikokan's board and staff that Atikokan could not continue to financially perform in a deficit position. Internal measures were taken to address but not limtied to : dimished profability, return on equity, cash flow, and high debt to equity ratios. It should be noted, Atikokan did a complete 360 becoming an over-earner for both 2014 and 2015 fiscal years; however, it was imperative that Atikokan Hydro re-align the companies financial performance to ensure financial viability of the company and sustainability while continuing to provide a safe and reliable supply of electricity and meeting reglatory obligations. It is important Atikokan Hydro continue to make financial and rate impact decisions that achieve industry standards and minimize customer rate impacts. Financial ratios are part of Atikokan Hydro's quarterly reports to the Atikokan Hydro Board as a tool to measure and ensure the utility's financial health and performance.

- Liquidity: Current Ratio (Current Assets/Current Liabilities)

As an indicator of financial health, a current ratio that is greater than 1 is considered good as it indicates that the company can pay its short term debts and financial obligations. Companies with a ratio of greater than 1 are often referred to as being "liquid". The higher the number, the more "liquid" and the larger the margin of safety to cover the company's short-term debts and financial obligations.

Atikokan Hydro's Current Ratio was 1.41 for year ending December 31, 2015 and has typically been in this range with the exception of 2012 as low as 1.15. This is a reflection of the additional expenses from using outside professional services for completion of the previous cost of service application.

- Leverage: Total Debt (includes short-term and long-term debt) to Equity Ratio

The OEB uses a deemed capital structure of 60% debt and 40% equity or a ratio of 1.5 (60/40) for rate setting purposes. A high debt to equity ratio indicates a distributor may have difficulty generating cash flows to make its debt payments. Atikokan Hydro has significantly improved its debt to equity ratio over the last few years; continuing to pay back its borrowed debt but further converting its debt with its Shareholder, to equity (November 2013) This was necessary to improve Atikokan's debt to equity ratio but improve Atikokan's cash flow position. For 2015, Atikokan Hydro's debt to equity was 25% debt and 75% equity. In the past Atikokan has had to borrow for implementation of smart meters and funding capital upgrades to the distribution system.

- Profitability: Regulatory Return on Equity

Atikokan Hydro's current distribution rates were approved by the Ontario Energy Board and include an expected (deemed) Regulatory Return on Equity of 9.12%. The deemed Return on Equity was approved in Atikokan Hydro's last cost of service rate application for 2012 rates in decision EB- 2011-0293. The OEB allows a distributor to earn within +/- 3% of the expected return on equity. When a distributor performs outside of this range, the actual performance may trigger a regulatory review of the distributor's revenues and costs structure by the OEB.

Atikokan Hydro's actual achieved Return on Equity for 2015 was 13.14%; thereby, slightly greater than the allowable 3% dead band. The main driver in the over earnings above the deemed and allowable return on equity was greater distribution revenue than the Board approved distribution revenue in Atikokan Hydro's last Cost of Service Rate Application. The increased distribution revenue is a result of greater consumption and demand than the Board Approved consumption load forecast. Overall Atikokan Hydro's customer count has declined but an addition of general service customer since 2012 has contributed to this impact. A change in general service customers often have a greater material affect than a change in residential services.

Historically Atikokan's Return on Equity has been inconsistent and attributes this to volatility of spending but at the same time due to the size of the utility, the ROE is impacted by an expenditure or change in revenues of $10,000; impacting Return on Equity by 1%. Atikokan is optimistic with asset management in place, greater control of planning and budget will occur; reducing the amount of unbudgeted items that historically have risen.

b) (5.2.3 b) Summary of performance and trends over the historical period

Provide a summary of performance and performance trends over the historical period using the methods and measures (metrics/targets) identified and described above. This summary must include historical period data on: 1) all interruptions; and 2) all interruptions excluding loss of supply' for a) the distribution system average interruption frequency index; b) system average interruption duration index; and c) customer average interruption duration index. Where performance assessments indicate marked adverse deviations from trend or targets (including any established in a previously filed DS Plan), provide a brief explanation and refer to these instances individually when responding to provision 'c)' below.

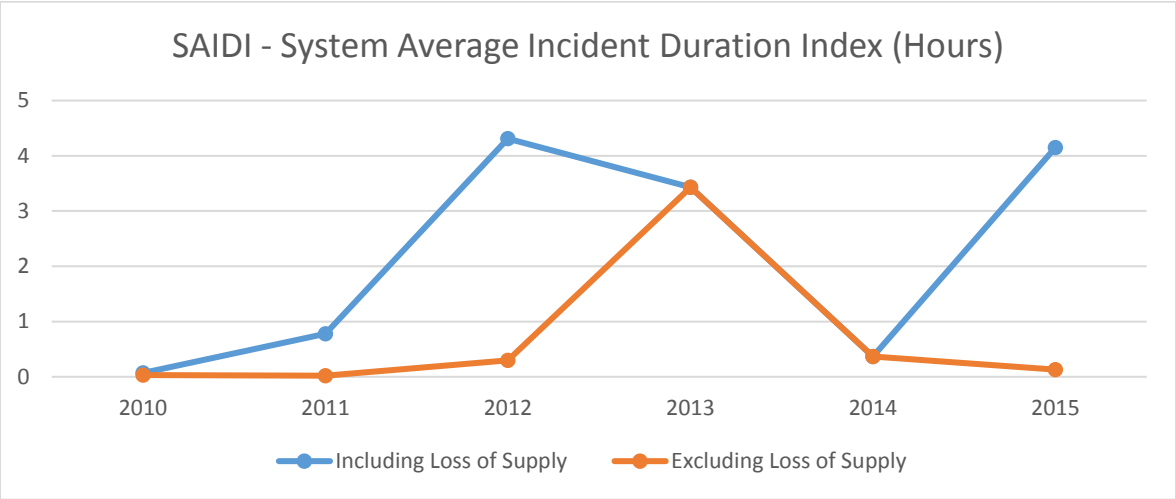
Atikokan Hydro does not have a Supervisory Control and Data Acquisition [SCADA] system or breakers. Atikokan Hydro utilizes high level overviews of all the significant attributes of Atikokan Hydro's distribution system and the practices that contribute to its performance and reliability. Staff continually review system performance with standard indices, compare the performance with trouble reports and inspection reports, and use the information for recommendations on future expenditures.

The standard reliability indices (SAIDA, CAIDI, and SAIFI) and the recommendations on maintenance and capital expenditures are based on the performance of the individual feeders. These performance considerations have to be rationalized with the results of the condition assessment and the potential for Smart Grid/New Technology applications to arrive at maintenance and capital budget recommendations that represent the best value to Atikokan Hydro and its customers. The recommendations also have to reflect the potential timeframes resulting from the condition assessment and require experienced judgment. Senior Management consults with the appropriate personnel to arrive at consensus for these recommendations. Results from the monthly inspections are used to ensure this valuable tool is kept up to date.

Atikokan Hydro's SAIDI, CAIDI and SAIFI statistics over the past 6 years are summarized in the table and graphs below. These industry standard distribution system reliability measures are used for assessing performance of Atikokan's electrical distribution system.

SAIDI: System Average Incident Duration Index (Hours) is defined as the length of outage customers experience in a year on average and it is expressed as hours per customer per year. Formula is as below:

$$SAIDI = \frac{\text{Total Customer Hours of Interuptions}}{\text{Total Customers Served}}$$



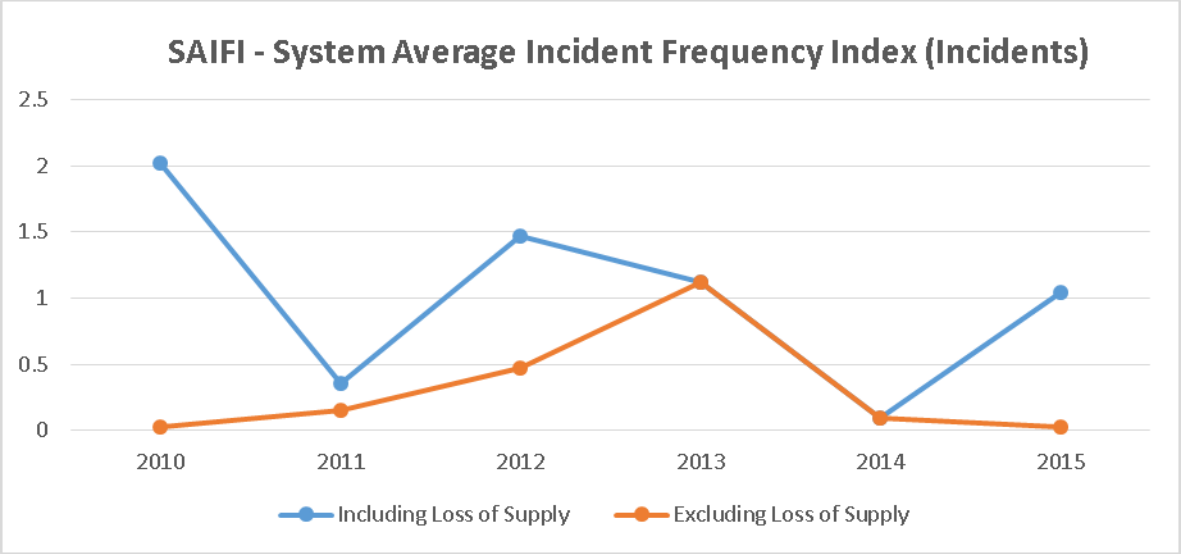
SAIDI - System Average Incident Duration Index (Hours)		
	Including Loss of Supply	**Excluding Loss of Supply**
2010	0.07	0.03
2011	0.78	0.02
2012	4.31	0.30
2013	3.43	3.43
2014	0.37	0.37
2015	4.15	0.13

As supported from the SAIDI Index's in the table above; mainly outages in greater length are caused from a loss of supply, connection point which results in all customers town wide being without power. Further with a loss of supply, due to the remoteness of this supply point if the Ontario Grid Control Centre (Hydro One Networks) cannot restore power remotely a four hour power restoration may be at minimum due to the time for Hydro One crew to reach the site of supply point and correct defective equipment or whatever the case may be. 2012 and 2013 further experienced more weather related faults than other years.

In review of the SAIDI indices, historically, excluding loss of supply, unplanned outages are not significant in duration with the exception of 2013 where a lightning strike caused tree contract to affect both a loss of supply to town from the feed from Hydro One but it Atikokan itself. Statistics show the call outs to no power on average have power restored within an hour.

SAIFI: System Average Interruption Frequency Index is defined as the average number of interruptions each customer experience and it is expressed as number of interruptions per year per customer. Formula is as below:

$$SAIFI = \frac{\text{Total Customer Interruptions}}{\text{Total Customers Served}}$$

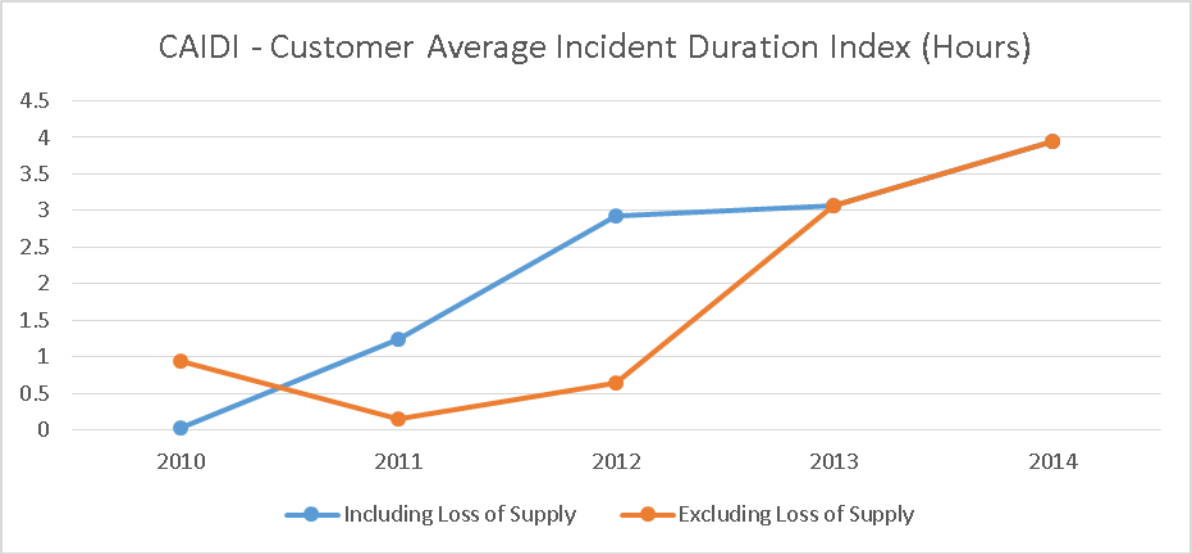


SAIFI - System Average Incident Frequency Index (Incidents)		
	Including Loss of Supply	Excluding Loss of Supply
2010	2.02	0.03
2011	0.36	0.15
2012	1.47	0.47
2013	1.12	1.12
2014	0.09	0.09
2015	1.04	0.03

SAIFI statistics have remained mostly consistent over the past 6 years aside from the year 2013 having the higher frequency out of the years in review. This is from an increase in scheduled outages to perform upgrades to the distribution system such as transferring services from old poles to new poles. These scheduled outages do affect our system average incident frequency index.

CAIDI: Customer Average Interruption Duration Index is defined as the speed at which power is restored and it is expressed as average duration in hours per customer per year. Formula is as below:

$$\text{CAIDI} = \frac{\text{Total Customer Hours of Interruption}}{\text{Total Customer Interuptions}}$$

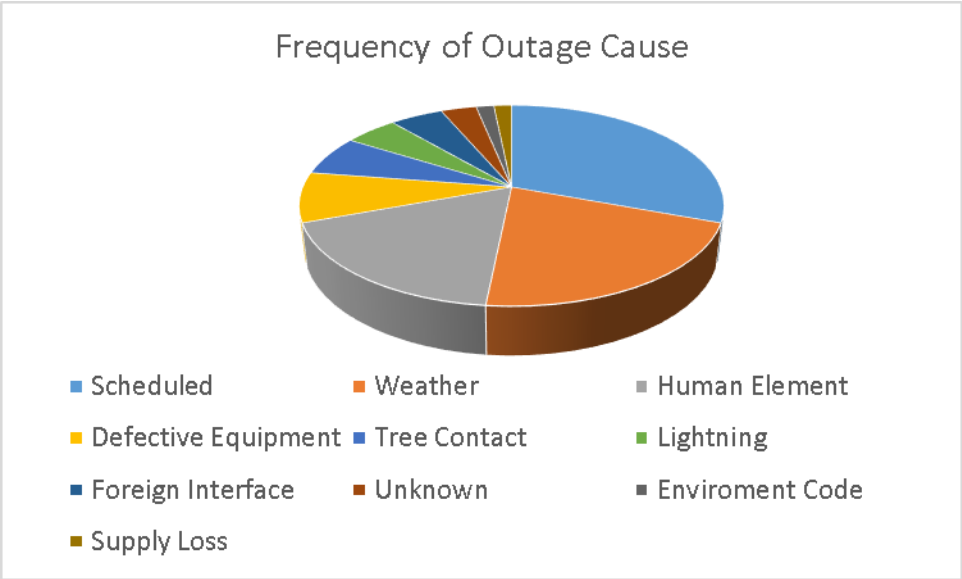


CAIDI - Customer Average Incident Duration Index (Hours)		
	Including Loss of Supply	Excluding Loss of Supply
2010	0.04	0.94
2011	1.24	0.16
2012	2.92	0.64
2013	3.07	3.07
2014	3.94	3.94
2015	NA	NA

It should be noted for 2015 CAIDI index was reported as NA (not applicable) as this has been discontinued for OEB reporting.

The next table 'Most Frequent Outage Cause' tables the number of reported outages into causes for 2012 through 2015 and is sorted with the most frequent outage cause at the top.

Most Frequent Outage Cause						
Cause of Fault	2012	2013	2014	2015	Total	% Cause
Scheduled	2	9	8	0	19	30.65%
Weather	5	6	0	2	13	20.97%
Human Element	2	3	2	4	11	17.74%
Defective Equipment	3	0	1	1	5	8.06%
Tree Contact	3	0	0	1	4	6.45%
Lightning	0	2	1	0	3	4.84%
Foreign Interface	2	1	0	0	3	4.84%
Unknown	0	0	1	1	2	3.23%
Enviroment Code	1	0	0	0	1	1.61%
Supply Loss	0	0	0	1	1	1.61%
Total	18	21	13	10	62	100.00%

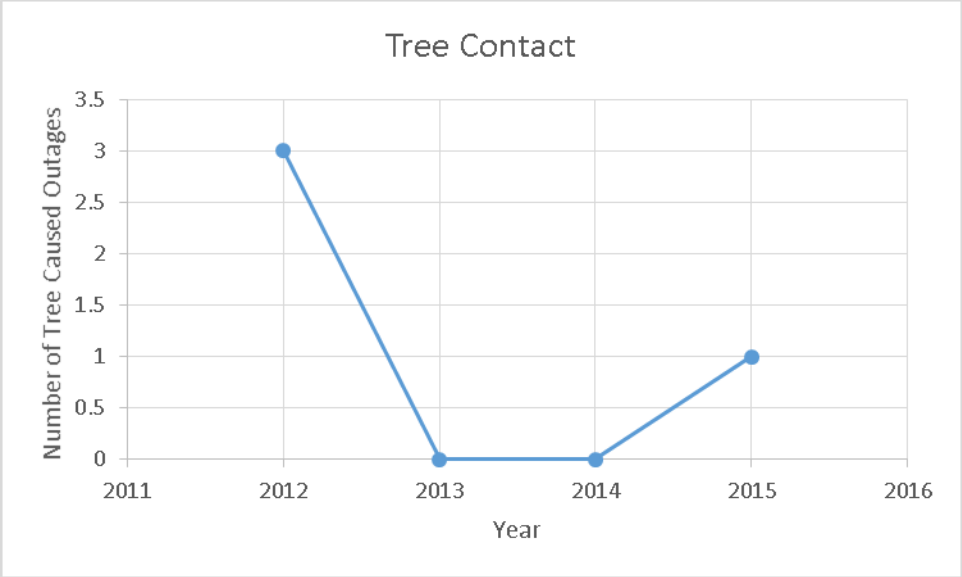


In review of the most frequent outage causes for 2012 through 2015, planned outages are the main cause of outages. Although scheduled outages, these do impact the customer and are therefore included in the indexes. However, it should be noted these planned outages are rarely town wide and typically affect only a few residential streets at a time. Planned outages are required for the safety of both employees and the general public in instances such as transferring of services from old poles to new poles or relocating and or replacing a transformer. Dependent on the length of a planned outage, if several businesses are affected, Atikokan Hydro has been known to coordinate the shutdown (planned outage) for an evening or weekend where the business is closed. Where planned outages cannot always be avoided Atikokan Hydro tries its best to accommodate the customers affected by the outage as best as possible.

Weather caused outages is the second most frequent and human element being the third. Weather related often being high winds or freezing rain conditions. These acts of nature are conditions that cannot be controlled or necessarily predicted; however, vegetation maintenance can potentially reduce the risk of damage from high winds or ice build-up snapping tree branches. Human Element refers to outages caused as a result of human related incidents; for example, vehicle, often a transport hitting a pole, individuals trying to perform tree maintenance and tree

falling on line. Outages from human element causes may be a reflection that greater public education and awareness is required for public electrical safety.

Atikokan Hydro performs an aggressive vegetation control and tree trimming maintenance approach to minimize the impacts of power interruptions as a result of tree contact often from high winds or overgrown vegetation. It is believed this aggressive approach is contributing positively to less caused outages from tree contact. Both the decline in reported number of tree contact caused outages in the previous 'Most Frequent Outage Cause' table reflect this and the depicted line in the below graph also supports this.



Defective equipment has historically been the fourth most frequent outage but similar to the cause of tree cause this cause has declined in review of the 4 year trend of 2012 through 2015.

c) (5.2.3c) Effect on the DS Plan

Explain how this information has affected the DS Plan (e.g. objectives; investment priorities; expected outcomes and has been used to continuously improve the asset management and capital expenditure planning processes.

Atikokan Hydro must continue to invest heavily in system renewal, addressing aging infrastructure and maintenance including tree trimming as preventive measures to reduce the risk of outages a result of tree contact. These efforts are to continue to sustain providing a safe and reliable supply

of electricity to the Town of Atikokan. This being Atikokan Hydro's first Distribution System Plan; this rate application should help Atikokan forecast beyond one year aiding in an outcome of greater control of unbudgeted expenses and operational efficiencies.

Additionally, given Atikokan Hydro's customer and load mix along with its revenue and cost structures have changed since the last approved Cost of Service rate application in 2012, Atikokan Hydro has prepared its Distribution System Plan as part of its Rate Application. Because of these changes, Atikokan Hydro has been an over-earner the last two years. It is believed the rate application will ensure the Atikokan revenue requirement and cost allocations per rate class are aligned appropriately and customers are paying fair and reasonable rates.

Atikokan's published scorecard is a motivator in itself to do better or continue to meet or exceed performance measures to ensure Atikokan does not perform poorly and recorded as such. At the very least Atikokan must continue current levels of performance in all aspects: customer oriented performance, cost efficiency and effectiveness with respect to planning quality and asset/system operations performance. In Atikokan's customer satisfaction survey half of the survey respondents are satisfied with communication when power will be restored or why an outage occurred. While the majority of the respondents were satisfied, the results do indicate Atikokan Hydro has room for improvement in terms of communication with unplanned outages.

Where it does not materially affect capital costs of the DS Plan, Atikokan has proposed in its 2017 OM&A to make changes to the utility's existing website design. Currently updates and changes have to be completed by a contracted third party web hosting company; this can be timely. Atikokan has given consideration to redesigning the webpage so that internal staff can post its own updates or additions from time to time. For example, Atikokan Hydro can use this tool for additional notice of planned outages and updates on power outages if applicable etc. It is another channel to communicate effectively with customers and at a low operational cost going forward.

A systems operations performance item Atikokan must address in this period of DS Plan is Atikokan's existing loss factor. However, no definitive plans can be quantified at this time. The previous board approved loss factor in Atikokan's 2012 Rate Application was 7.78%. This was based on the historical average of 2006 through 2010. The historical loss factor calculated as part of Atikokan's 2017 Rate Application does not show improvement, with an average of 9.53% for years 2011 through 2015. In this period of 2011 through 2015, 2015 showed an actual loss factor of 7.53%. In looking at the 2016 bridge year actual purchases and sales midyear, 2016 loss factor is 6.92% to date. Atikokan needs to invest resources in determining the explanation behind

a high loss factor. Atikokan has communicated with a consultant who conducts line loss studies but was not prepared for the expenditure given unbudgeted expenditures that occurred earlier in the 2016 bridge year. Atikokan has itself in the best sound financial position it has been in a few years and must not spend at a pace that will drive the LDC back in a similar position in prior years. Management questions why 2015 and 2016 to date are lower than the current average – what has changed? Are the capital upgrades positively impacting? Are records and reporting becoming more accurate? Will decommissioning such a vintage substation like Caland improve the loss factor? What is the lowest loss factor Atikokan can expect given its configuration of its distribution system? These are all questions that need to be pursued and cannot be quantified at this time.

5.3 Asset Management Process

As noted in the introduction, a distributor's asset management process is the systematic approach used to plan and optimize ongoing capital and operation and maintenance expenditures on its distribution system and general plant. The purpose of the information requirements set out in this section 5.3 is to provide the Board and stakeholders with an understating of the distributor's asset management process and the direct links between the process and the expenditure decisions that comprise the distributor's capital investment plan.

This section details Atikokan Hydro's process and approach to optimizing capital and operating and maintenance expenditures on its distribution system and general plant.

5.3.1 Asset Management Process Overview

This section provides the Board and stakeholders with a high level overview of the information filed on a distributor's asset management process, including key elements of the process that have informed the preparation of the distributor's capital expenditure plan and therefore are referred to in response to the requirements for more detailed information supporting the overall capital expenditure plan, budget allocations to categories of investments, or material projects/activities proposed for recovery in rates.

Throughout 2015 and 2016 Atikokan has emphasized on formalizing its asset management process in efforts to prepare its first Distribution System Plan. Atikokan believes to be practicing good distributor planning more so ever than before now that the DS Plan will allow Atikokan to be more proactive in asset based budgeting allowing proactive planning and less reactive short term planning with greater risk of unbudgeted expenses occurring.

a) (5.3.1a) Asset Management Objectives

A description of the distributor's asset management objectives and related corporate goals, and the relationships between them; where applicable, show and explain how the distributor ranks asset management objectives for the purpose of prioritizing investments

Atikokan Hydro is committed to

- efficiently deliver a reliable supply of electrical energy to our customers at competitive distribution rates in the Town of Atikokan
- provide a safe and rewarding work environment for our employees
- assure that future supply is available to meet Atikokan's changing needs
- be a good corporate citizen within the Town of Atikokan

Corporate Values

In pursuit of our goals, Atikokan Hydro holds certain core values in the operation of the utility and as it relates to its customers, staff and shareholder.

Atikokan Hydro values its employees, customers, partners, and our community. We provide our employees with a safe, healthy environment with fair remuneration and opportunities for learning. We value our customers and work hard to win their trust and support. We strive for excellence and continuous improvement in all aspects of our business. At all times we will act with integrity and respect. We value the long term health and sustainability of Atikokan hydro and work to create value for our shareholder by focusing on core business strengths and pursing appropriate business opportunities.

b) (5.3.1b) Asset Management inputs/outputs

Information regarding the components (inputs/outputs) of the asset management process used to prepare the capital expenditure plan.

The asset management process starts with identifying asset conditions through asset inspections and outage reports. Inspections and outages help identity the requirements of the upcoming capital and maintenance budgets to ensure safety and reliability of power supply is maintained. In addressing asset conditions and distribution system needs a balance must be maintained to maintain a safe and reliable supply of electricity to its ratepayers but keep the financial health of the LDC including positive cash follows and manageable debt to equity ratios. Customer rate impacts and preferences must also be considered when planning expenditures.

5.3.*1*.b.i Asset register

During 2015, Atikokan adopted ARCGIS mapping system by ESRI Canada; this register stores the information and characteristics of Atikokan's poles including but not limited to location, age and asset condition. The data collected and logged if possible included the following attributes:

1. GPS coordinates
2. Facility ID which indicates the feeder and pole number
3. Owner
4. Height
5. Pole Use
6. Arrester
7. Grounds
8. Manufacture year
9. Framing Standard
10. Install date
11. Pole condition
12. Manufacturer
13. Pole Class
14. Phase
15. Switch on pole
16. Switch ID
17. Transformer on pole
18. Transformer ID
19. Treatment
20. Pictures

Atikokan will continue to update its assets registry as asset improvements occur.

Examples of the pole specific IDs are illustrated in pictures below. The first picture shows tag ID "F3 174" on the tag. F3 representing the feeder (3) the pole is on and 174 being the pole specific ID. The second pictures tag represents a joint use pole being Atikokan Hydro is attached to a telecommunications pole; example, Bell. Similarly to the other tag (JU5 003) described the '5 ' after JU represents the Atikokan Hydro feeder number and 003 being the specific pole ID. In the first picture another tag is identified, Example T42; this represents the transformer number affixed to the pole.


T42
ATIKOKAN HYDRO INC.
F3
174


JU5 003

5.3.1.b.ii Asset condition assessment

Atikokan Hydro Inc.'s pole testing inspects and records the condition of the pole. The condition ratings use a number rated scale 1 through 5; 5 requiring immediate attention.

Pole Rating	Pole Condition	Comments
5	Immediate Attention	Hazardous condition exists that requires immediate attention
4	Immediate Analysis	Requires immediate analysis to determine severity of condition
3	Priority Schedule	Requires prompt planned attention but no immediate hazard exists
2	Regularly Schedule	Requires planned attention but no immediate hazard exists
1	Regular Inspection Cycle	Potential deficiency exists, to be re-evaluated during next regular inspection cycle

Inspections are completed using the knowledge of the line crew; items from the inspection reports are prioritized and those with higher need of attention are completed first.

Pole testing drives a portion of Atikokan Hydro's annual capital budget. All of Atikokan Hydro's poles are wood with the exception of one fibreglass pole. The condition assessment inspections of the poles are identified assessing including but not limited to leaning, cracked or broken poles, indications of burning, woodpecker, insect or beaver damage and excessive surface wear. Pole hammer tests further test the structural integrity of the pole. Upon completion of inspections, inspection sheets are signed off by the inspector. In order to maintain a reliable distribution system, aging, identified deficiencies and defective assets such as poles should be removed and replaced before they fail.

Substation inspections are inspected on a monthly basis utilizing and completing a checklist that is dated and signed off by the individuals who performed the inspection. Any findings that require follow up require the date of the correction to be marked on the checklist. The yard, tower structure and transformers are inspected identifying deficiencies that require follow up. Yard components including and not limited to the condition of the station fence and gates, vegetation growth, condition of signage and locks as examples. Tower structure is observing the cement foundation, any corrosion or rust, condition of insulators and arrestors, loose bolts and any noticeable weaknesses.

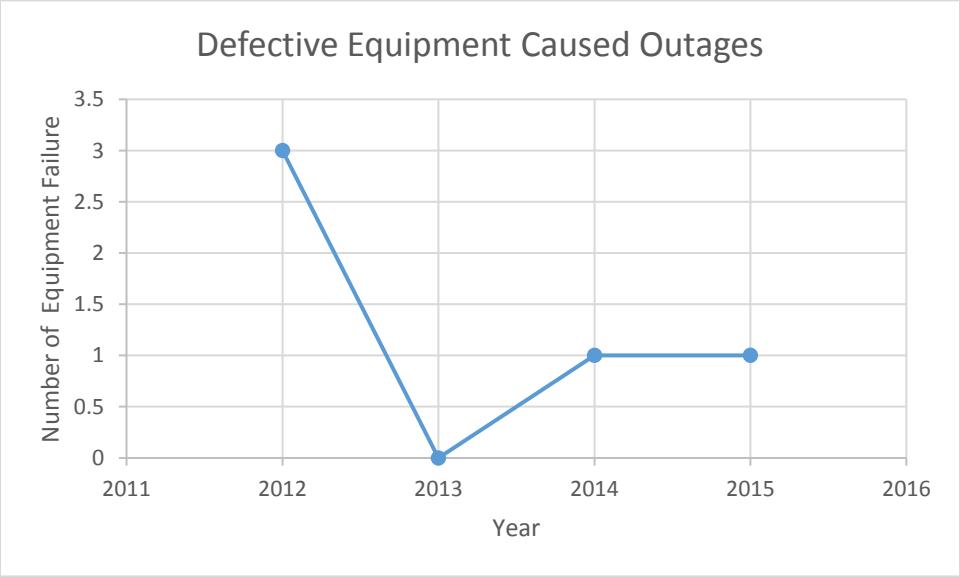
Oil Sampling for substations has been completed on an annual basis for the last few years and will continue to be completed annually as per recommendations. This wil not materially affect the DS Plan.

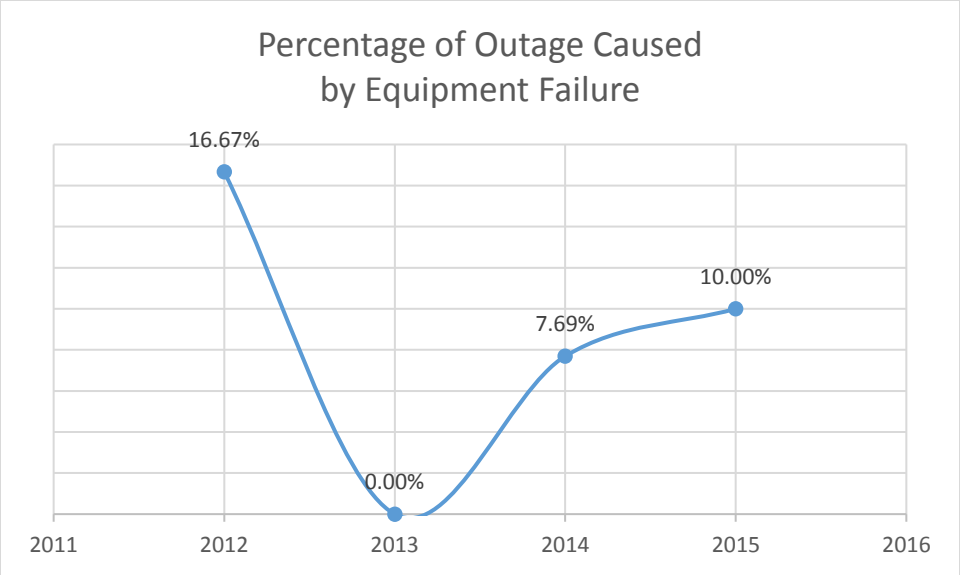
Atikokan Hydro's maintenance activities conform to the requirements of Ontario Regulation 22/04 Section 4 "Safety Standards", section 5 "When Safety Standards met" and to the Ontario Energy Board's Distribution System Code Appendix C "Minimum Inspection Requirements". In addition to complying with these Ontario Regulations, the maintenance activities and processes are the foundation and driver to maintenance and capital expenditures for the various distribution system assets.

Appendix A lists a blank feeder inspection reports and a monthly substation inspections checklist used by Atikokan as part of its asset condition assessment process.

5.3.1.iii Historical period data on customer interruptions caused by equipment failure

The graph below represents the number of power outages caused by equipment failure (defective equipment) over the period of 2012 through 2015. Note, prior to 2012, Atikokan did not track the cause of the outage aside from those a result of loss of supply. See page 37 and 38 for the cause of outages used for OEB reporting. All reasons for power outages including scheduled outages are tracked in efforts to improve performance and customer outage impacts.





Through review of the graph illustrating the number of outages caused from equipment failure, portrays the picture that the aggressive focus Atikokan Hydro has on investing in its aging infrastructure is favorable. It is evident equipment failure is not the number one caused fault of outages.

5.3.1.b.iv Reliability-based 'worst performing feeder' information and analysis

Atikokan Hydro does not follow a formal 'worst performing feeder' process. Each outage is followed up with corrective action as necessary. If numerous outages or complaints occur, Atikokan Hydro investigates the fault using best utility practises to determine the cause of the worst performing feeder.

5.3.1.b.v Reliability risk/consequences of failure analysis

Upon maintenance inspection reports identifying asset condition deficiencies of concern requiring follow up action; both the risk of failure and consequences of failure is analyzed. It is important to understand the impacts and risks associated with leaving the asset at its existing condition and what acceptable length of time. Assessment considerations include but are not limited to:

- Safety (worker and public),
- Regulatory,
- Reliability,

- Environmental
- Useful Life and
- Financial considerations.

The condition rating and risk analysis must be further analyzed and prioritized, categorizing the items of concern as follows:

1. Immediate Action
2. Within the next budget year and
3. To be considered with major rebuilds

Once risk assessment is completed and prioritized, actions plans can be prepared outlining the timeline and priority of and measures to be taken to resolve the deficiency.

5.3.2 Overview of assets managed

This section identifies Atikokan Hydro Inc.'s assets managed as a distributor

a) (5.3.2a) Description of Distribution Service Area

A description and explanation of the features of the distribution service area (e.g. urban/rural, temperature/extreme weather; underground/overhead; fast/slow economic growth) pertinent for asset management purposes, highlighting where applicable expectations for the evolution of these features over the forecast period that have affected elements of the DS Plan

Atikokan Hydro's service area covers 380 sq. km. Atikokan is considered to be urban distribution service area, as listed in on OEB Yearbook. However, if looking at the definitions of both Urban and Rural; Atikokan technically fits more with the description of rural based on population per KM but Atikokan adheres to the Distribution System Code requirements for 'urban'. Definitions for both rural and urban are as follows:

"Rural": Generally will be defined on a circuit or sub-circuit basis by each distributor, as areas with a customer density of less than 60 customers per kilometer of line. It is recognized that there may be circumstances where the distributor may choose to treat some parts of its distribution system as urban though it is "rural" according to this definition.

“Urban”: Each distributor will define "Urban", or more populated areas, on a circuit or sub-circuit basis, as areas with higher density and, by definition pose safety and reliability consequences to greater numbers of people.

Atikokan is located off of Highway 11, between Fort Frances and Thunder Bay. The outlying service territory around Atikokan is serviced by Hydro One Networks Inc transmission assets. Fort Frances and Thunder Bay Hydro are neighbouring LDCs. Fort Frances is 150 km from Atikokan whereas Thunder Bay is 209 km.

The following map below illustrates an overview of the Atikokan Hydro distribution area and that it extends outside of the town limits up to the point of supply transmitted from Hydro One Networks Inc at Moose Lake TS. The lines in the map illustrate Atikokan Hydro’s feeders 3M2 and 3M3 44 kV lines. The pole structures in the Moose Lake TS surrounding area pose to be challenging; the terrain is rough, and access to the structures is limited.

The majority of Atikokan Hydro’s distribution system consists of overhead lines affixed to wood poles (90 Km). Atikokan only has 2 Km.

5.3.2.a.i Weather Conditions

Referencing Wikipedia Atikokan climate is as follows:

“Atikokan has a humid continental climate with four distant seasons. Winters are long, cold and snowy while summers are warm. Precipitation is higher during the summer months and lower during the winter months.”

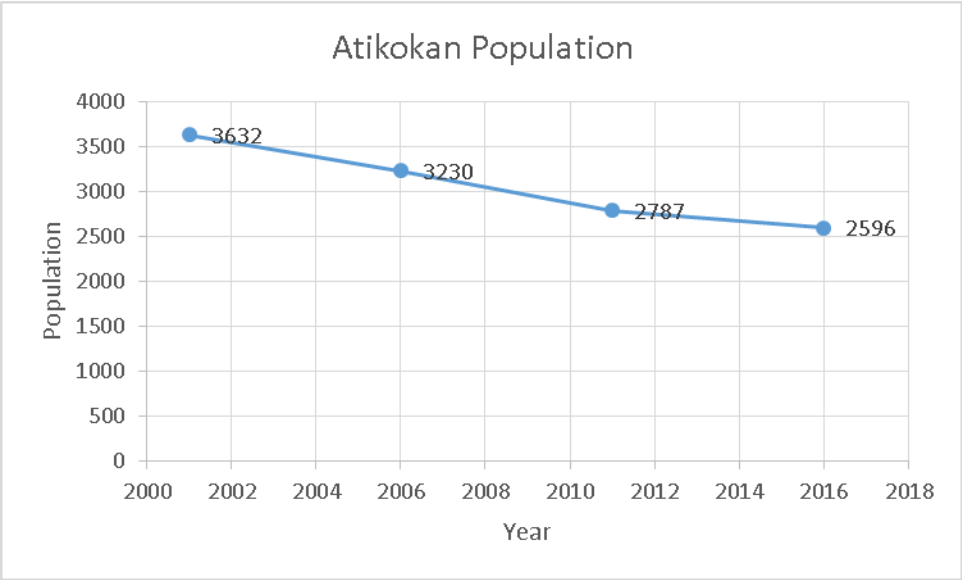
Atikokan is a winter peaking LDC as a result of the long cold winters. Peak demand is driven by heating homes in the winters as opposed to the use of air conditioners in the summer. Winter and summer peaks often occur in January and July of the year.

Atikokan has had historical record temperature low of -45.6 Celsius, record high of 37 Celsius; with historical averages of -24 celcius and 24 celcius for lows and highs.

Weather conditions can have an adverse effect on capital and maintenance plans if the temperatures are extreme cold or too much snow.

5.3.2.a.ii Local Economic Conditions

Reviewing both population and Atikokan Hydro's historical customer count it is evident Atikokan does not experience growth. Referencing Wikipedia for 2001, 2006, 2011, Atikokan and quarter ending March 31, 2016 from MPAC, the population is illustrated as follows:



Over the fifteen year period, Atikokan's population has declined by over one thousand residents (1,036) or a drop of 28.5%. Similarly, as a result Atikokan's customer base as declined.

Atikokan's main employers are the Ontario Power Generating Plant located 20 km from Atikokan, the Atikokan General Hospital and the mills Rentech (located in town) and Resolute Forest Products located 30 km from Atikokan. OPG was converted to a biomass plant in 2014 and has pellets transported from Rentech, a manufacturer of pellets. Both Rentech and Resolute became operational in 2014. Atikokan at one time thrived on the forest industry but has suffered in the forestry industry from closure of mills negatively impacting the Town of Atikokan. Many left town as a shortage of work locally and families could not afford to keep their homes. Overall the economy of Atikokan is based on forestry, thermal generating station, government services, retail services, tourism and a mixture of light manufacturing businesses.

The lack of economic growth has an adverse impact on the cost per customer. Atikokan Hydro has one of the highest monthly service charges in the province.

Atikokan Hydro's rate application did not assume any growth in load forecasting based on the historical data of customer count. Just as the population shows a decline; the number of active hydro services are declining. Because there is no drivers for expansion or growth, system access is not a driver of capital expenditures in the DS Plan period.

b) (5.3.2.b) Summary description of system configuration

A summary description of the system configuration, including length (km) of underground and overhead systems; number and length of circuits by voltage level; number and capacity of transformer stations.

Atikokan's distribution system includes 92 km of line; 90 overhead and 2 km of underground serving 1646 households and businesses, excluding microFIT generations effective July 1, 2016; excluding generation accounts. The distribution system delivered 32,367,961.20 kilowatt-hours of energy in 2015 and serviced a winter peak of 5,352.30 kW.

Electricity is transmitted from Hydro One's Moose Lake TS to Atikokan's two 44KV feeder circuits, comprised of the 3M2 and the 3M3. The lines are such that they can be paralleled closed transition and the open point can be variable. Mostly the open point is in the middle. The two lines create greater reliability as an alternative electricity source in event one line is down. Atikokan Hydro has

three substations in the most densely populated customer area that distributes the electricity at 8320/4800 volts. Atikokan Hydro has one substation in a sparsely populated area that delivers electricity at 4160 volts. Atikokan Hydro's distribution system then delivers electricity at the appropriate voltage to residential and commercial customers. Atikokan Hydro's system configuration territory is inside and outside of town limits [rural and urban] to the point of supply from upstream transmitter hydro one; that serves the Town of Atikokan. Approximately 23 KM being urban; the remainder rural. The 23 KM is comprised of the mentioned 3M2 and 3M3 lines both basically comparable in length at approx. 11.5 KM.

Atikokan has four distribution substations. The capacities are as below.

Atikokan Hydro Inc. Substations	
Substation	***Nameplate Capacity***
Hogan	*6.67 MW*
Hawthorne	*1 MW*
Mackenzie	*3 MW*
Caland	*5 MW*

Atikokan Hydro has four substations that contain 11 transformers. Two of the stations have three single phase transformers with one spare in them. One substation has one three phase transformer and the final station has two three phase transformers. Again with Atikokan's redundancy of power supply, if need be a substation can temporarily be taken out of service. Substations Hogan, Hawthorne and Mackenzie are located directed in town and in better condition than the vintage Caland substation located outside of immediate town limits. Caland substation as mentioned earlier in this document is located in the bush near the point of supply from Atikokan's upstream transmitter Hydro One. This substation is costly to maintain with only 5 customers connected to this substation. Historically, Atikokan has pursued the possibility of relocating Hydro One Transformer station and in the event, this substation could be eliminated. In light of the latest evidence of the Steep Rock Reclamation (mentioned in Section 5.2.1a of this document), Atikokan needs to pursue whether this station should be decommissioned.

Substation power transformers are not replaced primarily by age but other factors including condition (corrosion, evidence of leaking gaskets from inspections), transformer loading, oil condition and risk and impacts of an unplanned transformer failure. In the event of power transformer failure, Atikokan has the ability to parallel stations to supply capacity to customers

while replacing a failed unit with a spare on hand. Atikokan had substation power transformers oil samples sent to lab for testing during 2015. Where results indicated no immediate concerns or recommendations; it is recommended Atikokan continue annual sampling of the transformers. Oil sample arrangements have been made for the 2016 Bridge year.

c) (5.3.2.c) Distributor Asset Information

Information (in tables and/or figures) by asset type (where available) on the quantity/years in service profile and condition of the distributor's system assets, including the date (s) the data was compiled.

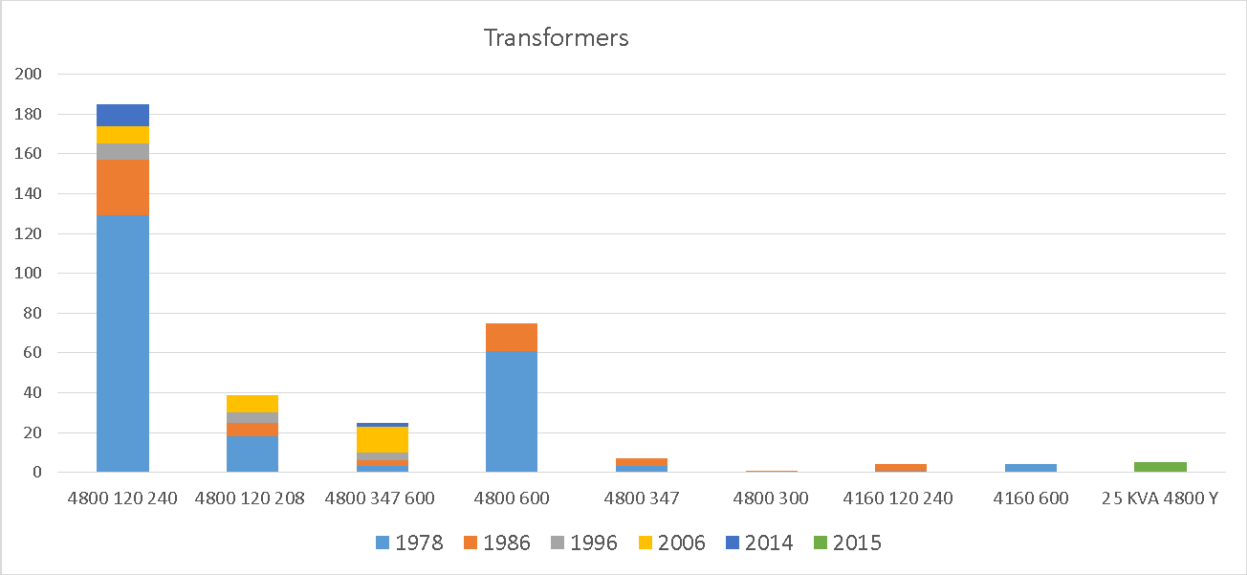
Overhead Transformers

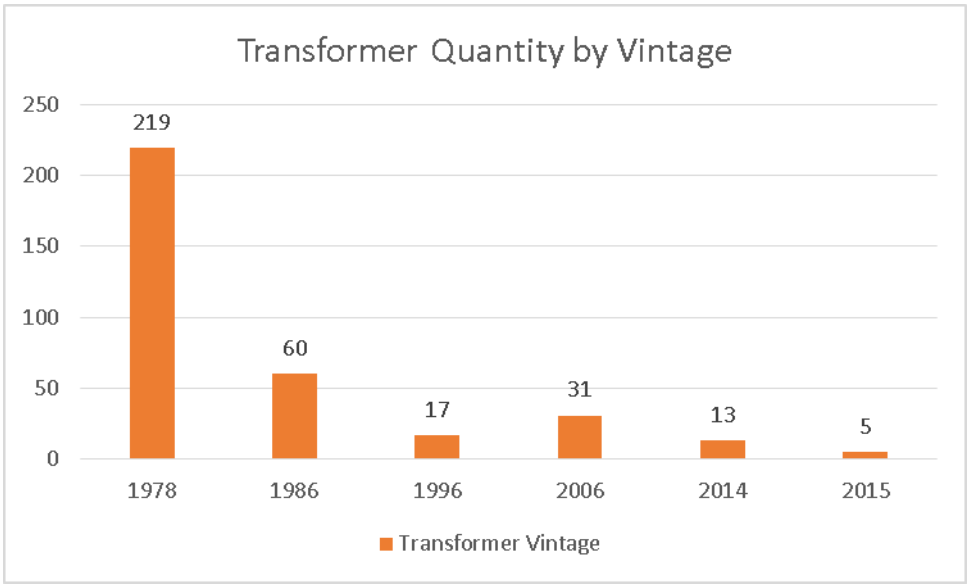
Atikokan typically runs transformers to failure or alternatively replaces transformers in poorly accessible areas (located at the back of property's) at the same time that poles the transformers are mounted to are being replaced.

Atikokan has 345 transformers including 31 spare pole mount transformers and 7 trans-closure vault transformers.

Tabled and graphed illustrations follow quantify the transformers into type and by vintage. Similarly to other distribution assets the transformers are aging and a majority are coming to end of life based on a 45 year useful life used by Atikokan.

	Transformer Type									
Year	4800 120 240	4800 120 208	4800 347 600	4800 600	4800 347	4800 300	4160 120 240	4160 600	25 KVA 4800 Y	Total
1978	129	18	3	61	3	0	1	4	0	**219**
1986	28	7	3	14	4	1	3	0	0	**60**
1996	8	5	4	0	0	0	0	0	0	**17**
2006	9	9	13	0	0	0	0	0	0	**31**
2014	11	0	2	0	0	0	0	0	0	**13**
2015	0	0	0	0	0	0	0	0	5	**5**
TOTAL	**185**	**39**	**25**	**75**	**7**	**1**	**4**	**4**	**5**	**345**





d) (5.3.2.d) Capacity of existing system assets

An Assessment of the degree to which the capacity of existing system assets is utilized relative to planning criteria, referencing the distributors asset related objectives and targets.

OEB Filing Requirements states that distributors with distribution loss factors greater than 5%, must provide details of actions taken to reduce losses in the previous five years and actions planned to reduce losses going forward. System losses are the difference between the electricity injected (purchased) and withdrawn (sold) from the distribution system. Losses are characterized as technical and non-technical. Technical losses are primarily due to heat dissipation resulting from current passing through conductors and from magnetic losses in transformers. Non-technical loses occur as result of theft, metering inaccuracies and unmetered energy.
It has been technically stated and known that lines operating at higher voltage levels such as 44 kV experience less energy loss per amount of energy delivered than lower voltage lines

Atikokan Hydro is directly connected to the IESO grid, maintaining 23 km of 44 kV sub transmission lines. Atikokan Hydro's wholesale meters are located at Moose Lake TS, which is the Hydro One Source for our supply. Since Atikokan's Distribution System is at the end of the sub transmission lines and Atikokan's purchases are actual metered measurement's at the source of supply, there is no way to separate the sub transmission loses from the distribution loses. Despite the high voltage sub transmission feeders as source of supply to the distribution feeders that operate at lower voltages of 120V, Atikokan has historically had a significant line loss factor; negatively impacting customer rates. The existing board approved loss factor from the 2012 Rate Application is 7.78%.

Controlling and lower Atikokan's existing line loss factor is not specifically quantified in this DS Plan period; however in efforts of putting the customers first and lowering rate impacts it will be investigated further. In Atikokan's previous Cost of Service Rate Application, management in response to OEB comments and concerns, was in agreement to conduct such a review and provide the results in the next Cost of Service Application. Unfortunately, no significant changes have occurred since. Management has recently changed at Atikokan Hydro and in light of this change, new management has evaluated the situation and is in agreeance with Board concerns. Interestingly, the actual 2015 line loss reported is lower than it historically has been. As part of investigation, management has been monitoring the loss factor to date in 2016 which unofficially is 6.92% and speaking to other LDCs. Where this is still greater than the 5% noted above, Atikokan

is hopeful this is a reflection of the significant capital upgrades that have been occurring the last few years. Atikokan has inquired with a consultant on conducting a line loss study. Unfortunately the consultant was unable to provide management with an estimate to fulfil the line loss study. However, a proposal was made for consultation for Line Loss Study ' includes retrieving drawings, conceptual sketches of the distribution system preparing a listing of wholesale supply points and any embedded generation supply points as well as large sub-transmission customers and residential customers." The consultant 'would prepare a detailed listing of technical and non-technical factors contributing to the current Total Loss Factor (TLF) of 7.78%. The technical factors include sub-transmission and distribution line losses, distribution transformer no load and load loses, and substation transformer loses. The non-technical factors include metering inaccuracies, unmetered loads, theft, etc. A detailed scope of work will be provided which will include staged plans for various studies and data gathering stages. At the end of the process," the consultant 'will provide a fixed price quote for the distribution line loss study. Atikokan was unable to commit to this unbudgeted expense at the time. Further in light of the recent informal discussions with the MNR and the age of the Caland substation, Atikokan believes it will need to strategize on system changes and is hopeful this will impact the line loss.

Distribution Station Equipment

Atikokan Hydro has 4 distribution substations. Per accounting standards, Atikokan Hydro transitioned from CGAPP to IFRS accounting standards. In doing so, data collecting and cost analysis was required. This exercise enabled the distribution stations to be componentized. The below tables were compiled.

These sub stations are aging and do require attention in the period of this distribution system plan.

Distribution Station	Sub Asset
	Description
Caland	***Building and Infrastructure:***
	fenced and gravelled enclosure
	lattice tower assembly
	Distribution Station Equipment:
	air break switch (on primary)
	lightning arrestors (x3)
	fuses (x3)
	S & C Breaker (on secondary) complete with 4 - time overcurrent relays
	arrestors and insulators
	feed and supply service cable
	peripherals
	Transformer(s):
	Malony transformer, 3,000 K.V.A., 3-phase, 44,000/4,160/2,400 volts # 140169

Distribution Station	Sub Asset
	Description
Hawthorne	***Building and Infrastructure:***
	fenced and gravelled enclosure
	metering shed
	lattice tower assembly
	Distribution Station Equipment:
	air break switch, polymer insulators (on primary)
	lightning arrestors (x3)
	Chance, model SMD55, fuses (x3)
	load break switches (on secondary) (x6)
	fuses (x6)
	mid span openers (x6)
	arrestors and insulators
	feed and supply service cable
	peripherals
	Transformer(s):
	Supreme transformers, 1,000 K.V.A., single phase, 44,000/4,800 volts # 52334
	Supreme transformers, 1,000 K.V.A., single phase, 44,000/4,800 volts # 52335
	Supreme transformers, 1,000 K.V.A., single phase, 44,000/4,800 volts # 52336
	Commonwealth Electric transformer, 1,000 K.V.A. single phase, 44,000/4,800 volts (spare) # TP1030T1

Distribution Station	Sub Asset
	Description
MacKenzie	***Building and Infrastructure:***
	fenced and graveled enclosure
	metering shed
	lattice tower assembly
	Distribution Station Equipment:
	air break switch (on primary)
	mid span openers (x3)
	lightning arrestors (x3)
	fuses (x9)
	load break switches (on secondary) (x6)
	mid span openers - loops (x6)
	arrestors and insulators
	feed and supply service cable
	peripherals
	Transformer(s):
	Ferranti-Packard transformers, 3,000 K.V.A. type ONS, 3-phase, 44,000/8,320/4,800 # 1-2279
	Ferranti-Packard transformers, 3,000 K.V.A. type ONS, 3-phase, 44,000/8,320/4,800 # N/A

Distribution Station	Sub Asset
	Description
Hogan	***Building and Infrastructure:***
	fenced and gravelled enclosure
	lattice tower assembly
	metering shed
	Distribution Station Equipment:
	air break switch, polymer insulators (on primary)
	lightning arresters, polymer (x3)
	Chance, model SMDIA, fuses (x3)
	mid span openers (x6)
	load break switches (on secondary) (x3)
	fuses (x3)
	arrestors and insulators
	feed and supply service cable
	peripherals
	Transformer(s):
	English Electronic transformer, 667 K.V.A. single phase, 44,000/4,800 # 179159
	English Electronic transformer, 667 K.V.A. single phase, 44,000/4,800 # 179160
	English Electronic transformer, 667 K.V.A. single phase, 44,000/4,800 # 179161
	Supreme transformer, 667 K.V.A. single phase, 44,000/4,800/2,400 (spare)
	transformer, 667 K.V.A. 44,000/4,800/2,400 volts
	transformer, 667 K.V.A. 44,000/4,800/2,400 volts
	transformer, 667 K.V.A. 44,000/4,800/2,400 volts
	transformer, 667 K.V.A. 44,000/4,800/2,400 volts
	transformer, 667 K.V.A. 44,000/4,800/2,400 volts
	transformer, 667 K.V.A. 44,000/4,800/2,400 volts
	transformer, 667 K.V.A. 44,000/4,800/2,400 volts

During the period of this DS Plan, Atikokan intends to as described in previous sections, Atikokan has the Caland substation that is an older vintage and while it is still operating, it is unknown how long it will run until failure. Atikokan recently replaced insulators and completes sampling oil annually and other maintenance measures being due diligent of safety and reliability. Given the situation with the Steep Rock Reclamation and rising water levels, and the few customers in area the Caland substation is located, it may be prudent and most cost effective in the long run to take this substation out of service. Unless circumstances change, Atikokan will continue to operate the Caland substation until the later end of the distribution plan when stakeholders such the MNR, Hydro One, customers impacted and Atikokan Hydro have fully identified and addressed an

optimal solution for the rising water levels. Given the timing of such information, Atikokan was unable to determine the full impacts for this DS Plan but does expect to involve the Board at a later date.

Transportation Equipment

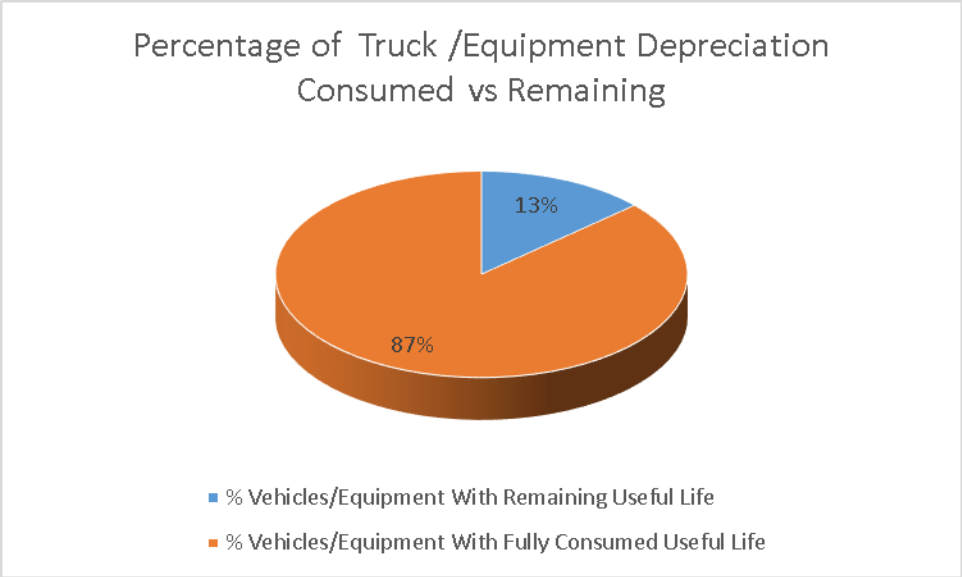
Rolling Stock and equipment are key to maintaining the electrical system. All existing rolling stock and equipment are fully utilized and have a purpose. Table below shows the list of the main pieces of vehicle and equipment's Atikokan currently has. The useful life of this asset class is 10 or 15 years dependant on the piece of truck / equipment.

	Vehicle/Equipment	Useful Life (Years)	Remaining Useful Life (Percentage)	Used Useful Life (Percentage)
1	ATV (Kodiak) - 9088	10	0%	100%
2	ATV (Kodiak) - 9089	10	0%	100%
3	HEAVY DUTY TRAILER	10	0%	100%
4	BOMBARDIER SKIDOO - 9091	10	0%	100%
5	BOMBARDIER SKIDOO - 9092	10	0%	100%
6	SERVICE TRUCK - 9093	10	0%	100%
7	TRAILER (for Skidoos)	10	0%	100%
8	SERVICE TRUCK - 9094	10	0%	100%
9	BRUSH CHIPPER - 9084	10	0%	100%
10	POLE TRAILER 2 AXELS	10	0%	100%
11	TRAILER QUAD TRAILER	10	0%	100%
12	UTILITY TRAILER - 9096	10	60%	40%
13	BUCKET TRUCK - 9076	15	0%	100%
14	DIGGER DERRICK TRUCK - 9082	15	0%	100%
15	DOUBLE BUCKET BOOM TRUCK - 9095	15	60%	40%

Note, most of the equipment have numbers associated to them; this is key to asset management and allocating time and costs to projects and expenses to specific vehicles and equipment's in instances of repairs as one example.

During various jobs, Atikokan rents equipment such as backhoes on a need be basis. At other times because Atikokan Hydro does not have the required equipment Atikokan contracts out the capital projects. For example, capital work in the rugged limited accessibility areas outside of town often requires a third party contracted to complete the work due to the limited accessibility and terrain of the pole locations. It is pertinent Atikokan Hydro at the bare minimal maintain and replace as needed the existing rolling stock and equipment. Also the overall condition of the vehicles must maintain good working condition as Atikokan does not have redundant units to use

as alternatives. As noted in the following Pie Graph Chart, 87% of Atikokan's fleet as exceeded its useful life. Note that Atikokan also considers each fleets asset condition prior to replacing. An aspect of the Distribution System Plan will be non-distribution asset expenditures; replacing necessary aging fleet including service trucks and the Digger Derrick Truck. Atikokan Hydro will strive to achieve the lowest costs while achieving the required rolling stock specifications and requirements. Atikokan Hydro will entertain both new and used where applicable; however for this DS Plan it has been determined purchasing a 'new' conditioned truck would be the best business decision.



Trucks are used in day to day utility work where the other equipment such as the pole trailer and equipment trailer are used to transport equipment or material to site locations. The crew perform monthly truck inspections and complete maintenance and repairs when capable. Other maintenance and repairs are completed by the local garage. A third party from out of town completes the annual di-electric testing of the fleet vehicles and big equipment have annual inspections and services completed out of town. Appendix B is a copy of the monthly truck inspection form used by in-house line crew.

Reinvestment needs for vehicles and equipment has a material impact on Atikokan Hydro's DSP. Based on historical and replacement costs, Atikokan's planned capital for these expenditures is believed to be 420,000 for the period of this DS Plan. Atikokan will borrow where necessary

which will reduce the yearly revenue requirement to fulfill these purchases having a lessened impact on customer rates. It should be noted that although the equipment is mostly beyond its useful life, Atikokan Hydro is not replacing the assets just for this reason. The equipment is continuing to be in good working order. If working order conditions change; it will need to be evaluated on an equipment basis.

Metering and Monitoring

Atikokan Hydro has approximately 1659 meters installed on customer premises and are billed actual energy consumption on a monthly basis. Atikokan has billed monthly since 2010. Atikokan Hydro installed Elster smart meters during 2009 and the remainder in 2010 to comply with the Ontario government mandate. The smart meters vary by customer and include meters capable of measuring kWh consumption, kW demand and kVA as well as hourly interval data.

Metering capital will be a component of the DSP and exceed the materiality threshold of $50,000 for a total of $115,000 over the DS Plan period. Where the accounting useful life of meters do not expire until year 2024 (15 years) there is an increasing failure rate of smart meters that are scrapped and replaced every month. Additionally, while the useful life is fifteen years, as per Measurement Canada Standards; the smart meter seals only have a ten year seal life. This means seals will be expiring in 2019. Atikokan is investigating the process for seal reverification and the financial impacts and timelines involved. Atikokan is hopeful testing can be completed over years 2018 and 2019; minimizing the financial impact to the utility, dispersing the extra work for billing staff and line crew and customer interruptions. Atikokan believes it would be prudent to invest in reverification testing for seal expiry extensions as opposed to replacing the meters. This is based on consideration of the replacement cost of the smart meters and additionally incurring a 5 year loss on the meters for disposing meters before their end of life. This would have a negative impact on rate base for customers. However, if the smart meters do not pass testing, Atikokan will be required to replace all of its smart meters for 2019 significantly impacting the capital budget. Excluding installation costs, the costs alone for replacement of smart meters would be over $200,000. This is not included in the DS Plan at this point. This is typically a whole year's capital budget for Atikokan Hydro including labour. If this is required, Atikokan Hydro may need to considering borrowing activities to fulfill replacing the meters. It is hopeful the seals expiries can be renewed; lessening the impacts to customers. The plan is for seal extensions for the

residential and general service < 50 customers. General Service > 50 customers will forgo the reverification of meters for seal extension and outright replace the meters. This is on the basis Atikokan has 17 General Service > 50 customers. Following Measurement Canada guidelines all meters would need to be tested meaning the meters would need to be taken out of service and replaced with inventory meters for the time being. Atikokan does not have this many meters in inventory. For this reason, it is most cost effective to replace General Service > 50 meters. Additionally, the Distribution System Code was amended and states a distributor shall install a MIST meter on any new installation that is forecasted by the distributor to have a monthly average peak demand during a calendar year of over 50 kW by August 21, 2020. This will good timing to ensure Atikokan has all the appropriate needs in place to ensure this metering is in place.

Line crew have observed meters on premises facing the south and sun are the meters more likely to fail and require replacement. Dependent on continued failure rate of meters will determine the variance in smart meter purchases for each year.

Thunder Bay Hydro is Atikokan Hydro's meter service provider and these services are shared amongst the northwest group (Atikokan Hydro, Fort Frances Power Corp, Kenora Hydro and Sioux Lookout Hydro) Atikokan Hydro further has contractual agreements with Savage Data Systems for Operational Data Storage (ODS) which involves validation, estimation and editing of metered data and an agreement with Elster Metering as an Advance Metering Infrastructure (AMI) Solution. These contractual services will continue to be operational costs incurred by Atikokan Hydro. Atikokan relies on its metering service provider for leading and testing billing and metering changes

Smart Meter Data Collectors

Atikokan Hydro has 4 smart meter data collectors that function to transmit smart meter data back to the central server; Master Application Server (MAS). In addition to these collectors in use, Atikokan has one spare data collector. These collectors have a useful life of 15 years with 8 years remaining; therefore, it is not anticipated to incur any material expenses on these smart meter data collectors for the period of 2017 to 2021.

Wholesale Metering

Wholesale metering points, used to measure Atikokan Hydro's electricity purchases and both meter seals are due for testing in 2019. Preliminary data indicates $10,000 will be required for

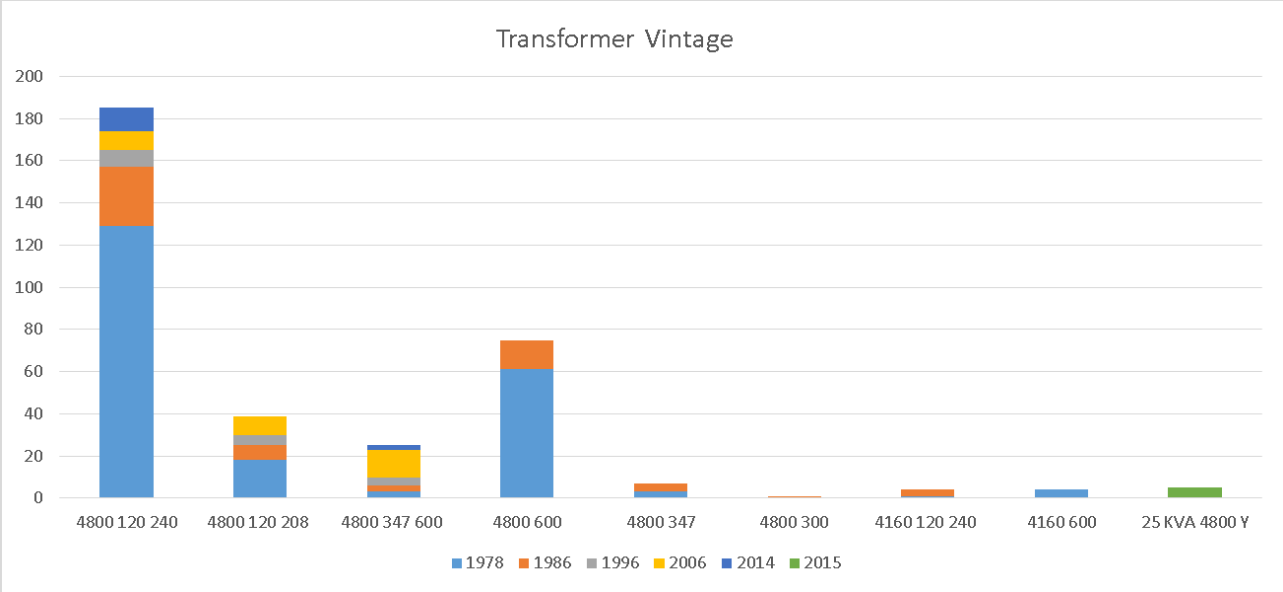
testing these seals. Atikokan Hydro has a service contract with Meter Service Provider Thunder Bay Hydro. Atikokan Hydro communicates with the wholesale meters via cellular data modems. Aside from the wholesale meter expiries; the wholesale metering is in good condition; since Atikokan Hydro's last cost of service, investments were made into the metering with useful exceeding past this period of plan. However, it should be noted, dependent on the plans for the Steep Rock Reclamation (Section 5.2.1a); further investments may be required for wholesale metering. Unfortunately it is too soon to have actual details and timelines including the overall impacts.

Transformers

As mentioned in section 5.3.2.c, Atikokan Hydro has 345 transformers in total; mainly pole mounted. These transformers have an expected useful life of 45 years. Given the age, condition and efforts to improve operational system performance Atikokan has budgeted a total of $100,000 over the period of the DS Plan to transformers. No individual year will exceed the materiality threshold of $50,000 nor will a single transformer exceed this amount.

A summary of the transformers by age and size of transformer is as follows:

	Transformer Size									
Vintage	**4800 120 240**	**4800 120 208**	**4800 347 600**	**4800 600**	**4800 347**	**4800 300**	**4160 120 240**	**4160 600**	**25 KVA 4800 Y**	
1978	129	18	3	61	3	0	1	4	0	**219**
1986	28	7	3	14	4	1	3	0	0	**60**
1996	8	5	4	0	0	0	0	0	0	**17**
2006	9	9	13	0	0	0	0	0	0	**31**
2014	11	0	2	0	0	0	0	0	0	**13**
2015	0	0	0	0	0	0	0	0	5	**5**
TOTAL	**185**	**39**	**25**	**75**	**7**	**1**	**4**	**4**	**5**	**345**



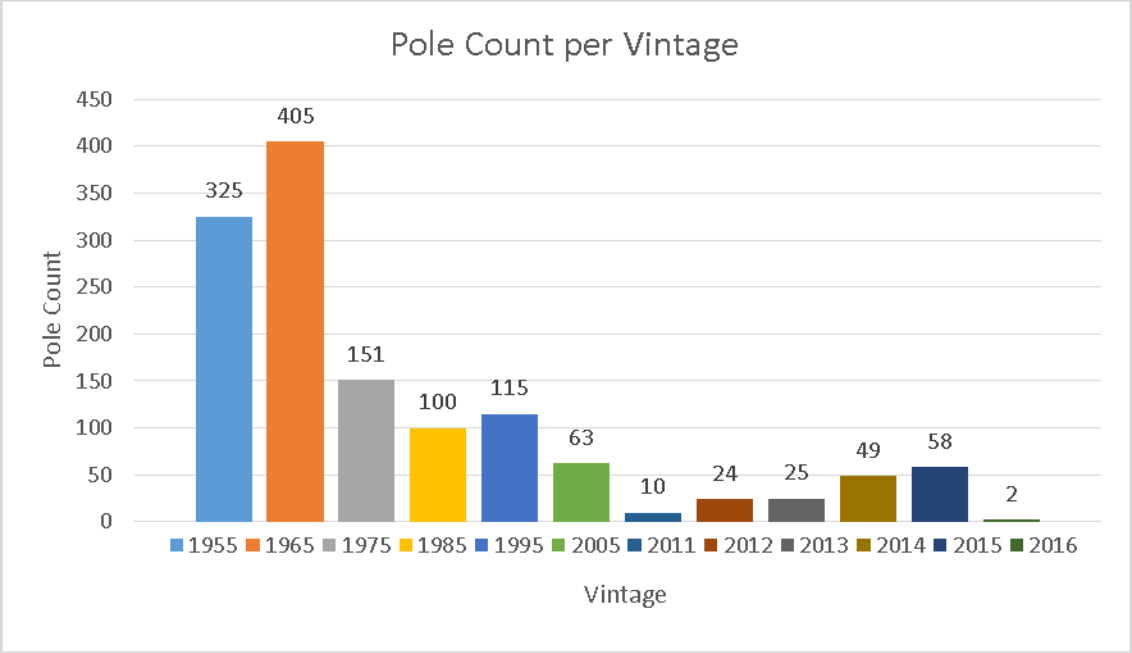
As can be seen in the previous table and illustration, the majority and over half of the transformers are sized for residential households. Atikokan's residential customers are the largest customer class; totalling 85% of serviced customers.

Poles, Towers & Fixtures

Atikokan Hydro nearly has a pole to residential customer ratio of 1:1. Atikokan's total pole count is 1327; (December 31, 2015 Residential customer count of 1389). Atikokan has all wood poles with the exception of one fibreglass pole installed in 2014. The 80 ft pole was installed by a third party contractor hired by Atikokan Hydro. This is the first fibreglass pole Atikokan Hydro has installed. The pole was placed on the 3M2 line.

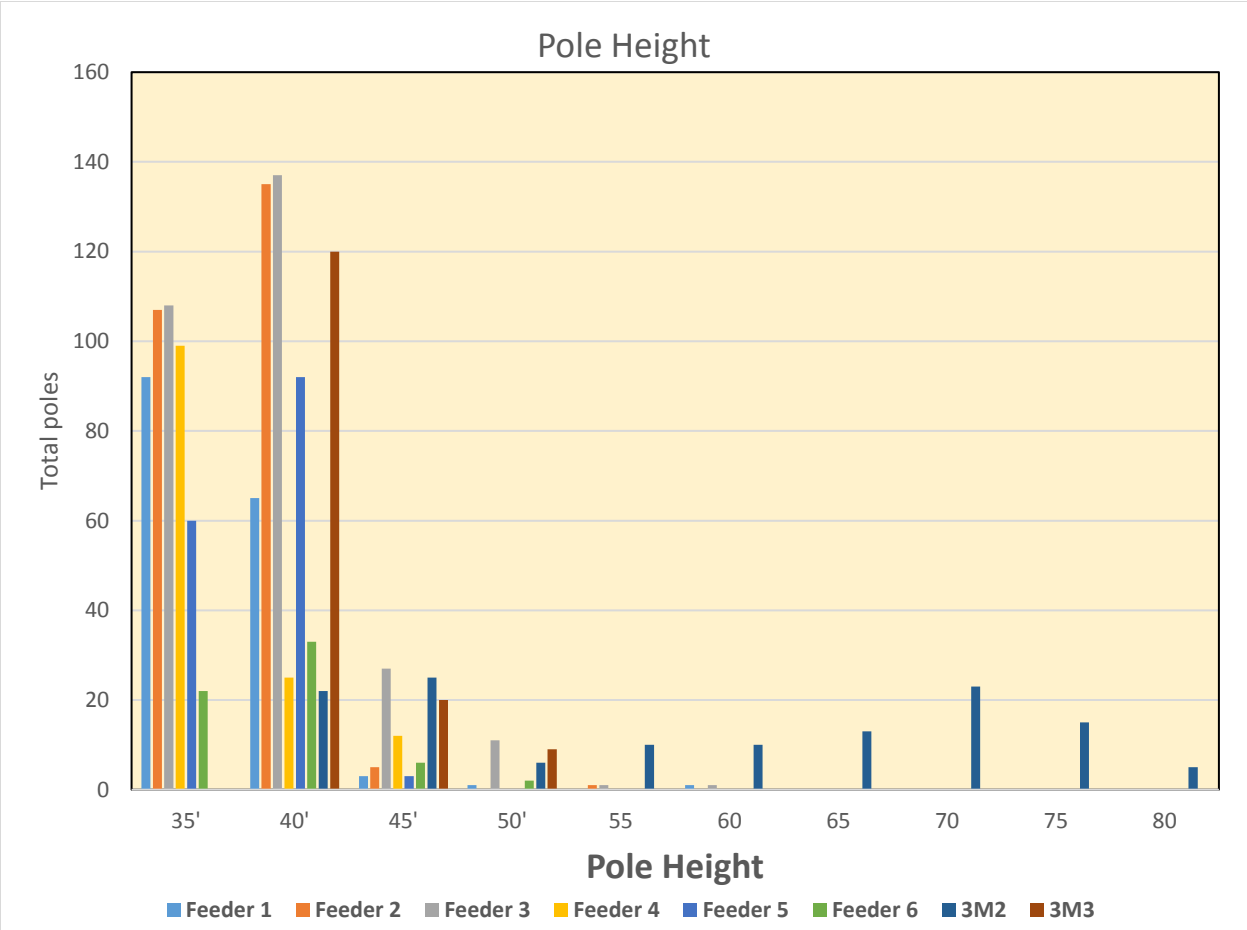
The poles are summarized by vintage in the following table and illustrated chart.

Vintage	Pole Count
1955	325
1965	405
1975	151
1985	100
1995	115
2005	63
2011	10
2012	24
2013	25
2014	49
2015	58
2016	2
Total	1327



Poles have an assumed useful life of 45 years. Based on this, over half of the Atikokan Hydro poles have fulfilled their useful life. Any pole with a vintage over 1970 are at least 45 years old; meaning 405 of the total 1327 poles are a minimal of 45 years old. Atikokan Hydro does not necessarily replace the poles based on age, but takes pole condition into consideration.

As the following table reflects, the poles vary in height from 35 feet to 80 feet; the majority being between 35 to 45 foot poles. Atikokan has been replacing many of the 35 foot poles with 40 foot; this allows greater spacing and compliance with 22/04.



Considering condition of poles; Atikokan Hydro has 252 poles (almost 19% of total) that would be considered the greatest priority based on condition rating of 4 and 5. It should be noted that the 2016 budget included pole replacements and to date some of the poles with a condition rating of 5 may have have been replaced or have plans to be replaced at the time of this application. Where the above table indicates 2 poles have been replaced in 2016; this is not up to date information. The total poles to be replaced in 2016 should be similar to that of 2014 and 2015 by

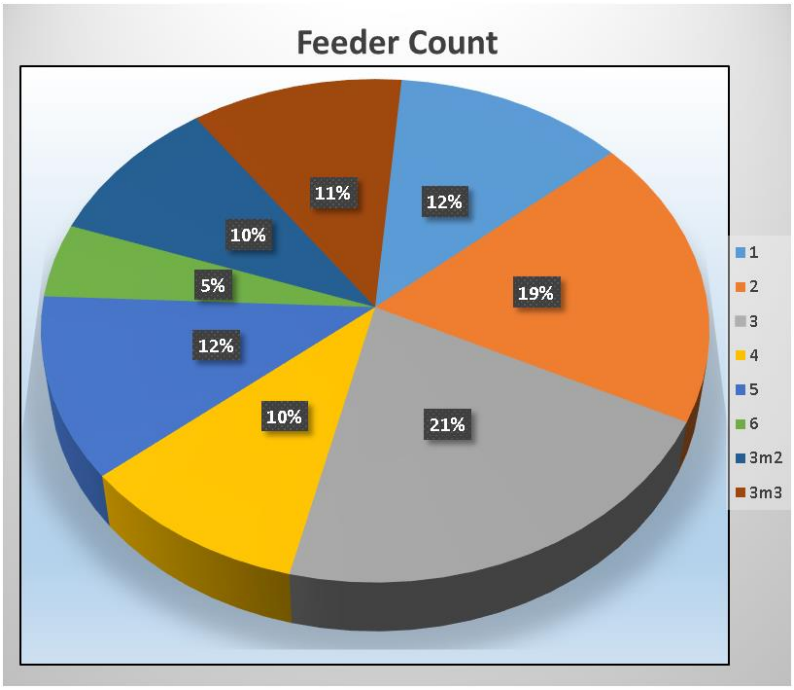
the end of the year. Table below shows all 1327 poles per condition rating. As the table reflects the majority of the poles have a rating of 3 or worse (4 or 5).

Condition Legend *1 - Very Good Condition* *2 - Good* *3 - Average* *4 - Concern* *5 - Immediate Concern*	**Pole Condition**				
	1	**2**	**3**	**4**	**5**
Total	134	250	691	237	15

The condition assesment rating of these poles supports why Atikokan must continue to heaviliy invest in poles, towers and fxitures over the period of the distribution system plan for a total of $612,450 over the 5 year period. Each years total expenditure on poles, towers and fixtures will exceed the materialilty threshold of $50,000 but it should be noted historically Aitikokan's individual pole replacements have not exceeded the $50,000 threshold. Unless however, a contractor is hired to complete the capital upgrades; typically these projects are larger in nature.

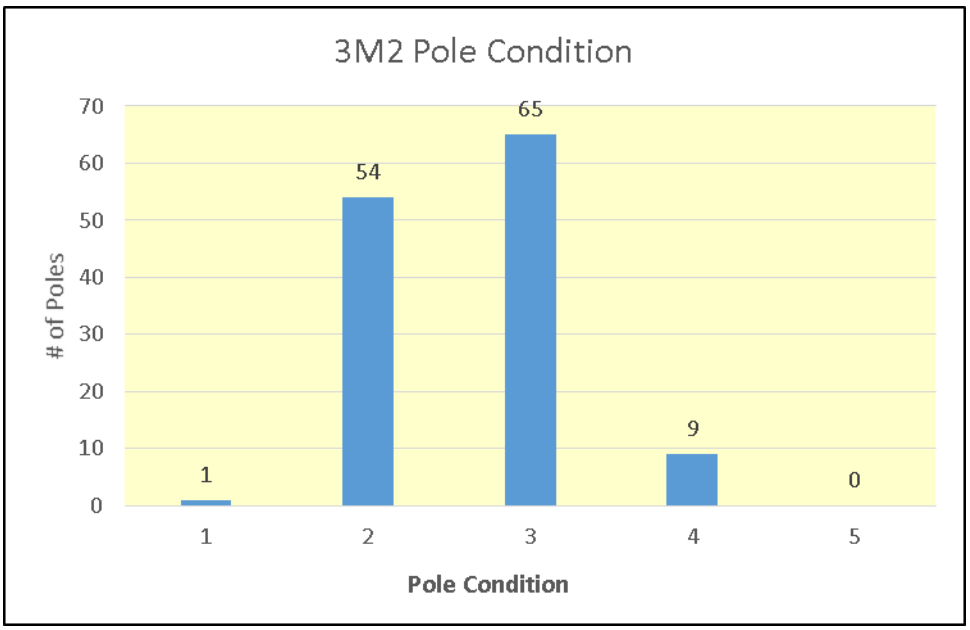
As noted in section 5.2 [Utility Overview] of this document, Atikokan Hydro has six feeders but additionally has two circuits of lines fed from Atikokan Hydro's transmitter Hydro One which then feed the feeders. With that being said Atikokan Hydro has the distribution lines (feeders) in town but also has the two transmission lines 3m2 and 3m3. Due to the nature of where some of the poles on both the 3m2 and 3m3 are located, structural repairs need to be contracted out.

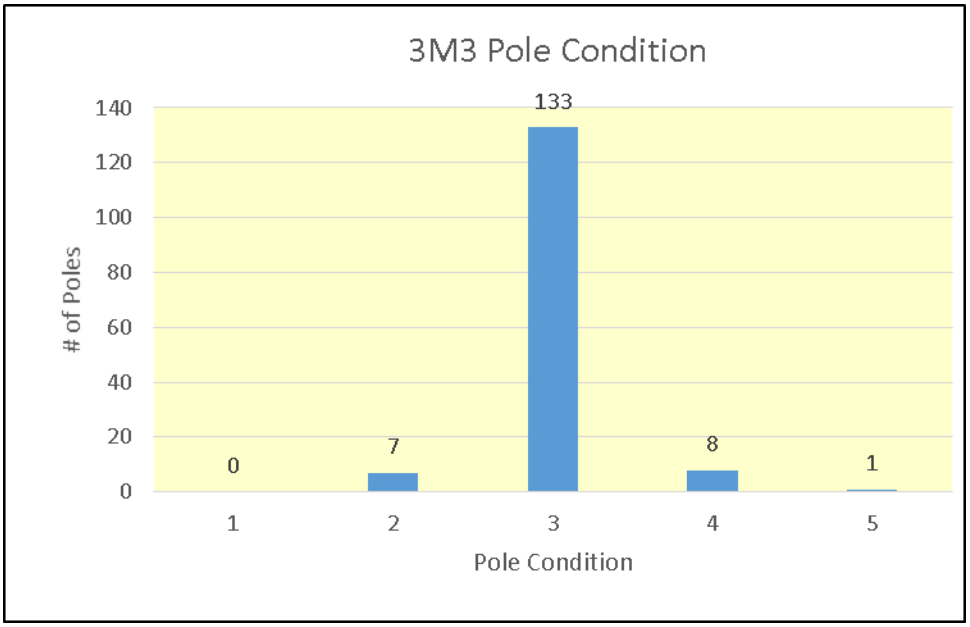
The following table and chart illustrates how many poles are in each feeder. As illustrated both feeders 3 and 2 are the largest feeders; based on quantity of poles in those sections of feeders. Feeders 1 through 6 have single pole design whereas both the 3m2 and 3m3 vary in structural design.



Pole Feeder Comparison	
Feeder	**Total Poles**
1	162
2	248
3	285
4	136
5	155
6	63
3m2	129
3m3	149
Total	**1327**

Between the 3M2 and 3M3; there are 214 structures; some of these single pole structures; others are two or three pole structures. In total the structures have 278 poles. As described throughout this plan, some of these structures need to be contracted out due to the challenge with limited access and rugged terrain of locations. Atikokan Hydro does not have the equipment to change out these structures. These poles range from 40 to 80 ft. About 30% of these structures require third party contractors to complete the work. On average, the structures cost $30,000 to hire a contractor for the capital upgrades; this is based on recent costing information. Due to the higher costs to change out these structures, Atikokan Hydro must try to proactively plan to change a few structures a year. Along with not jeopardizing reliability and safety, it is efficient and wiser to replace the structures on a proactive basis as opposed to on an emergency basis when the structures have failed or fallen. Budget dollars must be spread across the assets based on rationale. These structures must be maintained before failure, these lines are vital in that they supply the town; reliability must be maintained. The two following tables show the pole conditions of 3m2 and 3m3 reflecting attention required. As indicated earlier in this document, conditions 4 and 5 being the worst assessment.





A picture of Atikokan's only fibreglass pole follows: This pole is on the 3M2 sub transmission feeder line and as the picture illustrates these feeders are most accessible by four wheeler or snow machine.

General Plant

General Plant does not fall into the categories system access, system renewal or system service but are needed for day to day operations. General Plant investments include:

- Buildings (Office and Yard),
- Transportation Equipment (fleet),

- Tools,
- Computer software and
- Computer hardware.

Tools

Tool purchases vary from year to year and are generally based on staff identifying tool needs. Some are new tool needs are a source for operational efficiency and others identified are replacing old tools that become defective. A capital tool allowance is allowed for each year to purchase tools such as chain saws, drills, etc. This allowance will be continued throughout the period of this plan; however, the combined total of tool purchases over the period is less than the materiality threshold ($50,000).

Buildings

Atikokan Hydro has its main office with a basement for storage of some small tools and inventory and a yard location where the rolling stock and equipment is stored in garages. The yard stores most of the inventory of line material. The yard is fenced in and requires attention. Capital dollars are required to be allocated to replacing the poor conditioned fence. Atikokan Hydro historically has had issues with theft in the past; as a result the yard is equipped with video surveillance. Proper conditioned fencing would lessen the risk of unauthorized individuals entering the secured yard property. To date, Atikokan Hydro staff try to maintain the existing fence but repairing or replacing the fence for the long-term has not been prioritized. Investment priorities are generally spent on maintaining reliability of supplying electricity. This non-distribution capital expense should be less than the materiality threshold. The office, open 5 days a week has staff accepts bill payments and customer inquiries. Billing and accounting aspects are completed in-house. The office building has had some basement water concerns but some small repairs have been completed. It is hoped no major renovations are required. However, emergency preparedness, the office requires a backup generator in event power is lost. The office could further use some upgrades in terms of windows and doors but these expenses have not been prioritized as they are in working order. Atikokan has allocated dollars to building and yard expenditures but it does not exceed the materiality threshold.

Office Equipment

Atikokan owns various office equipment for daily use. This includes printers, fax machine, photocopier, shredder, and postage machine and envelope stuffer. The office equipment is beyond its useful life and has needed some small repairs. The cost of the repairs and replacement

costs have been outweighed and thus far the repairs have been beneficial. The practice is to run the office equipment to failure prior to replacing. It is believed in the 5 year period capital dollars will need to be allocated to the printer used for billing and various other existing pieces of office equipment. The combined total of Office Equipment over the period is less than the materiality threshold ($50,000).

Computer Hardware / Software

Computer equipment has an assumed useful life of 5 years where as software has a useful life of 2 years. The main office has a total of seven computer stations which Anti-Virus Protection and Microsoft Office. Stations vary with functionality and access to Accounting and Asset Software, GIS and Billing System. These stations hardware and software will be maintained over the period of the distribution system plan. Purchases will not exceed the materiality threshold.

Server

Replacing and upgrading the server is a component of the DSP but will not exceed the materiality threshold. Preliminary discussions with the Information Technology support who performs computer problem solving that cannot be handled in-house has indicated, Atikokan was recommended by its IT support to budget for the server. It is imperative the server be supported and in good working order in the event data needs to be required. In efforts of being proactive in the event of an unfortunate data loss, Atikokan keeps backup copies of the server at an offsite location. During the bridge year (2016), Atikokan has needed to invest immaterial amounts into the server to maintain functionality and reliability. It needs greater attention in the near future and as such it is proposed the upgrades occur in 2019 but is less than the materiality threshold of $50,000.

5.3.3 Asset lifecycle optimization policies and practices

The useful life (age) of an asset may be fulfilled but the asset is not just replaced with outright replacement because the expected life has exceeded. Other factors are considered including public safety, worker safety, and asset condition, risk and impact of failure. If both public and worker safety is deemed safe and the overall asset condition is acceptable and the asset is functioning and operating without failure, the asset will be left in service and reassessed in future inspections and replacement plans. The asset may simply only need life-extending refurbishment as opposed to outright replacement if the trade-off exists between spending on new.

a) (5.3.3.a) A description of asset lifecycle optimization policies and practices, including but not necessarily limited to:

A description of asset replacement and refurbishment policies including an explanation of how system renewal program spending is optimized, prioritized and scheduled to align with budget envelopes and how the impact of system renewal investments on routine system O&M is assessed; A description of maintenance planning criteria and assumptions. A description of routine and preventative inspection and maintenance policies, practices and programmes

Atikokan Hydro optimizes asset lifecycle by performing inspections to monitor the health of distribution system assets, performing preventative and corrective maintenance where necessary and determined to be financially prudent and by proactively replacing critical assets at or near their end of life with hazardous assessment conditions. Atikokan's operations and maintenance activities are designed to follow guidelines set out in the OEB's Appendix C of the Distribution System Code for the inspection and maintenance of all key distribution system assets. Atikokan follows the recommended guidelines for 'rural' population density treatment as it sets greater expectation and frequency of inspections, resulting in a clearer updated knowledge of the distribution system condition and as such more proactive measures are in place. The results of the inspections are critical to the asset assessment condition and prioritization of operations and maintenance and capital expenditures.

For the period of the DS Plan 2017-2021, 56% or $816,740 of planned capital investments are driven by system renewal due to assets meeting or surpassing their end of useful life with poor condition assessments. The objective is to proactively replace assets in a manner that eliminates or lessens the chance of reactive measures and safety concerns, bearing greater costs as a result of unplanned needs. It must also be completed at a pace that is sustainable and affordable for both the utility and the customers impacted. Generally speaking replacement is the most viable option for most of Atikokan's distribution assets. Non-distribution assets categorized as general plant can generally be refurbished as opposed to outright asset replacement. Generally speaking these refurbishments can be completed at a reasonable dollar value extending the life of the asset and comparatively outweighing the costs of outright replacement. The impacts and risks of these expenditures are weighed in decision making. As much as possible, refurbishment is completed in house to control costs. Atikokan Hydro has talented staff and crew and pool resources together where and when needed.

Atikokan's recently developed ArcGIS asset register is a support tool in developing and planning investment activities. The asset register is designed to hold asset attribute information as well as historical financial valuation. It is Atikokan's intent over time to continue to develop the asset register and find other asset management improvements and efficiencies. As such, Atikokan has been emphasizing and refining its budget process. A budget is forecasted based on inspection results and projected costs are determined. The upcoming capital projects are approved by Atikokan Hydro's Board of Directors. The budget is approved based on an optimal level of affordability but meeting regulatory requirements such as 22/04 compliance. Capital spending and O&M levels are monitored throughout the year by management; where costs are not on par with those amounts budgeted, management reviews the remaining projects lists and with in-house discussions determines which projects are prudent and safe to be deferred. Prioritizing and deferring projects involves assessing the risks associated with leaving the asset condition at status quo including but not limited to safety hazard to public or employees, how many and what customers would be impacted and severity of risk impacts. Non-routine items undergo a rigorous review determining value for the costs including those items that are of a code or compliance nature. Costs are forecasted and evaluated with historical data and anticipated internal labour and equipment costs. Some non-routine findings require completion by third parties and as such are estimated based on quotations received. Depending on materiality, these may go to board level for approval.

Maintenance planning criteria and assumptions

Atikokan's routine monthly and annual performed maintenance programs are consistent with good utility practices and the Distribution System Code are the foundation for developing system renewal investments or routine system Operations and Maintenance functions. Budgets for these functions are developed utilizing historical costs for repair as well as labour hours required to perform inspections. Budget envelopes may be adjusted annually based on the results of the inspection process.

Description of routine and preventative inspections and maintenance policies

The following Operations and Maintenance (O&M) programs are conducted annually to assess the condition of our assets and to perform routine maintenance and assist in identifying end of life

assets to ensure we are able to fulfil our goals and mission in providing safe, reliable and affordable power to our customers.

Transformer Inspection and Maintenance

Atikokan previously tested its distribution transformers for PCB Contamination, and disposes of transformers using Ministry of Environment guidelines. The last three years 2014 through 2016, Atikokan has used a third party for disposal services of non-PCM transformers no longer in service. Atikokan will continue to test transformers and handle accordingly to the appropriate guidelines. The inspection process checks for leaks and general tank condition; condition of the bushings; and oil discolouration which indicates flashover. Pole mount transformers have relatively few failures as a population and as such require little in the way of regular maintenance to ensure these units reach their typical useful lives. However, if a transformer is found to be in such poor condition by, it will be replaced proactively to avoid reactive replacement in the near term.

Substation Inspection and Maintenance

Atikokan Hydro owns and maintains 4 substations within its service territory. Monthly testing and maintenance of transformers and associated substation equipment occurs but some station equipment is inspected or tested annually. Defects and findings during inspections are documented and corrected immediately or scheduled for corrective action depending on the complexity and risk of the repair.

Vault Transformer Inspection and Maintenance

The inspection of these units coincides with the requirements in the Distribution System Code in that they are inspected every three years. Due to the nature of the installation and costs of removing and replacing these units upon failure, consideration is given to converting these installations to pad mounted infrastructure. Where defects to customer owned infrastructure is identified, Atikokan Hydro notifies the customer as to the nature of the defect and seeks a timeline for corrective action.

Distribution Pole Inspection and Testing

The inspection of these assets coincides with the requirements set forth in the DSC in that they are to be inspected on a three year cycle. Atikokan conducts a visual inspection of all the poles it

owns within its service territory. The inspection considers overall pole condition and condition of pole attachments. Poles that have been identified, through visual inspection, as being in poor condition are further inspected in detail. Through non-destructive testing (hammer testing) inspectors attempt to ascertain the extent to which the asset has deteriorated. Poles identified as being a hazard or in imminent risk of failure are replaced immediately; other poles are prioritized based on their health as part of the asset management and capital planning process.

Overhead Switch Inspection and Maintenance

The inspection of these assets coincides with the requirements set forth in the DSC in that they are to be inspected on a three year cycle. Atikokan inspects annually. The intention is to ensure that every switch is at least visually inspected. Visual inspection of the in-line, air-break, load-break, and recloser population is captured under this initiative. Switch maintenance activities are conducted in parallel with switch inspection activities. Where the inspection determines that maintenance of the switch is required, the line crew may conduct the maintenance immediately and note this on the inspection form. Where the crew is unable to immediately perform the maintenance, a deficiency is noted on the inspection form. The completed detailed inspection form is submitted for prioritization based on available resources and details of the annual inspection are then logged.

Tree Trimming Maintenance and Inspection

Atikokan performs vegetation control management in a reactive and proactive manner through its service area. Atikokan receives many third party requests annually to manage vegetation that has been identified as posing a potential threat to Atikokan's overhead infrastructure. These are generally safety concerns and are remediated in both a reactive or proactive nature depending on the request. Atikokan also proactively manages vegetation in areas of planned capital investment prior to executing work in these areas. Atikokan is licenced to use pesticides as part of its vegetation control but also utilizes a third part to complete some of the spraying in areas on the 3M2 and 3M3 feeders were accessibility is limited.

Reactive Maintenance

Reactive maintenance occurs in many forms, at many different times and across all asset categories. It can occur during regular business hours or after hours; and can be completed by an overhead or underground crew. These events can include responding to trouble calls, repairing

unexpected deficiencies and equipment failures; failures which cannot be accounted for and corrected through by any other means.

5.3.3.b A description of asset life cycle risk management policies and practices, assessment methods and approaches to mitigation, including but not necessarily limited to the methods used; type of information inputs and outputs; and how conclusions of risk analysis are used to select and prioritize capital expenditures.

Risk is defined as the product of criticality and probability of failure. The assessment of risk begins with the inspection and patrolling of assets observing and identifying deficiencies.

Upon maintenance inspection reports identifying asset condition deficiencies of concern requiring follow up action; both the risk of failure and consequences of failure is analyzed. In order to do so, it is important to understand the impacts and risks associated with leaving the asset at its existing condition and what acceptable length of time. Assessment considerations include but are not limited to:

- Safety (worker and public),
- Regulatory,
- Reliability,
- Environmental
- Useful Life and
- Financial considerations.

The condition rating and risk analysis must be further analyzed and prioritized, categorizing the items of concern as follows:

4. Immediate Action
5. Within the next budget year and
6. To be considered with major rebuilds

Once risk assessment is completed and prioritized, actions plans can be prepared outlining the timeline and priority of and measures to be taken to resolve the deficiency.

Risk mitigation may not be an acceptable option based on the risk assessment and due diligence of being compliant with the Distribution System Code. Finding a commonality of delivery safe and reliable service at a pace that keeps the financial health of the utility and rate impacts on customers is not an easy task but the utility must strive measure its performance and reactions for continuous improvement.

5.4 Capital Expenditure Plan

The purpose of this section is to show a 'snapshot' of Atikokan capital expenditures over a 10 year period, comprising of five historical years and five forecast years. Atikokan's internal investment planning framework does not align with the investment categories defined in the filing requirements, and as noted in the Chapter 5 Consolidated Distribution System Plan Filing Requirements, Atikokan has used best efforts to categorize capital investments accordingly.

In accordance with the filing requirements, Atikokan provide a snapshot of its capital expenditures with five years historical and five forecast years. Atikokan historically has not categorized its capital expenditures into the four OEB investment categories but for purposes of this application used best efforts to categories historical expenditures. Atikokan relied on the following Board definitions and examples in doing so.

The four capital investment categories defined in the Chapter 5 filing requirements glossary as follows:

- ***System access*** investments are modifications (including asset relocation) to a distributor's distribution system a distributor is obligated to perform to provide a customer (including a generator customer) or group of customers with access to electricity services via the distribution system
- ***System renewal*** investments involve replacing and/or refurbishing system assets to extend the original service life of the assets and thereby maintain the ability of the distributor's distribution system to provide customers with electricity services.
- ***System service*** investments are modifications to a distributor's distribution system to ensure the distribution system continues to meet distributor operational objectives while addressing anticipated future customer electricity service requirements
- ***General plant*** investments are modifications, replacements or additions to a distributor's assets that are not part of its distribution system; including land and buildings; tools and equipment; rolling stock and electronic devices and software used to support day to day business and operations activities

	Example Drivers	Example Projects / Activities
system access	customer service requests	– new customer connections – modifications to existing customer connections – expansions for customer connections or property development
	other 3rd party infrastructure development requirements	– system modifications for property or infrastructure development (e.g. relocating pole lines for road widening)
	mandated service obligations (DSC; Cond. of Serv.; etc.)	– metering – Long term load transfer
system renewal	assets/asset systems at end of service life due to: – failure – failure risk – substandard performance – high performance risk – functional obsolescence	– programs to refurbish/replace assets or asset systems; e.g: batteries; cable (by type); cable splices; civil works; conductor; elbows & inserts; insulators; poles (by type); physical plant; relays; switchgear; transformers (by type); other equipment (by type)
system service	expected changes in load that will constrain the ability of the system to provide consistent service delivery	– property acquisition – capacity upgrade (by type); e.g. phases; circuits; conductor; voltage; transformation; regulation – line extensions
	system operational objectives: – safety – reliability – power quality – system efficiency – other performance/functionality	– protection & control upgrade; e.g. reclosers; tap changer controls/relays; transfer trip – automation (new/upgrades) by device type/function – SCADA – distribution loss reduction
general plant[1]	– system capital investment support – system maintenance support – business operations efficiency – non-system physical plant	– land acquisition – structures & depreciable improvements – equipment and tools – supplies – finance/admin/billing software & systems – rolling stock – intangibles (e.g. land rights; capital contributions to other utilities)

5.4.1 Summary

This section elicits key information about a distributors capital expenditure plan including, by category (see section 5.1.1), significant projects and activities to be undertaken and their respective key drivers; the relationship between investments in each category and a distributors objectives and targets; and the primary factors affecting the timing of investment in each category (or of projects within each category, if significant).

a) Information on the capability of the distributor's system to connect new load or generation customers in sufficient detail to convey the basis for the scope and quantum of investments related to this 'driver';

As noted in Atikokan's Renewable Generation Plan, Atikokan Hydro has no knowledge of present interest in developing renewable generation under the FIT program nor micro FIT connections. With Atikokan Hydro's existing configuration, a good utility practice would be accepting micro FIT's only at this time. To have the potential and ability to connect FIT projects, significant investment would be required; negatively impacting customer's rates. Atikokan's upstream distributor, Hydro One, has unequal transformer sizes and 'no area availability' further preventing renewable generation connection in the near or foreseeable future. Given these factors, it is not prudent to invest in renewable generation as an investment driver.

b) total annual capital expenditures over the forecast period, by investment category (see section 5.4);

The table below provides a summary snapshot of Atikokan Hydro Inc.'s expenditures over a 10 year period. This is the first 5 year Distribution System Plan filed with the Board and as such, comparisons between Planned and Actual amounts are not provided for historical years. This is consistent with the Notes to Table provided in *Chapter 5 Consolidated Distribution System Plan Filing Requirements.*

Atikokan has no known developments or forecasted customer or load growth and consequently there is no growth driver for capital investments. Primarily, capital investments are driven by asset renewal. Atikokan's existing system configuration has served the load adequately. The current capital expenditures over the forecast period of 2017 through 2021 are shown below.

CATEGORY	Historical Period (previous plan[1] & actual)										
	2012		2013		2014		2015		2016		
	Actual	Var	Actual	Var	Actual	Var	Actual	Var	Plan	Actual[2]	Var
	$ '000	%	$ '000	%	$ '000	%	$ '000	%	$ '000		%
System Access	253,960	--	184,469	--	10,116	--	22,705	--			--
System Renewal	98,734	--	126,193	--	439,244	--	201,109	--	300,695	145,805	-51.5%
System Service		--		--		--		--			--
General Plant	13,029	--		--	9,741	--	32,927	--	5,905	3,340	-43.4%
TOTAL EXPENDITURE	365,723	--	310,662	--	459,100	--	256,741	--	306,600	149,145	-51.4%
System O&M	$299,253	--	$412,631	--	$410,090	--	$445,110	--	$ 314,110	$196,865	-37.3%

CATEGORY	Forecast Period (planned)				
	2017	2018	2019	2020	2021
	$ '000				
System Access	10,000	40,000	50,000	15,000	10,000
System Renewal	261,740	92,000	114,000	167,000	182,000
System Service					
General Plant	364,000	73,000	37,000	28,000	18,000
TOTAL EXPENDITURE	635,740	205,000	201,000	210,000	210,000
System O&M	$ 497,618	$ 507,322	$ 517,214	$ 527,300	$ 537,582

The projects that will exceed the materiality threshold of $50,000 are transportation (fleet) equipment replacement and pole replacement. However, pole replacements historically do not exceed the materiality threshold; unless is required and multiple 2 or 3 pole structures are replaced at a time. Smart meter verifications and purchase of smart meters for inventory will likely meet the materiality threshold as well; these are considered system access and non-discretionary expenditures.

c) a brief description of how for each category of investment, the outputs of the distributor's asset management and capital expenditure planning process have affected capital expenditures in that category and the allocation of the capital budget among categories;

Most of the capital budget is non-discretionary and as such to satisfy regulatory requirements, environment or health and safety risks and conditions of service the proposed investments fall into the definition of non-discretionary. These programs are for refurbishment and replacement of assets that have failed or at high risk or failure or performance and functional obsolescence. Atikokan's asset management data and asset conditioning through recent inspections support these investment proposals.

System Access activities are not historically triggered from customer or load growth but mandated service obligations such as the expiry of smart meter seals. It is extending the smart meter seal expiry and replacing smart meters that are driving capital expenditures in this OEB category. The actual investment spent will be dependent on the success of seal expiries passing the sampling process. For the forecast period, Atikokan has tried to mitigate the impacts and will plan to complete the investment over a two year period. Atikokan's capital investment budget will need to be revaluated in the event samples fail and seals cannot be extended. This would be a significant material cost burden to the utility and Atikokan's rate base. This expenditure is non-discretionary.

System Renewal activities are generally speaking non-discretionary and include items such as pole replacement, transformer replacement and distribution equipment and are triggered by aging infrastructure and inspections. In total the projects will exceed the materiality threshold but generally individual planned projects are not material. Atikokan exercises individual worst conditioned pole replacement and not by feeder. Switch maintenance is required but is not anticipated to exceed the materiality threshold based on previous switch maintenance. It should be noted addressing System Renewal Category also in conjunction meets System Service in delivering safety, reliability and power quality.

System Service expenditures meet the operational objective of safety, reliability, power quality and system efficiency. Primarily Atikokan categorizes expenditures into system renewal as it is deemed to be the primary trigger driver although these expenditures could be categorized as system service since failure risk affects operational performance. Making such categorization assumptions is in accordance with the Filing Requirements. For this reason, Atikokan did not allocate investments directly to this OEB category.

At times, general plant items may be discretionary such as tools. If continuing to work without a new acquired tool or repairing the existing tool does not pose imminent high risk concerns, management makes cuts in budget items such as tools to meet budget shortfalls for items that have greater priority. The primary driver in this category for the DS Plan is retirement of a number of vehicles that both individually and in combination exceed the materiality threshold. General Plant expenditures often are lumpy in nature; similar to the forecast period whereby 2017 is considerably higher than the other consistent years as a result of the truck purchases required.

d) a list and brief description including total capital cost (table format recommended) of material capital expenditure projects/activities, sorted by category;

Based on Section 2.4.5 of the Chapter 2 Filing Requirements, the materiality threshold is set based on the revenue requirement of the utility. For utilities with a revenue requirement of less than $10 Million, the materiality threshold is set at $50,000. Thereby, Atikokan will be reporting on projects and variances that are above this threshold limit.

e) information related to a Regional Planning Process or contained in a Regional Infrastructure Plan that had a material impact on the distributor's capital expenditure plan, with a brief explanation as to how the information is reflected in the plan;

There are no Regional Infrastructure Plan from the Regional Planning Process that have a material impact on Atikokan's capital expenditure plan at this time.

f) a brief description of customer engagement activities to obtain information on their preferences and how the results of assessing this information are reflected in the plan;

Atikokan conducted its first customer satisfaction survey the beginning of 2016. Reliability and price were noted to be the common interest and concern. Atikokan has considered customers and impacts specific to them during the DS Plan preparation. The survey also identified satisfaction with customer service and system performance. Atikokan takes this as an indication to plan efforts to maintain historical levels. Atikokan has the opportunity of engaging with the customers that come into the office to make bill payments or inquiries. These are opportunities to gain insight on their needs and preferences.

g) a brief description of how the distributor expects its system to develop over the next five years, including in relation to load and customer growth, smart grid development and/or the accommodation of forecasted renewable energy generation projects;

Atikokan does not expect load nor customer growth over the next five years. Historical numbers show Atikokan's customer connections have steadily been declining. For this reason, there are no system restrictions in terms of customer load and connections at this time.

Based on Atikokan's knowledge that there is no interest in renewable generation projects, Atikokan does not expect to make system changes or developments to accommodate. At the start of Microfit approvals, Atikokan has moderate interest but slowed and there are been no current interest in Microfit Generation installations. Based on the lack of interest and activity, Atikokan Hydro does not expected a need for significant capital or OM&A expenses over the next five years

to accommodate renewable generation. If interest arises, Atikokan does have the required bi-directional meeting equipment in stock for generation customers. No delays in connections would be expected.

h) a list and brief description including where applicable total capital cost (table format recommended) of projects/activities planned: • in response to customer preferences (e.g., data access and visibility; participation in distributed generation; load management); • to take advantage of technology-based opportunities to improve operational efficiency, asset management and the integration of distributed generation and complex loads; and to study or demonstrate innovative processes, services, business models, or Technologies

Atikokan in response to its first customer satisfaction survey has budgeted to complete website changes during the 2017 Test Year. The intent is to develop and enhance its existing webpage enabling local resident's greater access to online material and information related to the energy sector, services offered and important customer notices. The site formats itself based on the screen or device the viewer is currently using. The intent is also to design the webpage using a content management system making it easy and flexible for Atikokan Hydro staff to add, edit, or remove content from the site without contacting web support for changes. The proposal to make such changes is below materiality threshold. Atikokan believes this will be a low cost tool that can utilize for customer engagement more so than historically by Atikokan's webpage. At this time, Atikokan has not included any costs for innovative projects or demonstrations in the forecast period.

5.4.2 Capital expenditure planning process overview

The information a distributor should provide includes, but need not be restricted to:

a) a description of the distributor's capital expenditure planning objectives, planning criteria and assumptions used, explaining relationships with asset management objectives, and including where applicable its outlook and objectives for accommodating the connection of renewable generation facilities;

Planning criteria and assumptions used in determining the capital plan include but are not limited to the following inputs:

- change or forecast in growth, if any
- change or forecast n load, if any
- coordination with customers' needs
- coordination with third parties

- asset conditions
- environmental impacts
- reliability / safety
- regulatory stakeholders
- impact of CDM and REG
- historical trends
- adequate level of investment, exceed amortization
- financial position and rate impacts

Using historical trends and adjusting for current and future needs, Atikokan developed its capital expenditure plan in efforts to meet and satisfy all stakeholders.
Historically both customer needs and third parties requests can be addressed in the short term as the request generally is not complex in nature and can be coordinated with existing business.

The outlook for accommodating the connection of renewable generation facilities is favorable as outlined in the REG plan is favorable (for micro FIT). Historical trends indicated that renewable connections have significantly decreased in numbers, and historical trends are not expected to shift without changes to the FIT rates and program. Atikokan Hydro does not expect to have constraints in accommodating the connection of mico FIT generation activities over the forecast period of this plan.

b) if not otherwise specified in (a), the distributor's policy on and procedure whereby non-distribution system alternatives to relieving system capacity or operational constraints are considered, including the role of Regional Planning Processes in identifying and assessing alternatives;

Atikokan Hydro consults with the IESO, and Hydro One Networks through the Integrated Regional Planning Process; however no alternatives to relieving system capacity or operational constrains have been planned. Hydro One's unequal in size transformers are scheduled to be replaced with equal sized transformers but not until early 2020 as identified in the Final IRRP Report. Atikokan Hydro supports and markets Conservation Demand Management Initiatives funded by the IESO but has no additional policy or procedures in place to alternatively relieve system capacity.

c) a description of the process(es), tools and methods (including where relevant linkages to the distributor's asset management process) used to identify, select, prioritise and pace the

execution of projects in each investment category (e.g. analysis of impact of planned capital expenditures on customer bills);

On a high level, non-discretionary projects are automatically selected and prioritized based on needs. Other projects are selected and prioritized based on value and risk assessment for each project. Projects are determined from yearly pre-approved budget however based on inspections and observations while working the field, hazards and priorities may be identified requiring judgement and decisions to be made based on both qualitative and quantitative factors.

System Access

System Access projects are non-discretionary in nature and developed through communications with customers and shareholder, Town of Atikokan. These projects are completed in a timeline to comply with Atikokan's condition of services. System Access projects also include projects like Smart Meters which are mandated and an obligation of Atikokan Hydro's to comply. These projects must also be completed accordingly following rules and regulations.

System Renewal

System Renewal projects are driven from inspections and assessments of the distribution system. The objective is to ensure the health of the distribution system is either maintained or improved. Priority and pace for these projects is based on identifying assessment priority including regulatory guidelines such as 22/04 compliance, safety and reliability but also considering the financial impacts to the utility.

System Service

System service projects are identified and assessed through system reliability. These projects are based on removing constraints in the system and improving reliability and operability of the system. Atikokan believes System Service and System Renewal are similar in nature; System Renewal identifies system asset weaknesses but in turn improves the performance of the distribution system or otherwise categorized as system service. For this reason, Atikokan categorizes projects more so into system renewal.

General Plant

General plant projects include transportation (fleet) equipment, tools, computer hardware and software and investments related to the administration and garage buildings. For this reason,

general plant expenditures can be lumpy in nature. These are identified through regular inspections of the equipment, buildings and the typical life expectancy of such purchases. Generally priority for this category is low compared to the other asset expenditure categories but they can become necessary for daily business operations. Often this category will run until failure. For example, Atikokan does not have spare equipment and thereby it's important the equipment and transportation be maintained in condition of working order.

d) if not otherwise included in c) above, details of the mechanisms used by the distributor to engage customers for the purpose of identifying their needs, priorities and preferences (e.g. surveys, system data analytics, and analyses – by rate class – of customer feedback, inquiries, and complaints); the stages of the planning process at which this information is used; and the aspects of the DS Plan that have been particularly affected by consideration of this information; and

Atikokan Hydro completed its first customer satisfaction survey early in 2016 as a method to engage customers. Where this survey was open to all Atikokan Hydro customers, only residential customers responded with a response rate of 5% of the total residential customer base. Atikokan views this as favorable. For the last few years, Atikokan has had a portion of his monthly bill dedicated to customers for comments but again views it as favorable that customers have not engaged in this activity. Customer feedback through inquires and complaints tend to be reactive in nature and are dealt with immediately through maintenance and small unplanned capital. Repeated concerns are escalated as a concern and are investigated further.

Historically Atikokan has done little with customer engagement above and beyond office contact, public annual general meetings and presence of crew working in the community. Many customer engagement activities have fees associated and for this reason, Atikokan historically has done little in best efforts to control expenses.

e) if different from that described above, the method and criteria used to prioritise REG investments in accordance with the planned development of the system, including the impact if any of the distributor's plans to connect distributor-owned renewable generation project(s).

Atikokan does not employ a separate prioritization system for REG investments nor is it necessary.

5.4.3 System capability assessment for renewable energy generation

This section provides information on the capability of a distributors distribution system to accommodate REG, including a summary of the distributor's load and renewable energy generation connection forecast by feeder/substation (where applicable); and information

identifying specific network locations where constraints are expected to emerge due to the forecast changes in load and/or connected renewable generation capacity.
In relation to renewable or other distributed energy generation connections, the information that must be considered by a distributor and documented in an application (where applicable).

a) (5.4.3.a) Applications from REG Connections over 10 kW

Atikokan Hydro Inc. has not received any applications for renewable generators over 10 kW for the forecast period of 2017-2021.

b) (5.4.3.b) the number and capacity (in MW) of renewable generation connections anticipated over the forecast period based on existing connection applications, information available from the OPA and any other information the distributor has about the potential for renewable generation in its service area (where a distributor has a large service area, or two or more non-contiguous regions included in its service area, a regional breakdown should be provided)

Based on historical Micro Generation connections Atikokan does not anticipate any additional micro FIT connections in the forecast period assuming incentives and pricing remain the same. To Atikokan's knowledge there has been no interest to connect. Atikokan's last connection was October of 2014; over a year and a half ago. Atikokan confirms to its knowledge no interest was made in 2015 nor the bridge year 2016 to date.

c) (5.4.3.c) The capacity (MW) of the distributor's distribution system to connect renewable energy generation located within the distributors service area;

Atikokan does not have a capacity to support generation projects greater than 10 MW. In terms of Micro generation's (less than 10 MW) Atikokan must continue to evaluate and assess each renewable energy generation connection request, ensuring the system and each substation specifically has the capacity. At this time, there are not capacities restrictions based on no interest.

d) (5.4.3.d) constraints related to the connection of renewable generation, either within the distributors system or upstream system (host distributor and/or transmitter);

Atikokan Hydro has four substations fed from the two 44 kV feeders. Three of the substations are located within the more densely populated area of Atikokan hydro's service area. These substations supply five feeders. These feeders are configured to allow load to be transferred from one feeder to the other without interrupting service to customers. This has an advantage of being able to match load to substation capacity as well as restoring power should a substation be

interrupted. This is often termed a ring bus configuration that can accommodate closed transition switching.

The substations are protected by fuses and load break switches. If generation were to be added, regardless of the location, it would need to be sized to accommodate reverse flow in the smallest sub station. The smallest rated substation being Hogan at 2 megs or 2000 kilowatts. Upgrading substations would have a significant negative impact on rates for Atikokan Hydro customers considering load is not expected to grow significant in the next 5 years. In fact, Atikokan Hydro has historically been dropping in customer count.

Atikokan's upstream distributor has two transformers which differ in size ratings; one being 8 MVA while the other is 15 MVA creating constraints. Further the IESO's Connection Availability for Moose Lake TS station, dated June 4, 2015 indicates there is 'No Area Availability' and this may be considered one reason for the no area availability. Similarly, IESO Connection Availability Table for circuits for all Northwest stations referenced no area availability.

e) (5.4.3.e) constraints for an embedded distributor that may result from the connections

Atikokan Hydro does not have an embedded distributor but the constraints discussed in previous sections would apply if it was applicable.

5.4.4 Capital expenditure summary

The Capital Expenditure Summary provides a snapshot of Atikokan's capital expenditures over the ten year DSP window; 5 years historical including the bridge year and 5 years forecasted. For summary purposes, the entire costs of individual projects have been allocated to one of the four OEB investment categories on the basis of the primary driver for the investment. All historical expenditures up to 2015, in the bridge year (2016), and proposed for the 2017 to 2021 Capital Expenditure Plan are categorized as follows:

1. System Access
2. System Renewal
3. System Service
4. General Plant

Project listings and descriptions for material projects in 2016, and 2017 to 2021 are described in Section 5.4.5.2. Material Investments and have been allocated to the relevant investment categories.

The categorization is derived from the capital expenditure planning process that prioritizes items based on whether they are discretionary or non-discretionary. These, in turn, were developed from Atikokan's annual performance reporting, Asset Management Strategy, customer preferences and the Regional Planning Process. Atikokan further considered potential new load and forecasts for renewable generation as discussed in other sections of the DS Plan; however investment is not needed for these drivers due to lack of growth and stagnant renewable generation interest and activity for what's believed to continue through the period of the DS Plan based on historical evidence.

Historical expenditures 2012 to 2015 as well as the 2016 bridge year and the test year 2017 and forecast 2018 through 2021 are summarized below:

Appendix 2-AB
Table 2 - Capital Expenditure Summary from Chapter 5 Consolidated Distribution System Plan Filing Requirements

First year of Forecast Period: *2017*

CATEGORY	Historical Period (previous plan[1] & actual)															Forecast Period (planned)				
	2012			2013			2014			2015			2016			2017	2018	2019	2020	2021
	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual[2]	Var					
	$ '000		%	*$ '000*		%	*$ '000*		%	*$ '000*		%	*$ '000*		%	*$ '000*				
System Access		253,960	--		184,469	--		10,116	--		22,705	--			--	10,000	40,000	50,000	15,000	10,000
System Renewal		98,734	--		126,193	--		439,244	--		201,109	--	300,695	145,805	-51.5%	261,740	92,000	114,000	167,000	182,000
System Service			--			--			--			--			--					
General Plant		13,029	--			--		9,741	--		32,927	--	5,905	3,340	-43.4%	364,000	73,000	37,000	28,000	18,000
TOTAL EXPENDITURE	-	365,723	--	-	310,662	--	-	459,100	--	-	256,741	--	306,600	149,145	-51.4%	635,740	205,000	201,000	210,000	210,000
System O&M		$299,253	--		$412,631	--		$410,090	--			--	$ 314,110	$196,865	-37.3%	$ 497,618	$ 507,322	$ 517,214	$ 527,300	$ 537,582

Notes to the Table:

1. Historical "previous plan" data is not required unless a plan has previously been filed. However, use the last Board-approved, at least on a Total (Capital) Expenditure basis for the last cost of service rebasing year, and the applicant should include their planned budget in each subsequent historical year up to and including the Bridge Year.

2. Indicate the number of months of 'actual' data included in the last year of the Historical Period (normally a 'bridge' year): 6

Year over year variances by investment category will be analyzed in this section.

CATEGORY	2012 Actual $	2013 Actual $	2014 Actual $	2015 Actual $	2016 Forecast $
System Access	253,960	184,469	10,116	22,705	-
System Renewal	98,734	126,193	439,244	201,109	300,695
System Service	-	-	-	-	-
General Plant	13,029	-	9,741	32,927	5,905
Total	365,723	310,662	459,100	256,740	306,600

2012 vs. 2013 Capital Expenditure Variances

CATEGORY	2012 Actual $	2013 Actual $	Variance 2012 to 2013
System Access	253,960	184,469	- 69,491
System Renewal	98,734	126,193	27,459
System Service	-	-	-
General Plant	13,029	-	- 13,029
Total	365,723	310,662	- 55,061

System Access

System Access for 2013 was $69,491 less than 2012. The driver behind the variance is the movement of smart meter costs approved in Decision and Order EB-2011-0293 to be moved into Atikokan's rate base in the 2012 fiscal year.

System Renewal

In 2013, Atikokan had an increase in System Renewal of $27,459; this variance is less than the materiality threshold of $50,000.

System Service

In 2013, Atikokan had no change to System Service.

General Plant

In 2013, Atikokan`s General Plant expenditures decreased by $13,029 and is deemed immaterial based on the materiality threshold.

2013 vs. 2014 Capital Expenditure Variances

CATEGORY	2013 Actual $	2014 Actual $	Variance 2013 to 2014
System Access	184,469	10,116	- 174,353
System Renewal	126,193	439,244	313,051
System Service	-	-	-
General Plant	-	9,741	9,741
Total	310,662	459,100	148,438

System Access

System Access decreased by $174,353 in 2014. This is material and is a result of the 2013 year movement of Smart Meter Capital Costs out of variance accounts; OEB Decision and Order EB-2013-0019.

System Renewal

2014 System Renewal increased by $313,051 from 2013. This is significant. The main driver in this material variance is pole replacements. Most were individual pole and structure changes less than the materiality threshold with the exception of one project where a contractor was outsourced to complete .The project included upgrades to a Fibreglass Pole and cross arm changes on the 3M2 44/115 KV Line; inspection and condition assessment was a driver of this project.

System Service

In 2014, Atikokan had no change to System Service.

General Plant

In 2017, General Plant expenditures increased by $9,741 and is immaterial.

2014 vs. 2015 Capital Expenditure Variances

CATEGORY	2014 Actual $	2015 Actual $	Variance 2014 to 2015
System Access	10,116	22,705	12,590
System Renewal	439,244	201,109	- 238,135
System Service	-	-	-
General Plant	9,741	32,927	23,186
Total	459,100	256,740	- 202,360

System Access

In 2015, System Access expenditures increased by $12,590 from 2014; this variance is immaterial.

System Renewal

System Renewal in 2015 decreased by $238,135 from the previous year 2014. This is mainly a result of 2014 having a large material system renewal project and emphasis on pole replacement as explained above in the 2013 versus 2014 comparison.

System Service

In 2015, Atikokan had no change to System Service.

General Plant

2015 General Plant expenditures increased by $23,186 from the previous year 2015; this is less than the materiality threshold.

2015 vs. 2016 Forecast Capital Expenditure Variances

CATEGORY	2015 Actual $	2016 Forecast $	Variance 2015 to 2016
System Access	22,705		- 22,705
System Renewal	201,109	300,695	99,586
System Service	-	-	-
General Plant	32,927	5,905	- 27,021
Total	256,740	306,600	49,859

System Access

The planned expenditures in 2016 for System Access are expected to be $22,705 less than 2015. This is a result of no planned System Access expenditures.

System Renewal

2016 System Renewal capital expenditures are forecasted to increase by $99,586 from 2015. The main driver is in pole replacement and hiring contractors to complete the project. The project was on the 3M3 line whereby accessibility is limited and requires additional equipment. Atikokan does not have to complete the job; contractors total cost was $104,185.

System Service

In 2016, Atikokan had no change to System Service.

General Plant

In 2016, General Plant decreased by $27,021 from 2015; this is less than the materiality threshold.

CATEGORY	2017 Plan $	2018 Plan $	2019 Plan $	2020 Plan $	2021 Plan $
System Access	10,000	40,000	50,000	15,000	10,000
System Renewal	261,740	92,000	114,000	167,000	182,000
System Service	-	-	-	-	-
General Plant	364,000	73,000	37,000	28,000	18,000
Total	635,740	205,000	201,000	210,000	210,000

2017 Forecast vs.2018 Forecast Capital Expenditure Variances

CATEGORY	2017 Plan $	2018 Plan $	Variance 2017 to 2018
System Access	10,000	40,000	30,000
System Renewal	261,740	92,000	- 169,740
System Service	-	-	-
General Plant	364,000	73,000	- 291,000
Total	635,740	205,000	- 430,740

System Access

In 2018, Atikokan plans to spend $30,000 more in System Access. This is below the materiality threshold of $50,000.

System Renewal

In 2018, Atikokan plans to spend $169,740 less in System Renewal. This material difference is a result of less emphasis on pole replacements and other distribution assets. Atikokan has planned the pace to slow for 2018 to control cash outflow from anticipated loan payments as a result of 2017 expenditures that are required driven from inspections and condition assessments.

System Service

In 2018, Atikokan Plans to have no change to System Service.

General Plant

In 2018 Atikokan plans General Plant to decrease by $291,000; this is a result of prior year transportation equipment (fleet) replacement; replacing a Digger Derrick and a Service Truck.

2018 Forecast vs.2019 Forecast Capital Expenditure

CATEGORY	2018 Plan $	2019 Plan $	Variance 2018 to 2019
System Access	40,000	50,000	10,000
System Renewal	92,000	114,000	22,000
System Service	-	-	-
General Plant	73,000	37,000	- 36,000
Total	205,000	201,000	- 4,000

System Access

Atikokan plans to spend $10,000 more in System Access for 2019; this difference is immaterial.

System Renewal

In 2019, Atikokan plans to spend $22,000 more in System Renewal than 2018; this variance is less than the materiality threshold.

System Service

In 2019, Atikokan Plans to have no change to System Service.

General Plant

In 2019, Atikokan plans to spend $36,000 less in General Plant; this is less than the materiality threshold.

2019 Forecast vs.2020 Forecast Capital Expenditure

CATEGORY	2019 Plan $	2020 Plan $	Variance 2019 to 2020
System Access	50,000	15,000	- 35,000
System Renewal	114,000	167,000	53,000
System Service	-	-	-
General Plant	37,000	28,000	- 9,000
Total	201,000	210,000	9,000

System Access

Atikokan plans to spend $15,000 in System Access for 2020 compared to 2019; this is considered an immaterial variance.

System Renewal

Atikokan plans to spend $53,000 more in System Renewal for 2020 compared to 2019. This is a result of less non-discretionary System Access planned for 2020.

System Service

In 2020, Atikokan Plans to have no change to System Service.

General Plant

2020 is planned to have $9,000 less expenditures in General Plant; this variance is immaterial.

2020 Forecast vs.2021 Forecast Capital Expenditure

CATEGORY	2020 Plan $	2021 Plan $	Variance 2020 to 2021
System Access	15,000	10,000	- 5,000
System Renewal	167,000	182,000	15,000
System Service	-	-	-
General Plant	28,000	18,000	- 10,000
Total	210,000	210,000	-

System Access

In 2021, $5,000 less in System Access is planned. This difference is immaterial.

System Renewal

In 2021, it is planned to spend $15,000 more in System Renewal; an immaterial difference.

System Service

In 2021, Atikokan Plans to have no change to System Service.

General Plant

General Plant is planned to decrease by $10,000; this is an immaterial variance.

5.4.5 Justifying Capital Expenditures

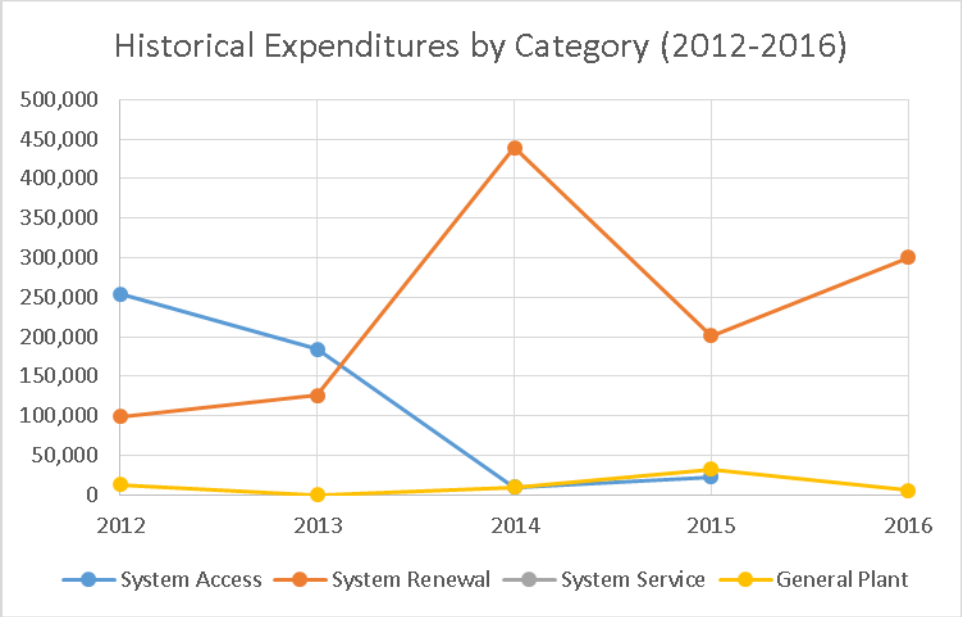
5.4.5.1 Overall Plan

Atikokan must continue to meet all regulated requirements and manage its assets in a manner that minimizes the rate impacts to Atikokan customers. While the infrastructure is aging and conditions deteriorating, Atikokan must continue to plan capital expenditures in a manner that maintain reliability, meets regulations such as 22/04 compliance and due diligence but at a level and pace that is both affordable for the utility but customer rate impacts.

a) (5.4.5.1a) Comparative Expenditures by category

The comparative expenditures by investment category over the historical period are shown below in table and illustrative graph format. Historical prior plan data has not been provided since a DSP has not previously been filed with the board.

	Historical Year				
CATEGORY	2012	2013	2014	2015	2016
System Access	253,960	184,469	10,116	22,705	0
System Renewal	98,734	126,193	439,244	201,109	300,695
System Service	0	0	0	0	0
General Plant	13,029	0	9,741	32,927	5,905
Total	$ 365,723	$ 310,662	$ 459,100	$ 256,740	$ 306,600
Note: 2016 Bridge Year, includes 6 months actual, other 6 months forecasted					



Atikokan's forecasted O&M increases during the DS Plan are predicted to be 1.95% per year. This is consistent with the OEB inflation rate when increases are not known nor can be confirmed. Given Atikokan has an existing collective agreement in place until March 31, 2019 with increases of 2.25%; 1.95% would be the minimum expected rate of increase unless other costs are foregone or lowered in trade off.

Atikokan does not expect to see material reductions in System Operations and Maintenance over the forecast period. However, as planning moves along – if it becomes evident Atikokan's Caland substation needs and can be decommissioned over time as a result rising water levels (Steep Rock Reclamation; See Section 5.2.1), Atikokan is hopeful O&M would be positively impacted in event of decommissioning Caland substation. At this time Atikokan cannot quantify the savings but would note this would be one less station for monthly inspections, breaker maintenance, transformer oil sampling and testing occurring yearly, annual insurance costs and building maintenance and repairs and snow removal completed as required as some examples of. It should also be noted this Caland substation is located X Km from Atikokan's main distribution system. Travel time to and from the station it-self and associated fuel and wear and tear on the trucks would be an additional savings.

Replacement of distribution assets generally results in assets being replaced with similar ones and therefore there would be little or no changes to O&M in the regard that inspections need to be completed as per the Distribution System Code. New infrastructure for example should lessen

the chance of unexpected call outs due to equipment failure; however this historically has not been material.

Transportation Equipment (Fleet) replacement will result in reduced OM&A for new units however this will be offset by increasing O&M of the other equipment as they get older.

Historically, Atikokan has not seen a significant nor material download pressure on O&M as a result of capital plans as cost savings are generally offset by other increases expenditures; for this reason, Atikokan does not anticipate download pressure of O&M. Atikokan assumed a 1.95% increase on O&M per year for the plan period as per the Board's approved inflation rate for when actual expenses are not known or cannot be predicted.

Atikokan does not expect change to the key drivers for investment over the period of this DS Plan. Investments will continue to be driven by asset management processes (Section 5.3) and capital Expenditure Priorities (Section 5.4)

Information related to the distributors system capability assessment

Consistent with Atikokan's Renewable Generation Plan and Sections 5.2.2 and Section 5.4.3 of this DS Plan, Atikokan does not have the capacity to support generation projects greater than 10 MW and does not find it prudent to make investments or apply for rates to support investments to support renewable FIT installations in this filing period.

5.4.5.2 Material Investments

Focus on projects that meet materiality threshold of $50K but include others that may be distinct for any reason (such as marked divergence from previous trend). Level of detail proportional to materiality. The info below must be included for EACH project that meets materiality requirements.

Projects that meet the materiality threshold of $50k will be described below.

Atikokan does not have a complete list of detailed projects within all of these activities for the 2017 test year due to the nature of these programs which consist of a series of individual projects below the materiality threshold of $50,000; for example single pole replacements and not an entire feeder of pole replacements. Poles are replaced and prioritized based on the worst conditioned

poles. However, Atikokan does have General Plant investment plans that meet this threshold. See details on these purchases.

Project	Truck Purchase - Replacement of 9082 Digger Derrick	
A. GENERAL INFORMATION		
Investment Category	General Plant	
Capital Investments	Capital Cost:	$300,000
	OM&A Cost	$0
Start Date	01-Jan-17	
In Service Date	31-Dec-17	
Project Summary	Project includes the replacement of existing 9082 Digger Derrick. Atikokan attended CUEE September of 2016 to pursue Digger Derrick replacement options and see vendor alternatives. Research being completed on Hydraulic versus Electric Digger Derrick. Consideration also being given to the new Digger Derrick replacement also replacing Single bucket truck 9076. Further in house discussions and research needs to be completed prior to commitment on specific truck but it has been identified Atikokan needs to replace the Digger Derrick and the largest budget component of 2017.	
Risk Identifed & Mitigation	Risks associated with not allowing for timely equipment replacement include an aging fleet with potentially increased downtime and or operating costs. If the acquisition of these specialty vehicles are postponed, eventually multiple pieces of equipment will require replacement at one time resulting in larger annual expenditures for fleet. Other risks associated with aging vehicles include employee safety and ergonomics, efficiency issues including increased response time to customer emergencies, and capital projects, increased fuel consumption and the potential that annual mechanical fitness testing and the repairs associated with keeping an aged vehicle road worthy will become non-economical. The geographic location of Atikokan is by virtue a detriment as it does not allow for a timely response for alternative vehicles if they were required for either daily work objectives or outage management scenarios. Similarly, Atikokan does not have spare fleet in advent trucks are out of commission; having equipment in full working order is necessary.	
Comparative Information	Historical purchase of double bucket truck 9095	
REG Investment	Not Applicable	
Leave to Construct Approval	Not Applicable	

Efficiency, Customer Value, Reliability	
Project Drivers	The main drivers for the double bucket replacements are Asset Retirement Operational Efficiency. Atikokan Hydro seeks to maximize factors that positively affect operational efficiency through consideration of equipment types. The vehicle types that currently make up the fleet have specific functions and limitations and are required to enhance worker safety, ergonomics and operational activities and the fleet size is currently matched with our field staff compliment. Atikokan Hydro's replacement policy maintains an average age of 15 years for heavy equipment.
Investment Priority	This project will become a imminent priority sooner than later if not replaced; the truck may not pass safety/inspection or may become an undue hazard.
Project Alternatives	1) Do Nothing - continue to use and repair as needed required maintenance and downtime will likely increase thus resulting in lost productively by line crew and increased operaional costs. Truck may not pass safety. 2) Purchase Used - Used has been selected in the past - this Digger Derrick 9082 was used when originally purchased. It puts risk on dependability and no warranty. The outright new purchase of 9095 Double Bucket Truck has proven to be a good business decision. 3) Purchase New - 9095 was purchased new and has been a good business decision. Warranty included. Know what your getting and should last the expected life of the truck plus some.
Safety	
Not Applicable	
Cyber-security, Privacy	
Not Applicable	
Co-ordination, Interoperability	
Not Applicable	
Economic Development	
Not Applicable	
Environmental Benefits	
Reduced emissions and improved mileage compared to aged vehicles and equipment	

C. CATEGORY-SPECIFIC REQUIREMENTS FOR EACH PROJECT/ACTIVITY

The Digger Derrick(9082) has surplassed its useful life and is at risk of incurring major future maintenance costs related to the truck's major components such as: engine, transmission, hydraulic system or chassis. The "Do Nothing" option is inappropriate because it is likely to result in an increased risk of equipment failure, maintenance costs, reduced staff safety and ergonomics and could impact our ability to respond to our customer's needs in a timely manner . The alternative of purchasing a replacement truck and sharing it with a neighboring LDC is impractical due to the substantial travel distances between the neighbouring northwest utilities. The alternative was not considered due to the loss in dependability, longevity and price is not worth the sacrifice. Atikokan's last truck purchase was a Double Bucket Truck in 2010 and has worked well. It is believed it has lots of life left and having warranty was beneficial. To help lower Atikokan's total operating costs for fleet maintenance and create a greater business case for the replacement of the Digger Derrick, an option of Purchasing a Radial Boom Truck with a single bucket to replace both the Digger Derrick and Atikokan's 9076 Single Bucket Truck. timing and consideration on the existing loan payments for vehicles was considered. To minimize utility impacts and sustain the loan payments required, consigment the end of 2017 seemed more prudent given the end of 2017 is the maturity date of one of the existing loans.

Project	Truck Purchases - Replacement of 9093/9094 Service Trucks				
A. GENERAL INFORMATION					
Investment Category	General Plant				
Capital Investments	Capital Cost:	$120,000			
	OM&A Cost	$0			
Start Date	01-Jan-17	01-Jan-18	$60,000		
In Service Date	31-Dec-17	31-Dec-18	$60,000		
Project Summary	Project includes replaces of both service trucks 9093/9094				
	Trucks can be purchased in NW Ontario				
	Service box for tools and equipment will have to be tendered elsewhere				
	Atikokan attended CUEE in aseptember to see vendor alternatives				
Risk Identifed & Mitigation	Service truck are in use daily and extensive maintenace is required to keep them in running, and safe conditionRisks associated with not allowing for timely equipment replacement include an aging fleet with potentially increased downtime and or operating costs. If the acquisition of these specialty vehicles are postponed, eventually multiple pieces of equipment will require replacement at one time resulting in larger annual expenditures for fleet. Other risks associated with aging vehicles include employee safety and ergonomics, efficiency issues including increased response time to customer emergencies, and capital projects, increased fuel consumption and the potential that annual mechanical fitness testing and the repairs associated with keeping an aged vehicle road worthy will become non-economical. The geographic location of Atikokan is by virtue a detriment as it does not allow for a timely response for alternative vehicles if they were required for either daily work objectives or outage management scenarios. Similarly, Atikokan does not have spare fleet in advent trucks are out of commission; having equipment in full working order is necessary.				
Comparative Information	Historical tuck purchases				
REG Investment	Not Applicable				
Leave to Construct Approval	Not Applicable				

B. EVALUATION CRITERIA AND INFORMATION REQUIREMENTS *Efficiency, Customer Value, Reliability*	
Project Drivers	The main drivers for the double bucket replacements are Asset Retirement service trucks are requiring more safety maintenance, example fender and box corners are rusting away as is floor.
Investment Priority	This project will become a imminent priority sooner than later if not replaced; the truck may not pass safety/inspection or may become an undue hazard.
Project Alternatives	1) Do Nothing - continue to use and repair as needed required maintenance and downtime will likely increase thus resulting in lost productively by line crew and increased operaional costs. Truck may not pass safety. 2) Purchase Used - Used has been selected in the past - It puts risk on dependability and no warranty. 3) Purchase New - Historically was purchased new and has been a good business decision. Warranty included. Know what your getting and should last the expected life of the truck plus some.
Safety	
Not Applicable	
Cyber-security, Privacy	
Not Applicable	
Co-ordination, Interoperability	
Not Applicable	
Economic Development	
Not Applicable	
Environmental Benefits	
Reduced emissions and improved mileage compared to aged vehicles and equipment	

C. CATEGORY-SPECIFIC REQUIREMENTS FOR EACH PROJECT/ACTIVITY

Both 9093 and 9094 has surplassed its useful life and is at risk of incurring major future maintenance costs related to the truck's major components such as: engine, body shape and electrical components. . The "Do Nothing" option is inappropriate because it is likely to result in an increased risk of failure, maintenance costs, reduced staff safety and ergonomics and could impact our ability to respond to our customer's needs in a timely manner . The alternative of purchasing a replacement truck and sharing it with a neighboring LDC is impractical due to the substantial travel distances between the neighbouring northwest utilities. These service trucks are used daily. The service trucks are match to the complement of the line crew. Even at time with one truck in for servicing not all crew can fit in one truck. The alternative of sharing with neighboring LDC was not considered due to the daily frequency of use of these truck. Atikokan's last trucks purchased new has worked well.

Atikokan Hydro Inc.- Monthly McKenzie MS Substation Inspection

	Acceptable		Problem/ Condition Description		Date of Correction
Yard:					
Condition of Driveway & Yard					
Condition of Station Fence & Gates					
Condition Of Signage					
Condition Of Locks					
Condition of Fence Grounds					
Vegetation Growth					
Tower Structure:					
Cement Foundation					
Corrosion/Rust					
Loose Bolts					
Phase Markers					
Structure Condition					
Condition of Insulators/Arrestors					
Transformer;					
Phase/ Feeder - Feeder 4					
Leaking Oil					
Paint Condition					
Rust / Corrosion					
Damage					
Condition of Brushings					
Feeder Amperage	Red Phase		Blue Phase	White Phase	

	Acceptable		Problem/Condition Description		Date of Correction
Transformer;					
Phase/ Feeder - Feeder 5					
Leaking Oil					
Paint Condition					
Rust / Corrosion					
Damage					
Condition of Brushings					
Feeder Amperage	Red Phase		Blue Phase	White Phase	

Notes/Comments:

Date Inspected:

Inspected by:

Signature:

	Powerline Inspection Report					Date				
Feeder Inspected	3M3	**Inspected by:**				**Signature:**				
	Item of Concern									
Location / Address	**hammer test**	**Xarm**	**Insulators**	**Primary**	**Secondary**	**Service**	**Transformer**	**Trees**	**Comments**	**Correction Date**

Priority

5. Immediate Attention - Hazardous condition exists that requires immediate attention
4. Immediate Analysis - Requires immediate analysis to determine severity of condition
3. Priority Schedule - Requires prompt planned attention but no immediate hazard exists.
2. Regularly Schedule - Requires planned attention but no immediate hazard exists
1. Regular Inspection Cycle - Potential deficiency exists, to be re-evaluated during next regular inspection cycle

Appendix B: Monthly Truck Inspection

MONTHLY TRUCK INSPECTION REPORT

DATE: **TRUCK#:** **ODOMETER READING:**

ENGINE

FLUID LEVELS	OK	COMMENTS
RADIATOR COOLANT		
ENGINE OIL		
BRAKE FLUID		
POWER STEERING FLUID		
WINDOW WASH FLUID		

BODY/CHASSIS

EXHAUST SYSTEM	OK	COMMENTS
LEAKS		
MOUNTING/ HANGERS		
MUFFLER		
TAIL PIPE		

TIRES/WHEELS	OK	COMMENTS
INFLATION		
STUDS		
NUTS		
RIMS		
TREAD		

SUSPENION	OK	COMMENTS
SPRINGS		
SHACKLES		
U-BOLTS		
FRONT END		

LIGHTS	OK	COMMENTS
SIGNALS		
FOUR WAYS		
HEADLIGHTS		
CLEARANCE LIGHTS		
BACKUP LIGHTS		
AMBER FLASHING LIGHT		

CONTINUED MONTHLY TRUCK INSPECTION

GLASS/MIRRORS	OK		COMMENTS
WINDSHIELD			
WIPERS			
SIDE WINDOWS			
REAR WINDOW			
DRIVERS MIRROR			
PASSENGER MIRROR			
REAR VEIW MIRROR			

TOWING ACCESSORIES	OK		COMMENTS
BALL/ PINTLE HITCH			
ELECTRICAL PLUG SOCKET			
SAFETYCHAIN ATTACHMENTS			

SAFETY EQUIPMENT	OK		COMMENTS
HORN			
FIRE EXTINGUISHER			
TRAFFIC CONES			
TRIANGLES/FLARES			
WHEEL CHALKS			
FIRST AID KIT			
REVERSING INDICATOR			
BOOM CLEANED			

BRAKES	OK		COMMENTS
AIR BRAKES			
PARK BRAKES			
HYDRAULIC BRAKES			
ELECTRIC BRAKES			

CAB INTERIOR	OK		COMMENTS
GUAGES			
DASH LIGHTS			
INTERIOR LIGHTS			
TWO RADIO			
SEAT BELTS			
HEAT/AIR CONDITIONER			
FLASH LIGHT			
FLOOD LIGHT			
CLEAN/ORGANIZED			

INSPECTED BY: Signature:

ATTACHMENT A

ATIKOKAN HYDRO INC

RENEWABLE ENERGY GENERATION INVESTMENTS PLAN

Table of Contents

Introduction

As per the Chapter 5 Consolidated Distribution System Plan Filing Requirements Atikokan Hydro is submitting its renewable energy generation investments plan for consideration and comment from the OPA.

Atikokan Hydro Inc. is a Northwest Ontario licensed electricity distributor (ED-2003-0001), supported by transmission assets within Northwestern Ontario ,that owns and operates electricity distribution systems that provides service to the Town of Atikokan; service area of approximately 380 km square. Electricity is delivered from Hydro One's Moose Lake Transformer Station (TS) to Atikokan Hydro's substations via two 44 kV circuits. Atikokan Hydro then distributes electricity at the appropriate voltage to residential and commercial customers. As of July 1, 2016 Atikokan Hydro had a total of 1646 residential and commercial customers combined and 625 streetlight connections. Less than one percent of Atikokan Hydro's customer base have renewable generation contracts. Of these contracts; these are all Micro FIT, none are under the FIT program.

Current assessment of the distribution system

Atikokan Hydro's point of supply is Moose Lake TS owned by transmitter Hydro One Networks Inc. Moose Lake TS is a standard vintage TS with a dual bus arrangement (B2 & B3) that can be tied together. The primary side is a 115 kV with a complex closed transition switching arrangement amongst four circuits. The four circuits are the A3M (Mackenzie TS to Moose Lake TS}, the M2D (Moose Lake TS to Dryden TS), the B6M (Moose Lake TS to Lakehead TS) and the M1S which serves as a collector for privately owned hydro electric generators including Valerie Falls, Calm Lake and Crilly.

Atikokan Hydro owns the 3M2 and 3M3 sub transmission feeders fed from the B2 and B3 bus respectively. These two lines operate at 44 kV and are connected directly to the Moose Lake TS. See the attached map, Appendix A, showing the two circuits. Moose Lake TS has two transformers which differ in size ratings; T2 transformer is 8 MWA while the T3 transformer is 15 MVA. The thermal capacity listed in Hydro One's List of Station Capacity supports this difference in size ratings. The following table was documented in Hydro Ones' listing.
(Retrieved from http://www.hydroone.com/Generators/Documents/HONI_LSC.PDF, pg. 16)

Table 1 Hydro One Station Capacity

Hydro One Station Capacity

Station Name	Bus Name	Feeder Name	Voltage (kV)	Minimum Load (MW)	Short Circuit Capacity (MVA)	Thermal Capacity (MW)	Upstream TS	Upstream TS Feeder
Moose Lake TS	B2	M2, M5	44	0.8	1204.6	4.6		
Moose Lake TS	B3	M3, M6	44	1.1	1139.8	8.3		
Moose Lake TS	Total	M2, M3, M5, M6	44	1.8	N/A	5.7		

In preparation of Atikokan Hydro's GEA Plan, Atikokan referred to the IESO's document, LRP: Connection Availability and TAT Tables, dated June 4, 2015. (http://www.ieso.ca/Documents/generation-procurement/lrp/lrp-1-final/LRP-Connection-Availability-and-TAT-Tables.pdf, pg 7, 8, 13 and 35). The following was compiled for the Northwest area and specifically those closely tied to Atikokan Hydro.

Table 2: Connection Availability – Circuit

Connection Availability Table - Circuit

Transmission Circuit	Area	Area Availability (MW)	Circuit Availability (MW)	Name of Transmitter
A3M	Northwest	**No Area Availability**		Hydro One Networks Inc.
B6M	Northwest	**No Area Availability**		Hydro One Networks Inc.
M1S	Northwest	**No Area Availability**		Hydro One Networks Inc.
M2D	Northwest	**No Area Availability**		Hydro One Networks Inc.

While not listed in Table 1; it should be noted the connection area availability for all Northwest stations, there is 'No Area Availability'. Additionally, data available in 2011 indicated area availability for FIT capacity as 100 MW. It is clear from both the present data and research, circumstances have changed and there is currently no room; the capacity has been awarded in previous contracts.

Table 3: Connection Availability – Station

Connection Availability Table - Station										
Station Name	**Bus Name**	**Thermal Availability (MW)**	**Short Circuit Availability (MVA)**	**Upstream Supply Circuit #1**	**Availability of Supply Circuit #1 (MW)**	**Upstream Supply Circuit #2**	**Availbility of Supply Circuit #2 (MW)**	**Area**	**Area Availbility (MW)**	**Station Owner**
Moose Lake TS	B2							Northwest	**No Area Availability**	Hydro One Networks Inc
Moose Lake TS	B3							Northwest	**No Area Availability**	Hydro One Networks Inc
Moose Lake TS	Total							Northwest	**No Area Availability**	Hydro One Networks Inc

In both the above Circuit and Station tables the area availability indicates 'no area availability' meaning ineligibility for Large Renewable Procurement (FIT). Therefore, in summation, the available capacity to connect generation to these feeders is not an option based on the most current published information.

Hydro One have indicated that Moose Lake TS is due for upgrades and refurbishment due to end of life of the assets. Both Hydro One and Regional planning indicates refurbishment to occur in 2019. This may be considered as one reason the area availability is marked as 'no area availability' and as such ineligible.

Description of Feeders

Atikokan Hydro as noted above has two feeds from Moose Lake TS. 3M3 feeder is fed from T3 (B3 bus) and 3M2 feeder fed from the T2 (B2 bus). As noted previously, the T3 transformer has the greatest physical capacity. Both 44 kV circuits (3M3 and 3M2) come into town and are paralleled such that the open point can be variable. Mostly the two lines are kept at open point in the middle but the two lines create greater reliability as an alternative electricity source in event one line is down or needed to take out of service for maintenance as an example. Although the T3 has greater capacity, neither bus' have the area availability for renewable generation connection as referenced in Table 2 on page 2.

Information on the planned development of the system to accommodate renewable generation connections

Atikokan Hydro does not have investments planned at this time to accommodate renewable generation connections. Atikokan Hydro is not aware of any FIT applications nor Micro FIT connection requests; for this reason it is not justifiable to allocate dollars to system developments for renewable generation connections.

Further Atikokan Hydro has no historical capital or OM&A expenditures related to renewable generation connections; therefore, no approved expenditures funded through current rates.

Atikokan Hydro will however cooperate and evaluate system capacity if potential interest arise.

Applications from renewable generators over 10 kW

Atikokan Hydro does not have any applications from renewable generators over 10 kW for connection and to Atikokan Hydro's knowledge the OPA/IESO has never had to approve or deny any applications for renewable generators over 10 kW for the FIT program.

Overall potential for developing renewable generation in the distributor's service area.

To Atikokan Hydro's knowledge there is no present interest in developing renewable generation under the FIT program nor micro FIT connections.

It should be noted with Atikokan's Hydro's configuration, a good utility practice would be accepting micro FIT'S only at this time. To have the potential and ability to connect FIT projects, significant investment would be required; negatively impacting customer's rates. The configuration of Atikokan's substations is discussed in further detail in the next section.

Constraints within for the distributors system related to the connection of renewable generation

Atikokan Hydro has four substations fed from the two 44 kV feeders. Three of the substations are located within the more densely populated area of Atikokan hydro's service area. These substations supply five feeders. These feeders are configured to allow load to be transferred from one feeder to the other without interrupting service to customers. This has an advantage of being able to match load to substation capacity as well as restoring power should a substation be interrupted. This is often termed a ring bus configuration that can accommodate closed transition switching.

The substations are protected by fuses and load break switches. If generation were to be added, regardless of the location, it would need to be sized to accommodate reverse flow in the smallest sub station. The smallest rated substation being Hogan at 2 megs or 2000 kilowatts. Upgrading substations would have a significant negative impact on rates for Atikokan Hydro customers considering load is not expected to grow significant in the next 5 years. In fact, Atikokan Hydro has historically been dropping in customer count.

Upstream constraints of a host distributor or transmitter that may affect the ability to accommodate renewable generation connection in the distributor's service area

Atikokan Hydro does not expect additional micro FIT projects in the near future assuming incentives and pricing remain the same. Atikokan Hydro's last connection was October of 2014; over a year and a half ago. The table below summarizes Atikokan Hydro's connections to date and suggests the greatest interest occurred in 2011 and 2012 and diminished thereafter. No recent applications have been submitted nor pending connections since the total existing 15 micro FIT contracts were issued. Therefore, Atikokan Hydro is not aware of any future new connections or generation impacts. Provided the future is consistent with the last few years minimal to no activity, Atikokan Hydro does not find it prudent to make investments or apply for rates to support investments to support renewable FIT installations in this filing period. Previous connections were at no costs to Atikokan Hydro; any applicable connection costs including the cost of the meter was incurred by the customer. Similarly, future generators will also be responsible for any applicable installation costs. Atikokan Hydro will continue to assist and work with any potential upcoming micro FIT generators and ensure connections are made in a timely manner. Atikokan Hydro has reason to believe based on existing configuration, future micro FIT generations can be

accommodated but each connection will have to be evaluated due to substation capacity; ensuring reliability is maintained.

Table 4: Summary of Atikokan Hydro Generators

Summary of Atikokan Hydro Micro FIT Generations			
	Year Connected	**Number of Connections**	**Total Nameplate Capacity (Kw)**
	2010	2	6.29
	2011	6	55.95
	2012	3	28.38
	2013	1	10
	2014	1	9.8
	2015	0	0
	Total	**13**	**110.42**

Table 5 : Summary of Atikokan Hydro Connections

Summary of Atikokan Hydro Individual Connection Capacity			
	Connection	**Nameplate Capacity (kW)**	
	Micro FIT #1	4.20	
	Micro FIT #2	3.99	
	Micro FIT #3	6.84	
	Micro FIT #4	8.17	
	Micro FIT #5	9.40	
	Micro FIT #6	9.88	
	Micro FIT #7	9.88	
	Micro FIT #8	9.88	
	Micro FIT #9	9.89	
	Micro FIT #10	9.89	
	Micro FIT #11	8.60	
	Micro FIT #12	10.00	
	Micro FIT #13	9.80	
Note: Above connections are listed in order of connections			
Micro FIT Nameplate Capacity	Smallest connection	4.20	kW
	Largest connection	10.00	kW
	Average connection	8.49	kW
	Total connections	110.42	kW

In terms of total connections, it should be noted, Atikokan Hydro has 13 Micro FIT customers; however, there are actually 15 Micro FIT contracts awarded by the IESO. Two applicants were awarded contracts but added incremental installations with both IESO and Atikokan Hydro connection and contract approval. One applicant added both the original installation and incremental installation in the same year (2010); whereas, the other application completed the original installation in 2011 and added the incremental installation thereafter in 2012.

Downstream constraints that the distributor may cause for an embedded distributor

Atikokan Hydro does not have an embedded distributor but the constraints discussed previously would apply if this was applicable.

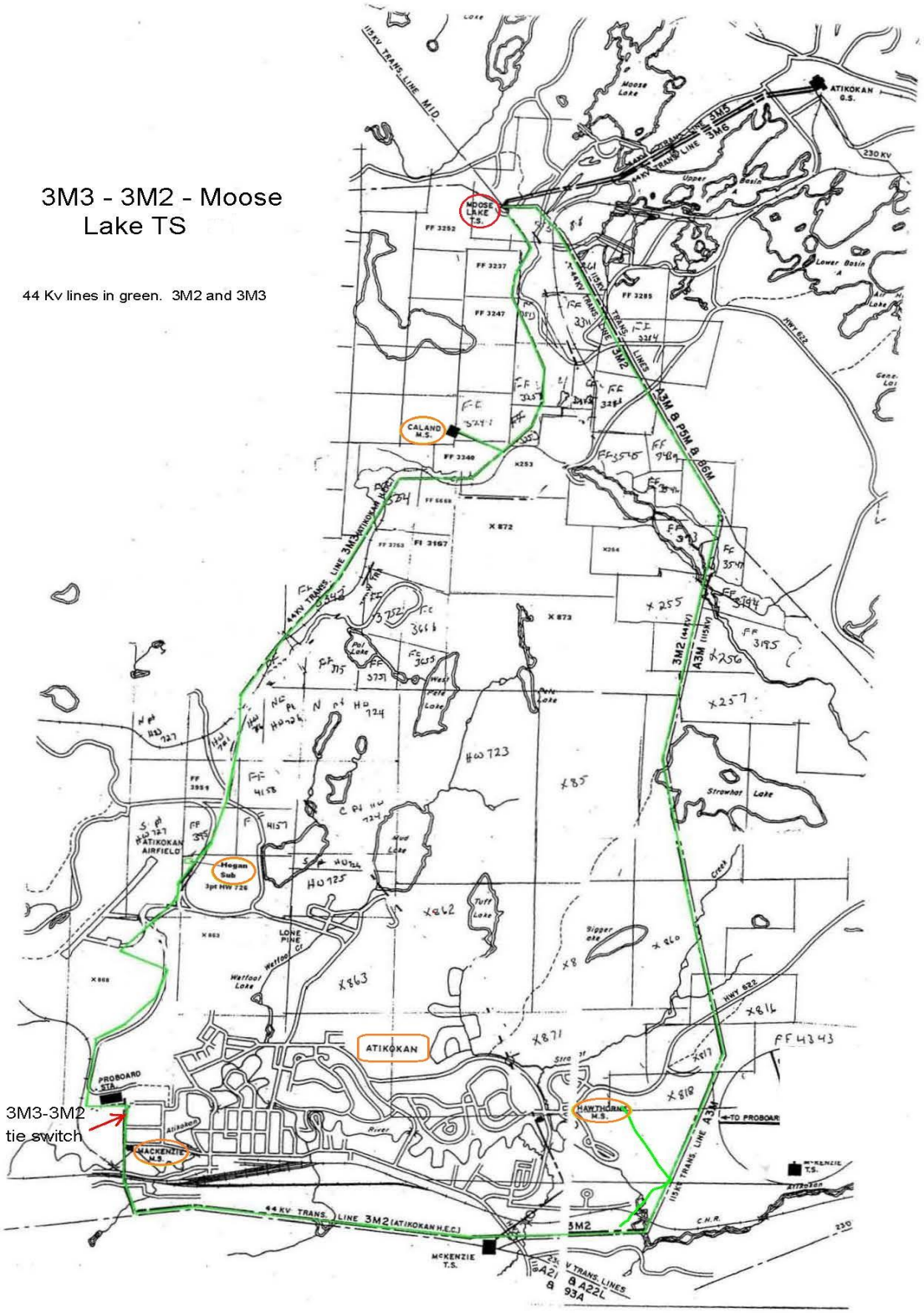
Any information received from the OPA regarding integrated planning for regions of the province or the province as a whole

Atikokan Hydro participates with the IESO in the Integrated Regional Resource Plan (IRRP) West of Thunder Bay with the other working group members. The IRRP is only in draft form at this time. However, there has been consideration to increase the capacity of the 230 kV circuit from Atikokan to the Dryden area and beyond. There are no other major considerations at this time. In the northwest, planning is driven by new or expanding large transmission connected industrial customers, unlike southern Ontario which is mostly driven by growth in the LDC customer base.

Conclusion

In closing, Atikokan Hydro will continue to be open to future interested generator applicants. Atikokan Hydro does however believe its existing configuration leaves capacity limited and Micro FIT generators would be the best utility practice without having a negative impact on reliability and customer rates. The upstream constraints at Moose Lake TS, including the unequal transformer sizes and the 'no area availability' will prevent any renewable generation connections in the near or foreseeable future. Atikokan Hydro will continue to monitor the capacity for the Northwest region, but given present time indicators, it would not be prudent for Atikokan Hydro to make investments or apply for rates to support renewable FIT installations for at least another 5 years.

Appendix A: 3M2 and 3M3 44 kV Lines



ATTACHMENT B

IESO Letter of Comment

Atikokan Hydro Inc.

Renewable Energy Generation Investment Plan

July 29, 2016

ieso
Independent Electricity System Operator

Introduction

On March 28, 2013, the Ontario Energy Board ("the OEB" or "Board") issued its Filing Requirements for Electricity Transmission and Distribution Applications; Chapter 5 – Consolidated Distribution System Plan Filing Requirements (EB-2010-0377). Chapter 5 implements the Board's policy direction on 'an integrated approach to distribution network planning', outlined in the Board's October 18, 2012 Report of the Board - A Renewed Regulatory Framework for Electricity Distributors: A Performance Based Approach.

As outlined in the Chapter 5 filing requirements, the Board expects that the Ontario Power Authority[1] ("OPA") comment letter will include:

- the applications it has received from renewable generators through the FIT program for connection in the distributor's service area;
- whether the distributor has consulted with the OPA, or participated in planning meetings with the OPA;
- the potential need for co-ordination with other distributors and/or transmitters or others on implementing elements of the Renewable Energy Generation ("REG") investments; and
- whether the REG investments proposed in the DS Plan are consistent with any Regional Infrastructure Plan.

Aitkokan Hydro Inc. – Distribution System Plan

On July 15, 2016, the IESO received Atikokan Hydro Inc.'s ("Atikokan Hydro") 5-year Renewable Energy Generation Investment Plan ("Plan"). The IESO has reviewed the Plan and provides the following comments.

OPA FIT/microFIT Applications Received

With respect to existing and proposed REG connections, Table 4 of the Plan illustrates that Atikokan Hydro has connected 15 microFIT projects totalling 110.42 kW of capacity. The Plan indicates that the last connection was in 2014 and there are no FIT projects connected, or FIT and microFIT applications awaiting connection (pp. 4 and 5). Atikokan Hydro also indicates that it does not expect additional renewable generation connections in the near future, and proposes no REG connection investments at this time.

According to the IESO's information as of June 30, 2016, the IESO has offered contracts to 15 microFIT projects totalling 105 kW of capacity. The REG connections information in Atikokan Hydro Inc.'s Plan is therefore substantially consistent with that of the IESO.

[1] On January 1, 2015, the Ontario Power Authority ("OPA") merged with the Independent Electricity System Operator ("IESO") to create a new organization that will combine the OPA and IESO mandates. The new organization is called the Independent Electricity System Operator.

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Consultation / Participation in Planning Meetings; Coordination with Distributors / Transmitters / Others; Consistency with Regional Plans

Atikokan Hydro is one of the five local distribution companies in the West of Thunder Bay Sub-region, which is a sub-region of the Northwest Ontario Region identified through the Ontario Energy Board regional planning process. As member of the Technical Working Group for the West of Thunder Bay Sub-region, Atikokan Hydro has been involved in the development of the West of Thunder Bay Integrated Regional Resource Plan ("IRRP"), which was published on July 27, 2016[2].

The regional planning process for this region is now complete and will be undertaken again when the next 5-year planning cycle commences, unless there is sufficient load growth, or an event that triggers the requirement to initiate the regional planning process earlier.

The IESO appreciates the opportunity to comment on the Renewable Energy Generation Investment Plan provided by Atikokan Hydro Inc. as part of its Distribution System Plan.

[2] http://www.ieso.ca/Pages/Ontario%27s-Power-System/Regional-Planning/Northwest-Ontario/West-of-Thunder-Bay.aspx

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