KEY PERFORMANCE INDICATORS

YUKON ENERGY CORPORATION

2015 ANNUAL REPORT

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EXECUTIVE SUMMARY

Yukon Energy directly serves approximately 2,045 customers (10% of all electrical customers in Yukon) at the distribution (retail) level, most of who live in Dawson City, Mayo and Faro. Through its wholesale sales to ATCO Electric Yukon ("AEY"), it also provides power indirectly to approximately 16,400 retail customers served on the inter-connected system. During 2015 the only customer served under Rate Schedule 39 - Primary Industrial was Capstone Mining Corp ("Minto mine") which operated for the whole year.

As shown in Table 1 (following page), the number of retail customers increased modestly during 2015. Total firm sales increased by 1.4% due to general service sales being 6.3% higher, industrial sales to Minto mine were 2.0% higher and wholesale sales to AEY were 1% higher.

The LNG generation project was commissioned at mid-2015. (LNG and diesel generation are hereafter combined and reported as thermal generation for KPI reporting purposes.) The addition of the two LNG generation units was offset by a corresponding reduction of diesel generation as both the WD1 and WD2 Mirlees units were retired during 2015. The Bonus wind turbine (0.150 MW) was also retired during 2015 as it had reached the end of its useful life. Wind generation is now limited to one Vestas 0.66 MW unit (WD2).

Hydro generation remains the predominant source of generation supplemented by thermal generation as required. During 2015, thermal generation was higher than the past 3 years due to capital projects, mainly due to the Aishihik Elevator Steel Replacement project which caused the Aishihik units to be out of service from June to early October. Winter peak generation was minimal at approximately 2 GWh.

As is typical, the Yukon Energy system experienced more outages than the CEA average (5-year average SAIFI index of 10.05 compared to 2.81 for CEA); however, they were of a shorter duration (5-year average SAIDI index of 5.31 compared to 7.40 for CEA); and customers experienced a shorter overall duration without power (5-year average CAIDI index of 0.53 compared to 2.63 for CEA).

During 2015, YEC experienced 1 Lost Time Injury of 4 days duration, compared to 1 Lost Time Injury of 1 day duration in 2014, 1 Lost Time Injury of 20 days duration in 2013, and 1 Lost Time Injury of 2 days duration in 2012.

The Financial indicators reflect slightly lower operating expenses distributed over slightly increased generation than the prior year.

Table 1: Summary of Customers, Energy Sales and Generation

Line No.		Description		2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual
		Residential						
1		Customers		1,515	1,529	1,559	1,561	1,588
2		Sales in MWh		12,834	13,289	13,593	13,201	13,333
3		MWh sales per customer		8.5	8.7	8.7	8.5	8.4
		General Service						
4		Customers		464	464	470	475	480
5		Sales in MWh		21,538	22,446	22,301	23,415	24,891
6		MWh sales per customer		46.4	48.4	47.4	49.3	51.8
		Industrial						
7		Sales in MWh		43,259	44,030	40,513	36,302	37,186
		Street lights						
8		Sales in MWh		283	283	283	287	292
		Space lights						
9		Sales in MWh		14	14	14	14	14
		Total - Firm Retail & Ind.						
10		Customers		1,979	1,992	2,029	2,036	2,068
11		Sales in MWh		77,927	80,062	76,704	73,219	75,716
		Wholesale sales						
12		Sales in MWh		290,541	310,264	307,927	295,284	297,961
		Total - Firm						
13		Sales in MWh		368,469	390,325	384,631	368,503	373,677
		Secondary						
14		Sales in MWh		552	1,993	3,959	5,415	7,030
		Total						
15		Sales in MWh		369,021	392,318	388,590	373,918	380,707
16		Losses - MWh		31,745	34,388	34,850	28,405	37,328
17		Losses - %		8.7%	8.8%	9.0%	7.6%	9.8%
18		Total Generation		400,766	426,706	423,440	402,323	418,035
		Source						
19		Hydro Generation		384,429	423,206	421,253	400,421	412,517
20		*% of total*		*95.9%*	*99.2%*	*99.484%*	*99.5%*	*98.7%*
21		Thermal Generation		15,935	3,055	1,910	1,566	4,868
22		*% of total*		*4.0%*	*0.7%*	*0.451%*	*0.4%*	*1.2%*
23		Wind Generation		402	445	277	337	650
24		*% of total*		*0.1%*	*0.1%*	*0.065%*	*0.1%*	*0.2%*

1.0 GENERATION KPIs

Operational Performance Indicators

The operational performance of generation units is gauged on the basis of Capacity Factor, Unit Availability, Operating Factor and Forced and Planned Outage Rates.

Detailed definitions are as provided below:

- ***Capacity Factor*** – Defined as the actual energy produced by the generators, divided by the maximum possible energy production in a year. This indicator ignores the fact that there may not be sufficient fuel (e.g., water or wind) to run the generation unit at its maximum for 365 days. It is useful as an indication of the utilization of the generators as useful assets, especially in terms of providing energy (kWh's). The higher the percentage the more the units are being run at closer to their maximum capacity.

- ***Unit Availability*** – Defined as the actual number of hours the generators were available for use in the year, divided by the total number of hours in the years (8,760 except in a leap year). This number, expressed as a percentage, is useful in monitoring the overall reliability of the generators but does not consider whether the units were available when they were needed the most, (i.e., hydro in the summer and diesel in the winter).

- ***Operating Factor*** – Defined as the hours that the generators were on-line and generating power, divided by the total number of hours in the year. It is useful in assessing the value of the generation required on the grid.

- ***Forced Outage*** – Defined as the occurrence of a component failure or other condition which requires that the generation unit be removed from service immediately or up to and including the very next weekend. It represents the percentage of time that a unit is not available for operation due to an unscheduled removal from service.

- ***Planned Outage*** – Defined as the removal of a generating unit from service for inspection and/or general overhaul usually scheduled well in advance. It is the overall percentage of hours less Unit Availability and Forced Outages rates.

The graphs and tables on the pages following provide the Capacity Factor, Unit Availability, Operating Factor, and Forced & Planned Outage rates for Yukon Energy owned hydro and diesel generators.

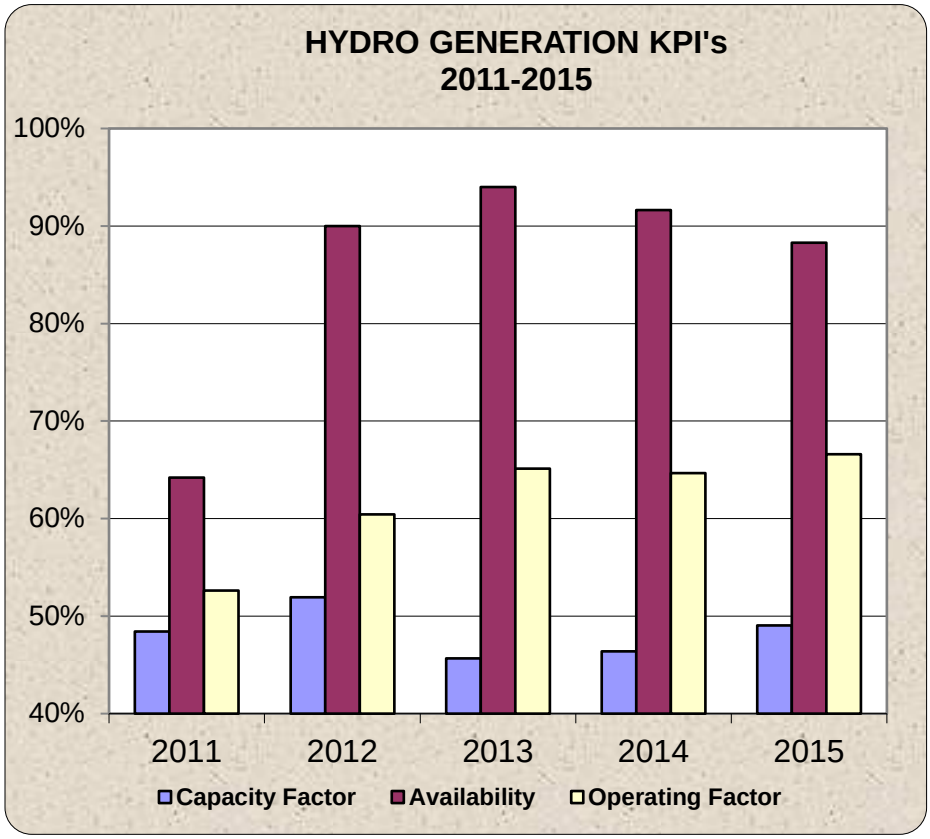
Summary of Results for Hydro Generation KPIs

A summary of Hydro generation KPIs is provided in Table 1-1 and Figure 1-1 below:

Table 1-1: Hydro Generation KPI's

Year	Capacity Factor	Unit Availability	Operating Factor	Forced Outage Rate	Planned Outage Rate
2011	48.42%	64.19%	52.62%	0.22%	35.59%
2012	51.94%	89.99%	60.42%	0.99%	9.02%
2013	45.66%	93.99%	65.12%	0.26%	5.75%
2014	46.37%	91.65%	64.67%	1.10%	7.25%
2015	49.03%	88.29%	66.61%	0.25%	11.46%

Figure 1-1: Hydro Generation KPIs



The hydro generation KPI results for 2011 were significantly lower due to the Mayo B and Aishihik Third Turbine projects which required extended plant outages which reduced the Capacity Factor, Unit Availability and Operating Factor. The Capacity and Operating Factors for 2013 and 2014 reflect normal

operations with the increased capacity from the newly installed hydro generation units that went into service in late 2011. The lower Availability rate during 2015 is due to the Aishihik hydro units being out of service for June through to early October while the structural steel in the elevator shaft is being replaced.

The Forced Outage Rates for 2011 through 2015 are the result of multiple minor incidents all of relatively short duration; there was no event which incapacitated any hydro unit for an extended period of time. The higher Planned Outage Rate in 2011 was due to hydro units being out of service during the installation of new units. The Planned Outage Rates for 2012 through 2014 are indicative of standard annual planned maintenance programs and unit overhauls. The higher Planned Outage Rate for 2015 is due to the Aishihik units being out of service during the elevator structural steel replacement project .

Summary of Results for Thermal Generation KPIs

A summary of thermal generation KPIs is provided in Table 1-2 below:

Table 1-2: Thermal Generation KPI's

Year	Capacity Factor	Unit Availability	Operating Factor	Forced Outage Rate	Planned Outage Rate
2011	6.15%	95.84%	8.71%	3.07%	1.09%
2012	0.78%	90.04%	1.00%	2.05%	7.91%
2013	0.50%	93.21%	0.95%	1.41%	5.38%
2014	0.45%	93.29%	1.06%	1.06%	5.65%
2015	1.47%	97.33%	1.92%	0.54%	2.13%

Thermal generation (diesel & LNG units combined) remains minimal as it continues to fulfill the role of back-up generation. The 2015 Capacity Factor and Operating Factor were both slightly higher as thermal generation was required for capital projects while the Aishihik hydro units were out of service from early June to early October. Peaking generation for 2015 amounted to approximately 2 MWh during winter months. The 2015 Unit Availability rate increased as there were fewer forced outages, and planned outage hours were reduced due to less maintenance work. The LNG project was commissioned at mid-year which was offset by retirement of the WD1 and WD2 Mirlees units

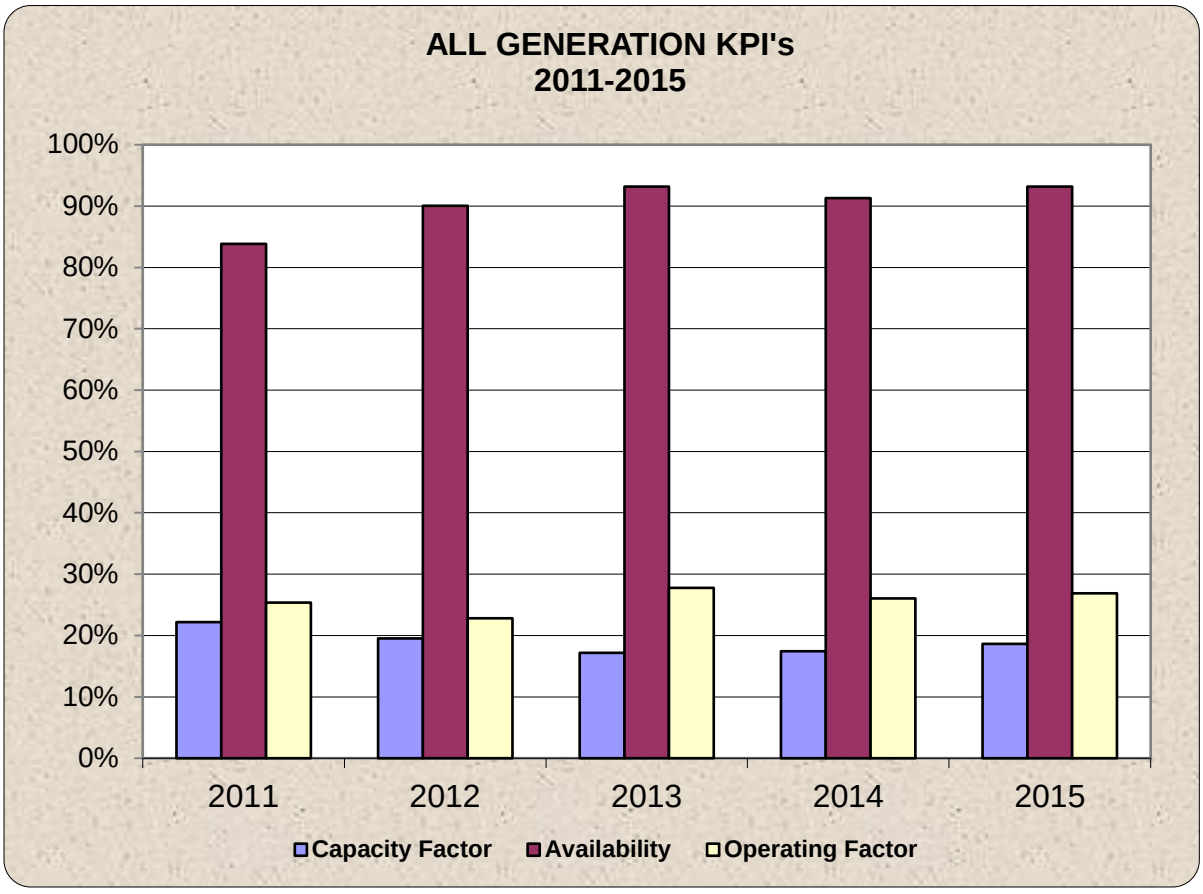
Wind Turbine

During 2015 the Vestus wind turbine achieved a Capacity Factor of 11.24% on a Unit Availability rate of 67.36%. The unit was in Forced Outage status for 31.83% (110 days) of the year due to multiple icing incidents rendering it unavailable for service. The Bonus wind turbine was officially retired during 2015 as it had reached the end of its useful life.

Summary of Results for All Generation KPIs

A summary of all generation KPIs for the period from 2011 to 2015 is provided in Figure 1-2 below:

Figure 1-2: All Generation KPIs: 2011 to 2015



As mentioned in the Hydro KPIs section, the overall Unit Availability dips in 2011 due to reduced availability of hydro units during the Mayo B and Aishihik Third Turbine construction projects. During 2012 through 2015 Unit Availability returns closer to historical norms of +90% as capital programs have less of an impact that in 2011. The combined (hydro + thermal) Forced Outage rate for 2015 was the lowest it has been in the past 4 years at .44% while the Planned Outage rate was 5.55%.

2.0 DISTRIBUTION KPIs

The reliability indices on the following pages report distribution performance for Yukon Energy service areas and include all outages of any duration that affect greater than 50 customers, a complete YEC or AEY service area or result in an interruption in service to an industrial customer.

Reliability Performance Indicators

Reliability of the distribution system is assessed based on the following indicators that define distribution performance:

- ***System Average Interruption Frequency Index (SAIFI) -*** SAIFI is the average number of interruptions per customer for the period (a year in this case). It is a measure of how many outages an "average" customer experienced throughout the year. SAIFI is calculated by taking the total number of customer interruptions divided by the total number of customers served.

- ***System Average Interruption Duration Index (SAIDI) -*** SAIDI is the system average interruption duration for customers served for the period (a year in this case). It is a measure of how long all customers were affected (i.e., the last customer to be restored power). SAIDI is calculated by totalling the customer hour interruptions and dividing by the total number of customers served.

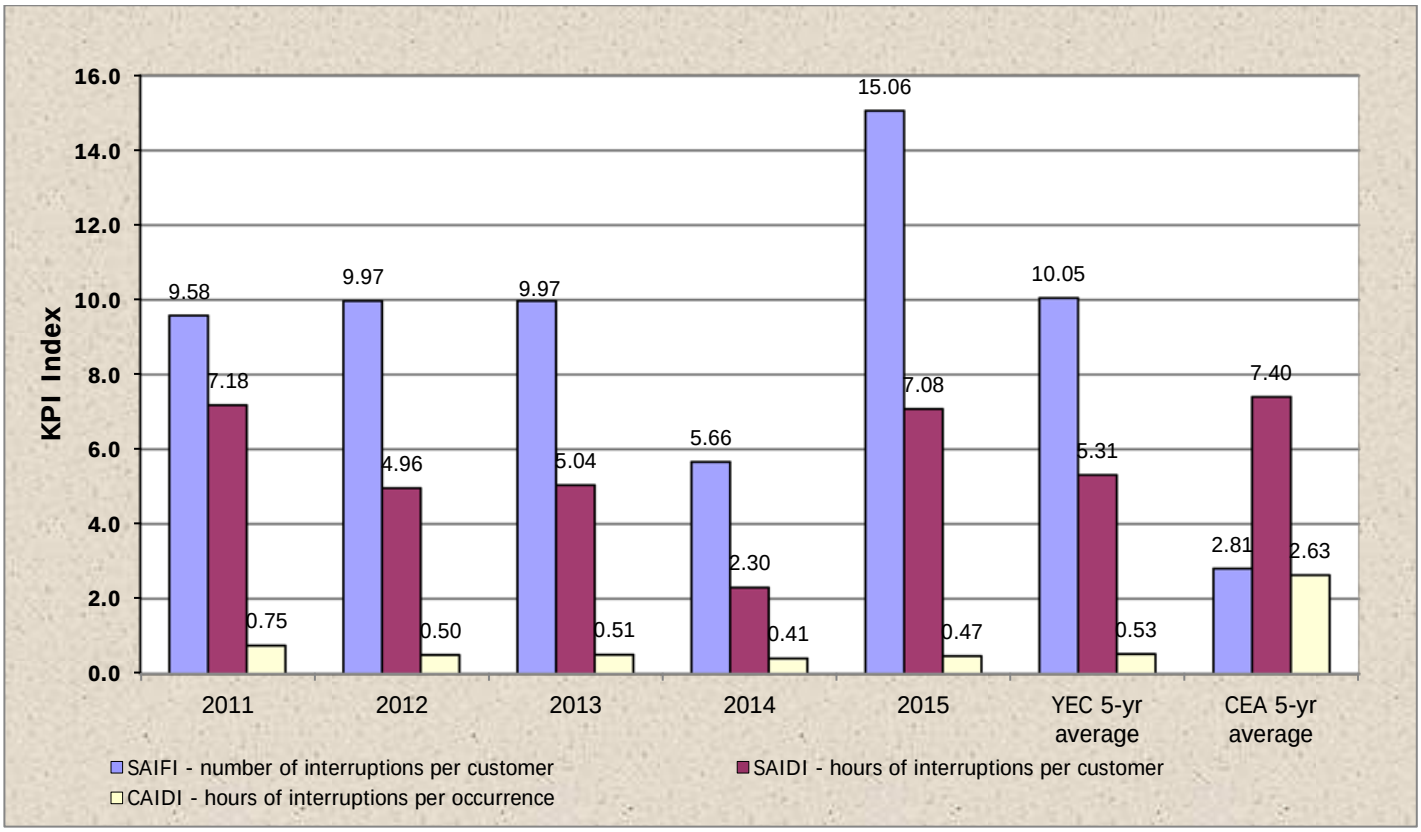
- ***Customer Average Interruption Duration Index (CAIDI) -*** CAIDI is the average customer interruption duration for customers interrupted. It is a measure of how long the "average" outage lasted for the customers affected. CAIDI is the total number of customer hour interruptions divided by the total number of customer interruptions.

Summary of Results for Distribution KPIs

Figure 2-1 (following page) illustrates the reliability indicators using YEC data for 2011 through 2015 along with a 5-year average for YEC compared to the most current 5-year CEA average[1].

[1] The Canadian Electrical Association (CEA) compiles data from member utilities across the country which differentiates urban utilities (Region 1) from urban/rural (Region 2) utilities. For comparative purposes, Yukon Energy is more similar to Region 2 utilities. 5-year CEA averages are calculated based on 2011-2015 numbers.

Figure 2-1: Yukon Energy Distribution KPIs: 2011 to 2015



The SAIFI index is a function of the number of customers affected by outages that occur each year. Refer to the Classification of Distribution Outages section (below) for analysis and comment regarding causation of outages. As a small grid, YEC typically experiences a higher frequency rate than the CEA index. Part of this increased frequency is due to the YEC reporting standard which includes any outage that affects a whole YEC service area, or a AEY community receiving power from YEC, or an industrial customer, even though there may be fewer than 50 customers affected by the outage. The jump in customer interruptions in 2015 is due to multiple outage incidents, mostly affecting the northern grid, interrupting service to all customers in Dawson or Faro. For example, outages for Lightning, Weather, Trees and Foreign during 2015 accounted for 18,011 customer interruptions compared to 5,263 in 2014 while outages associated with generators and ancillary equipment resulted in 10,582 customer interruptions compared to 4,967 in 2014.

The SAIDI index is a function of the duration of the outages. The nature of an outage often affects the duration as localized outages are usually quicker to restore power to customers while outages originating on a transmission line usually take longer to determine the cause and location, then resolve. Outage incidents caused by trees, lightning or snow affecting transmission lines contribute most to the customer

hour interruptions because they affect a larger segment of the grid for a longer duration than smaller more localized outages. Typically, YEC customers experience fewer customer hour interruptions than the CEA average. This is due to having back-up generation in communities which is readily available when an outage occurs that impacts transmission infrastructure. During 2015, the increase in duration correlates directly to the number of customers affected by outages increasing the customer hours of interruptions, but there were no outages of a notably longer duration during 2015 than in prior years.

The CAIDI index indicates the average duration of outages experienced by customers. It is typically lower than the CEA average which reflects YEC's ability to restore power on its grid more quickly than southern grids resulting in shorter outage durations being experienced by its customers. The 2015 CAIDI is consistent with past years as localized generation is typically available to restore service to customers.

Classification of Distribution Outages

Yukon Energy classifies the primary cause of its customer interruptions to match the following CEA classification codes and descriptions:

0 – Unknown/Other - Customer interruptions with no apparent cause or reason which could have contributed to the outage.

1 - Scheduled Outage - Customer interruptions due to the disconnection at a selected time for the purpose of construction or preventive maintenance.

2 – Loss of Supply - Customer interruptions due to problems in the bulk electricity supply system such as under frequency load shedding, transmission system transients, or system frequency excursions. During a rotating load shedding cycle, the duration is the total outage time until normal operating conditions resume, while the number of customers affected is the average number of customers interrupted per rotating cycle.

3 – Tree Contacts - Customer interruptions caused by faults due to trees or tree limbs contacting energized circuits.

4 – Lightning - Customer interruptions due to lightning striking the Electrical System, resulting in an insulation breakdown and/or flashover.

5 – Defective Equipment - Customer interruptions resulting from equipment failure due to deterioration from age, incorrect maintenance, or imminent failures detected by maintenance.

6 – Adverse Weather - Customer interruptions resulting from rain, ice storms, snow, winds, extreme ambient temperatures, freezing fog, or frost and other extreme conditions.

7 – Adverse Environment - Customer interruptions due to equipment being subjected to abnormal environment such as salt spray, industrial contamination, humidity, corrosion, vibration, fire or flooding.

8 – Human Element - Customer interruptions due to the interface of the utility staff with the system such as incorrect records, incorrect use of equipment, incorrect construction or installation, incorrect protection settings, switching errors, commissioning errors, deliberate damage.

9 – Foreign Interference - Customer interruptions beyond the control of the utility such as birds, animals, vehicles, dig-ins, vandalism, sabotage (by others) and foreign objects.

YEC Outages for 2015

Yukon Energy reports all outages of any duration that affects greater than 50 customers or interrupts service to a complete YEC or AEY service area or results in an interruption in service to an industrial customer. Table 2-2 lists the number of interruptions by cause from 2011 to 2015.

Table 2-1: Cause of Interruption: 2011 to 2015

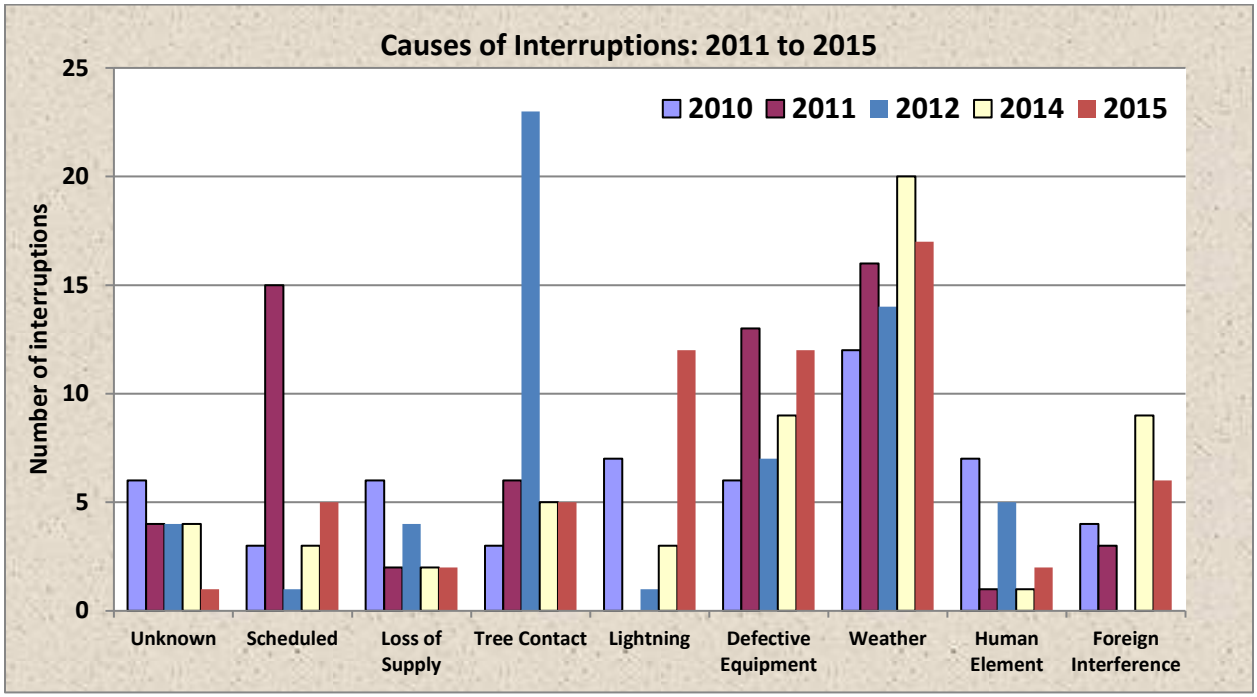
Cause of Interruption	2011	2012	2013	2014	2015
Unknown	6	4	4	4	1
Scheduled	3	15	1	3	5
Loss of Supply	6	2	4	2	2
Tree Contact	3	6	23	5	5
Lightning	7	0	1	3	12
Defective Equipment	6	13	7	9	12
Weather	12	16	14	20	17
Human Element	7	1	5	1	2
Foreign Interference	4	3	0	9	6
Total	**54**	**60**	**59**	**56**	**62**

During 2015 there were:

- 43 Transmission outages caused by Weather (17), Lightning (12), Tree Contacts (5), Defective Equipment (5), Scheduled (4).
- 9 Distribution outages caused by Foreign Interference (6), Defective Equipment(2), Unknown (1).
- 10 Generation outages occurred all of which were caused by PLCs, sensors or alarms taking units out of service with no major damages or repairs required to restart the generation units.

Figure 2-2 illustrates the number of interruptions by cause from 2011 to 2015.

Figure 2-2: Causes of Interruptions: 2011 to 2015



Unknown, Scheduled, Tree Contacts, Lightning, Weather and Foreign Interference contribute towards the majority of outages each year and are often due to events beyond the immediate control of the utility. The high number of Tree Contacts in 2013 caused the company to adopt a 10 year brushing cycle program which will address problem areas on right-of-ways first, then manage brushing on a more proactive basis later. During 2015, Weather incidents include 11 Snow and Wind events on the L250 (Elsa) line. The 12 Lightning incidents were interspersed over different areas of the grid. All 6 Foreign Interference incidents were ravens.

Loss of Supply, Defective Equipment, and Human Element are categories where YEC attempts to reduce outages through preventative maintenance, improved procedures, and training activities. Of the 16 incidents that occurred during 2015 in these three categories, 8 incidents were due to failure of alarms or PLCs controlling the operation of hydro units; 7 incidents required replacement of insulators, fuses or pole structural components; and 1 incident was due to the failure of ancillary generation equipment.

Environmental Performance

As part of its Environmental Management System and in compliance to various regulations, YEC reports spill incidents involving release of new unused petroleum hydrocarbon materials of 5 litres or more; used materials of .5 litres or more; any release of natural gas to atmosphere; or any release of petroleum or coolants to water. During 2015, there were 2 incidents of release of a small volume of natural gas to atmosphere while unloading; and one incident where approximately 16 litres of lubricant was released from a spillway gearbox of which approximately 6-8 litres was not recoverable due to safety reasons.

Health and Safety Performance

The following definitions are used in describing Health and Safety Performance. All the definitions are based on the exposure hours or hours worked adjusted to a 100 employee company that averages 200,000 person-hours of work per year with a vehicle fleet that averages 1,000,000 km per year. During 2015, there were 93 employees or full time equivalents at Yukon Energy and the vehicle fleet mileage was 990,614 km.

All Injury Frequency includes any work related injury or illness suffered by an employee. An injury is work related if any event or exposure in the work environment either caused or contributed to the resulting condition or aggravated a pre-existing condition. It is based on the total number of Lost Time injuries combined with the total number of Medical Aid injuries.

$$\text{All Injury Frequency Rate} = \frac{(\#\text{ of Lost Time Injuries} + \#\text{ of Medical Aid Injuries}) \text{ x } 200{,}000}{\text{Exposure Hours (Hours Worked)}}$$

Medical Aid injury is a classification for any medical care or treatment beyond first aid but does not include a Lost Time Injury as defined below.

Lost Time Injury is a work injury that results in a fatality, permanent total disability, permanent partial disability, or temporary total disability. In the case of temporary partial disability, a day of disability is any day on which an employee is unable, because of injury and with medical authorization, to perform effectively through a full shift. The day on which the injury occurs is not counted as a day of disability.

$$\text{Lost Time Injury Frequency} = \frac{(\#\text{ of Lost Time Injuries/Illnesses}) \text{ x } 200{,}000}{\text{Exposure Hours (Hours Worked)}}$$

Lost Time Injury Severity Rate is calculated by combining the calendar days of disability lost and days charged for fatalities and permanent (total and partial) disabilities.

$$\text{Lost Time Injury Severity Rate} = \frac{(\#\text{ of Days Lost}) \text{ x } 200{,}000}{\text{Exposure Hours (Hours Worked)}}$$

Recordable Motor Vehicle Incident is any incident involving a motor vehicle being operated by an employee that would meet the Recordable Injury criteria or costing more than $5,000 in total property damage. This includes any motor vehicles that are operating but stationary in traffic when the incident occurs.

$$\text{Motor Vehicle Incident Freq Rate} = \frac{\text{Number of Recordable Accidents x 1,000,000}}{\text{Kilometers driven}}$$

The table below is a record of Yukon Energy's safety performance for 2013 through 2015 according to the CEA injury and accident definitions, and comparing them against the 2015 CEA utility statistics for the Group III – Under 300 Employees category.

CATEGORY	2013	2014	2015	CEA
All Injury/Illness Frequency Rate	1.27	2.54	2.47	2.14
Lost Time Injury Frequency Rate	1.27	1.27	1.23	1.38
Lost Time Injury Severity Rate	22.94	1.27	4.94	9.73
Motor Vehicle Incident Frequency Rate	6.52	5.06	0.00	.33

During 2015 there were 2 reportable injuries: 1 Medical Aid and 1 Lost Time injury of 4 days duration resulting in an All-Injury Frequency Rate of 2.47; a Lost Time Injury Frequency Rate of 1.23; and a Lost Time Severity Rate of 4.94. During 2014 there were 2 reportable injuries 1 Medical Aid and 1 Lost Time injury of 1 day duration resulting in an All-Injury Frequency Rate of 2.54 and the Lost Time Injury Frequency Rate and Lost time Severity Rate being 1.27. The single incident in 2013 was a Lost Time Injury of 20 days duration.

Applying the CEA criteria for Recordable Vehicle Incidents, (where an incident results in a Recordable Injury or exceeds $5,000 in property damages), there were no recordable motor vehicle incidents during 2015 resulting in a Motor Vehicle Incident Frequency Rate of 0.00; compared to 5 incidents during 2014 which equals a Motor Vehicle Incident Frequency Rate of 5.06; and 6 incidents during 2013 for a rate of 6.52.

Financial and Cost-Efficiency Performance

The following table lists the common utility financial performance indicators that measure the financial health of the utility and the cost-effectiveness of its operations.

MEASURE	2013	2014	2015
Regulated Return on Equity (ROE)	7.33%	8.39%	8.14%
Cents per kWh Generated (avg unit energy cost)	6.09	8.12[2]	7.50
Total System Losses (as % of sales)	9.01%	7.60%	9.81%
Customers per Employee	21.44	21.27	21.90
Total MWh Sales per Employee	4,177	4,016	4,076
Non-Industrial Sales per Employee	3,742	3,626	3,678
Avg Consumption per Residential Customer (MWh/yr)	8.65	8.46	8.40
Avg Consumption per Commercial Customer (MWh/yr)	47.46	49.34	51.81
Total Labour Dollars per Customer *	$723	$749	$750
O&M Labour Dollars per Customer	$598	$618	$600
Total Labour Dollars per MWh Generation	$30.31	$33.65	$33.12
O&M Labour Dollars per MWh Generation	$25.05	$27.78	$26.48

* Total labour costs include YEC staff time spent on Capital Work. The number of customers includes all customers served directly and indirectly. Indirect customers are the customers AEY serves that are on the integrated grid.

Cents per kWh Generated is lower due to operating expenses which were 4% lower being distributed over generation which was 4% higher than the previous year resulting in a lower cost per kWh generated.

Average Consumption per Residential Customer was lower in 2015 than 2013/14 as the warmer winter month resulted in reduced sales. Average Consumption per Commercial Customer was higher in 2015 due to Faro ARM water treatment activities being higher than the prior two years.

[2] Cents per kWh Generated for 2014 is restated from 6.40 as reported in the 2014 Annual Report to 8.12 in this report as YEC has adopted IFRS reporting standards which affect this calculation. For more comprehensive analysis regarding IFRS impacts please refer to the annual financial statements submitted within the YEC Annual Filings for 2015.