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Frank D'Andrea
Vice President
Regulatory Affairs

BY COURIER

June 15, 2018

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
P.O. Box 2319
Toronto, ON, M4P 1E4

Dear Ms. Walli,

EB-2017-0049 - Interrogatory Response Update in Hydro One Networks Inc.'s 2018-2022 Distribution Custom IR Application (the "Application")

Please find enclosed the updated interrogatory I-06-Anwaatin-001 for Hydro One Networks Inc.'s 2018-2022 Distribution Custom IR Application. This update takes into account a new pilot project initiative that Hydro One is evaluating in the area that serves Anwaaatin communities.

Sincerely,

ORIGINAL SIGNED BY FRANK D'ANDREA

Frank D'Andrea

Enc.

Anwaatin Inc. Interrogatory # 1

Issue:

Issue 6: Does Hydro One's First Nation and Métis Strategy sufficiently address the unique rights and concerns of Indigenous customers with respect to Hydro One's distribution service?

Issue 23: Was the customer consultation adequate and does the Distribution System Plan adequately address customer needs and preferences?

Issue 24: Does Hydro One's investment planning process consider appropriate planning criteria? Does it adequately address the condition of distribution assets, service quality and system reliability?

Reference:

A-04
A-04-02

Preamble:

Hydro One's distribution business serves the majority of the First Nations and Métis communities in Ontario.

In the Application, Hydro One states that it will be implementing a three-pronged strategy that is intended to increase system reliability within First Nations communities (increasing capital investments and replacing equipment that affects reliability; leveraging technology to allow Hydro One to better detect, limit the scope, and remotely respond to certain types of outages; and reducing planned outages by bundling work).

Hydro One indicates that, through its First Nations and Métis Strategy (Exhibit A, Tab 4, Schedule 2), communities would like to see an increase in procurement, investment/ownership opportunities, and other business partnership opportunities for Aboriginal businesses. Hydro One further indicates that First Nations communities have raised concerns about the high frequency and duration of power outages, particularly in Northern Ontario. Some communities have also indicated that the electricity supply is not sufficiently reliable to serve businesses on reserve and are concerned about degrading Hydro One asset conditions on reserve.

Hydro One also notes that First Nations communities and customers feel they are disproportionately impacted by high electricity costs. Many have raised concerns that their delivery charge is higher than their electricity consumption. In addition, First Nations customers are most sensitive to cost and place the greatest importance on cost over improvements in the service they receive.

Hydro One indicates that it hopes to address many of the Indigenous concerns with reliability and distributed energy resources, including Indigenous investment and ownership, and is developing a consolidated framework to guide First Nations and Métis relations and engagement across all lines of business.

Interrogatory:

a) Please describe how Hydro One consulted First Nations on any and all investment/ownership opportunities and other business partnership opportunities related to DERs in grid-connected communities, and what resulted from these consultation efforts.

b) Please describe in detail and provide all reports, notes, memos and documents related to:

   i. all processes Hydro One undertook to consult with Indigenous communities on this distribution rate application; and
   ii. the outcome of those consultations.

c) Please list each and all distributed energy resources that:

   i. Hydro One considered for Indigenous communities;
   ii. Hydro One consulted with First Nations on;
   iii. Hydro One implemented or intends to implement for Indigenous communities;
   iv. the Hydro One actions that result from them; and
   v. the quantified improvements in reliability and service that result from them.

d) Since First Nations in Ontario have now acquired or will soon acquire more than 14 million shares of Hydro One (representing 2.4% of the outstanding common shares of Hydro One), please describe how Hydro One will address the significant concerns of Indigenous shareholders relating to the high frequency and duration of power outages in Indigenous communities and the disparate reliability afforded to this class of shareholder.

Response:

a) Hydro One engages First Nations on investment/ownership opportunities on a project by project basis such as the Bruce to Milton Transmission Project and the Niagara Reinforcement Project. At this time, Hydro One has not yet engaged First Nations on any investment/ownership opportunities and other business partnership opportunities related to distributed energy resources (DERs) in grid-connected communities. Hydro One has recently begun exploring opportunities to partner with interested First Nation communities and to leverage federal and provincial government funding to support green energy and greenhouse gas reducing energy projects.

b)

i) Hydro One regularly engages with First Nations and Métis communities about various issues of concern.

As part of its review of customer needs and preferences, Hydro One conducted a telephone survey in August 2016 of a random and representative sample of 300 First Nations customers. A key finding was that First Nations customers are most sensitive to cost and place the greatest importance on cost over improvements in the service they receive. A copy of the telephone survey results with First Nations customers can be found EB-2017-0049, Exhibit B1-1-1, Section 1.3, Attachment 1, pages 1562 to 1570.

In addition, Hydro One also held engagement sessions with (a) the 88 First Nation communities it serves on February 9 and 10, 2017, the session reports for which are provided as Attachment 4 to section 1.3 of the DSP (Exhibit B1, Tab 1, Schedule 1) and (b) the 29 Métis Councils represented by the Métis Nation of Ontario on May 13, 2017. The purpose of the sessions was to engage on Application as well as to share information on various programs and initiatives benefiting Indigenous communities and to hear about issues and concerns expressed by participants as they related to Hydro One. Please find enclosed reports, presentations, and notes related to these engagement sessions as Attachments 1 to 9.

Hydro One will be hosting a second First Nations Engagement Session on February 21, 2018 which will be open to representatives of the 88 First Nations communities it serves. A similar engagement session will be offered to the Métis Nation of Ontario in 2018.

ii) For the most part, Hydro One had existing initiatives in place to address the concerns raised in these engagement sessions. Hydro One made 35 specific commitments at the

February 9 and 10, 2017 First Nation engagement session and 95% of these commitments were addressed throughout the year. Hydro One made 10 specific commitments at the May 13, 2017 engagement session with the Métis Nation of Ontario. Attachment 10 lists the 10 questions asked by the Métis Nation of Ontario and includes Hydro One responses.

The outcomes of these engagement sessions was the development of additional strategies and plans responsive to the key issues and concerns expressed by participants as they related to the transmission and distribution system.

To improve affordability, Hydro One implemented an outreach plan to ensure all eligible First Nation customers benefit from the First Nations Delivery Credit announced as part of the Ontario Fair Hydro Plan and which came into effect on July 1, 2017. Hydro One also adjusted a plan to implement the First Nations Conservation Program (FNCP) in new First Nation communities in 2018. The FNCP is a follow-up program to the Aboriginal Conservation Program which was implemented by the Independent Electricity System Operator (IESO) and ended in 2015 after providing services to 39 communities. The FNCP is designed to serve the communities not served by the IESO's earlier program**.**

In addition, Hydro One also implemented the Get Local Initiative to help customers by providing information about conservation programs and resources that may assist low-income customers and ensuring that qualifying customers are aware of and accessing the Province of Ontario's Ontario Electricity Support Program. Finally, in 2018 Hydro One started to roll-out the Affordability Fund to improve First Nations' home energy efficiency by providing free energy-saving upgrades, which can lower home energy use and, correspondingly, a customer's electricity bill over the long term.

In order to improve reliability and in response to complaints raised at the engagement sessions, Hydro One has revised its vegetation management policy whereby it will increase the frequency of forestry maintenance work on reserve. In addition, on measures to improve reliability, please see parts c) i), ii), and iii) of Exhibit I-6-Anwaatin-2.

On liability and access, Hydro One responded to feed-back committing to notify or seek permission as applicable from First Nation communities when conducting reconnection work on reserve in the context of its distribution business.

c) In its February 12, 2018 response to Exhibit I-6-Anwaatin-001 c), Hydro One stated that it had not yet considered distributed energy resources related to Indigenous communities. Hydro One has recently begun exploring opportunities to partner with interested First Nation communities and to leverage federal and provincial government funding to support green energy and greenhouse gas reducing energy projects.

By way of update, in April 2018, Hydro One commenced preliminary discussions with Anwaatin regarding renewable sourced generation interconnection capacity and energy storage capacity at distribution station locations in proximity to Anwaatin communities. These discussions have evolved into assessing whether an energy storage pilot project could be developed in a remote region of the distribution system serving Anwaatin communities and tested to determine reliability improvement and whether this approach could be used as a repeatable approach in other regions of the system.

More technical information is now available regarding this initiative. Hydro One's current technical assessment has focused on the three distribution feeder lines that serve the Nakina and Moosonee communities (referred to as Moosonee F1 and F3, and Nakina F2).

These assessments, included in Attachment 11, provide information regarding the following:

- the historical reliability of these feeders;
- three potential energy storage solutions that are in the process of evaluation;
- expected levels of costs of each solution; and
- the potential reliability improvement.

The assessments are continuing. Completion of all detailed engineering and financial viability review is targeted by September 30, 2018. Forecast investment for this new pilot project will not exceed $5 million. Government grants and funding may also provide a source of funds. One of the key objectives with this pilot project is assessing scalability to meet similar reliability concerns in other communities served by Hydro One.

At this time, issues affecting pilot project feasibility include, but are not limited to, the following:

- Installation of energy storage facilities on a radial line will result in the "islanding" of an area, with the consequence that during the outage, this load would be served by non-wires

storage. This technical design and approach are not found on any other part of the Hydro One Distribution system and will require careful operational scrutiny.

- Estimated capital costs set out in the attached technical assessments are preliminary and subject to further review. Investment estimates depend on a variety of factors, including battery sizing, variability of load, and availability of government funding programs.

- Cost/benefit analysis of the potential reliability improvement must also be considered by a comparison to other potential ways to improve reliability, such as changes in vegetation management and prior transmission investments that have been made in the area.

d) Hydro One will continue to invest in its assets according to asset condition assessments without regard to preferences of specific shareholders.

Nakina DS F2 & Moosonee DS F1/F3 Energy Storage Reliability Overview

June 15, 2018

Assumptions and Context

- HONI has recently explored Non-Wires Alternatives (NWA) to improve reliability to Anwaatin communities.
- Key issues associated with NWA include storage sizing, location, cost, and "islanding" operational concerns.
- This analysis is based on total community load. Variability in load may impact the battery backup duration to the community.
- Targeting critical loads for backup would reduce the battery size required, and hence the total cost.
- Cost estimates are based on informal vendor discussions, and publicly available information plus contingency due to remote access/unknown variables.
- Optimal location of the battery is in close proximity to the community to maximize the reliability benefit.

Feeder Supply to Anwaatin Communities

- Nakina DS F2 – supplies Aroland First Nations
- Moosonee DS F1 & F3 – supplies Mocreebec First Nations

Reliability Ranking of Supply Feeders

Ranking without Transmission Loss of Supply*

	SAIDI Ranking	SAIFI Ranking
Nakina DS F2	1988	2146
Moosonee DS F1	498	549
Moosonee DS F3	1134	1184

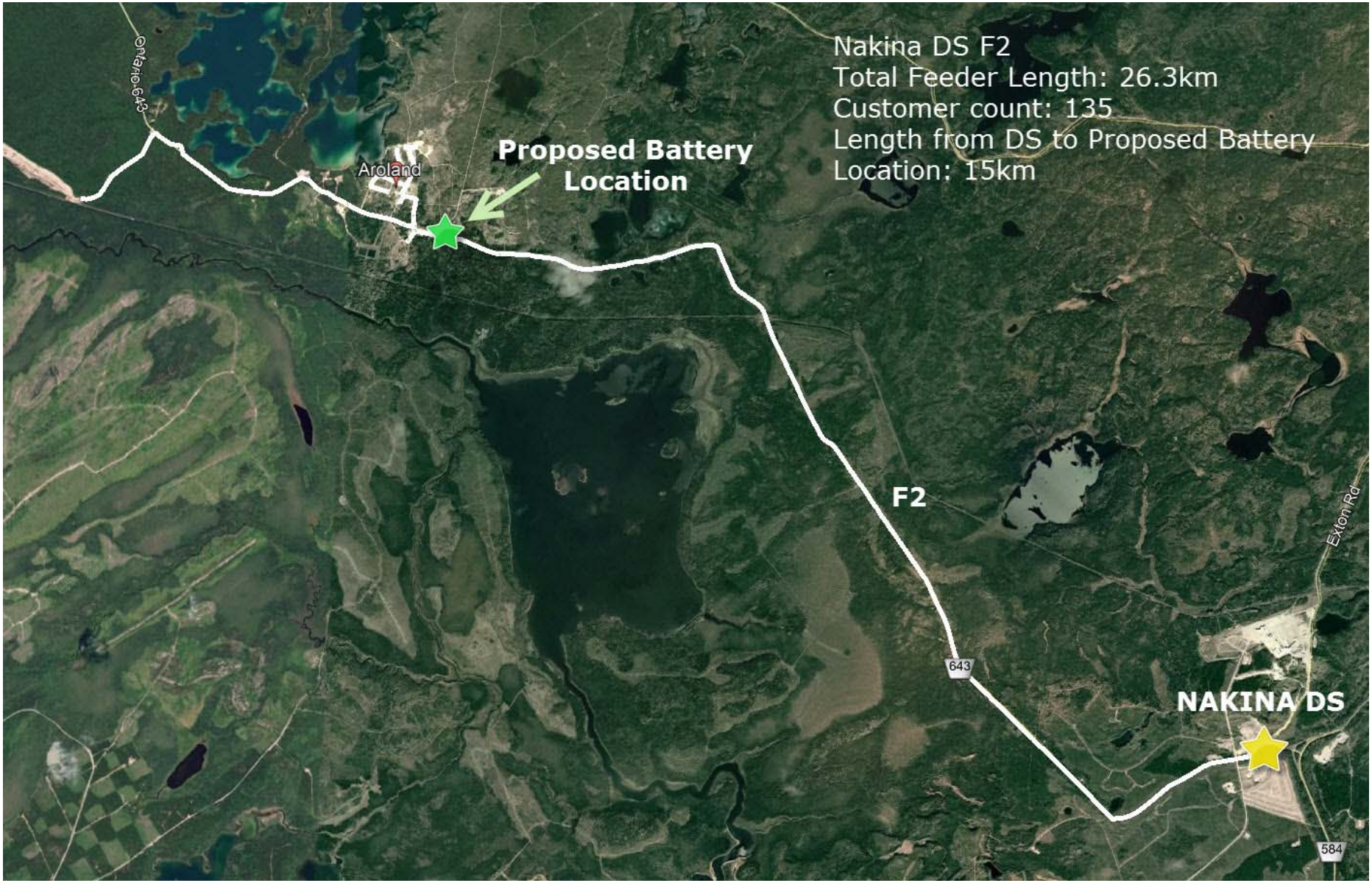
Ranking with Transmission Loss of Supply*

	SAIDI Ranking	SAIFI Ranking
Nakina DS F2	2022	2183
Moosonee DS F1	431	412
Moosonee DS F3	864	678

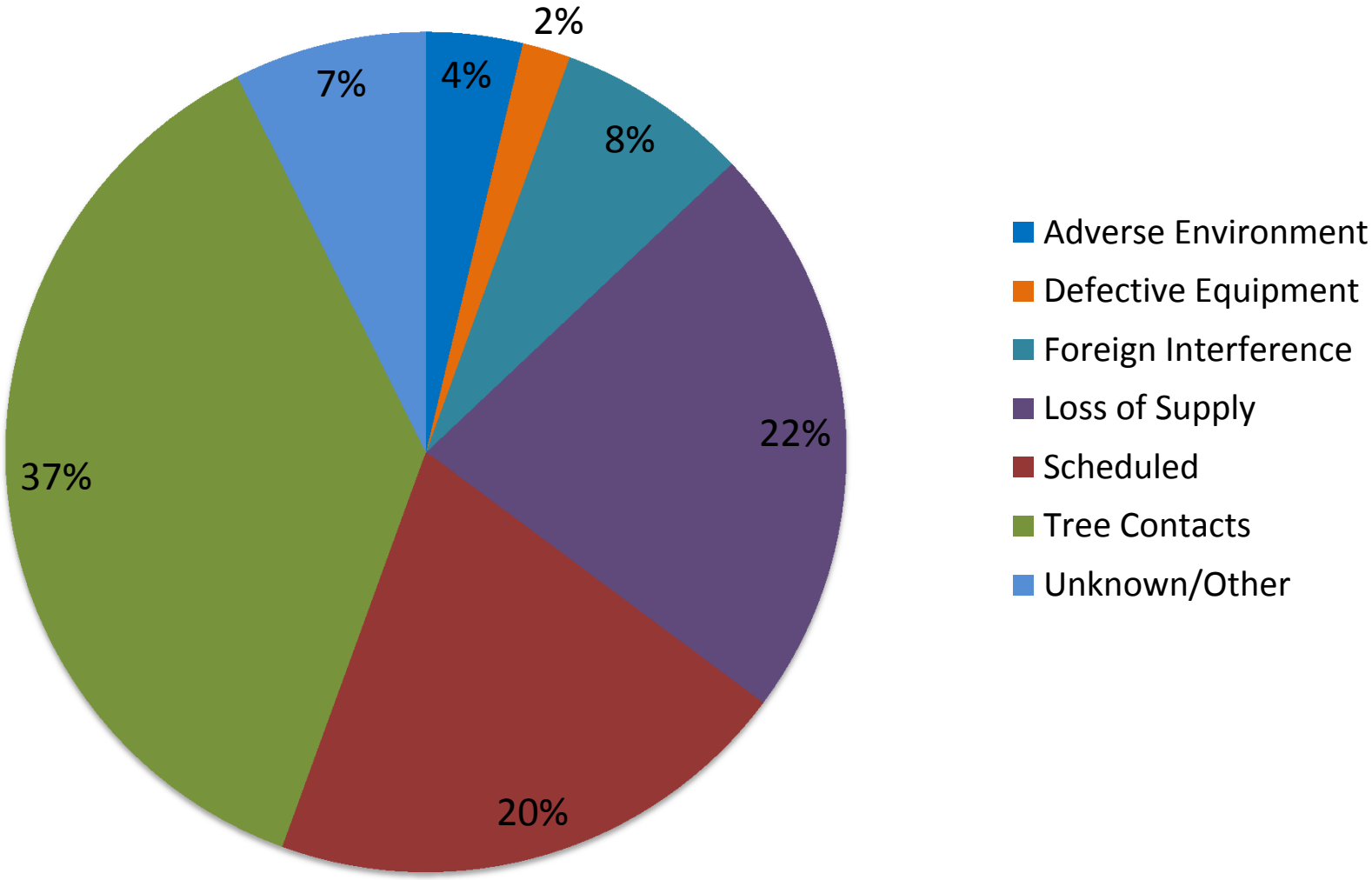
*Ranking based on 2015-2017 average data, out of approximately 3300 feeders. Feeder ranking is from worst to best, with "1" being the worst.

Nakina DS F2
Energy Storage
Reliability Overview

Nakina DS F2

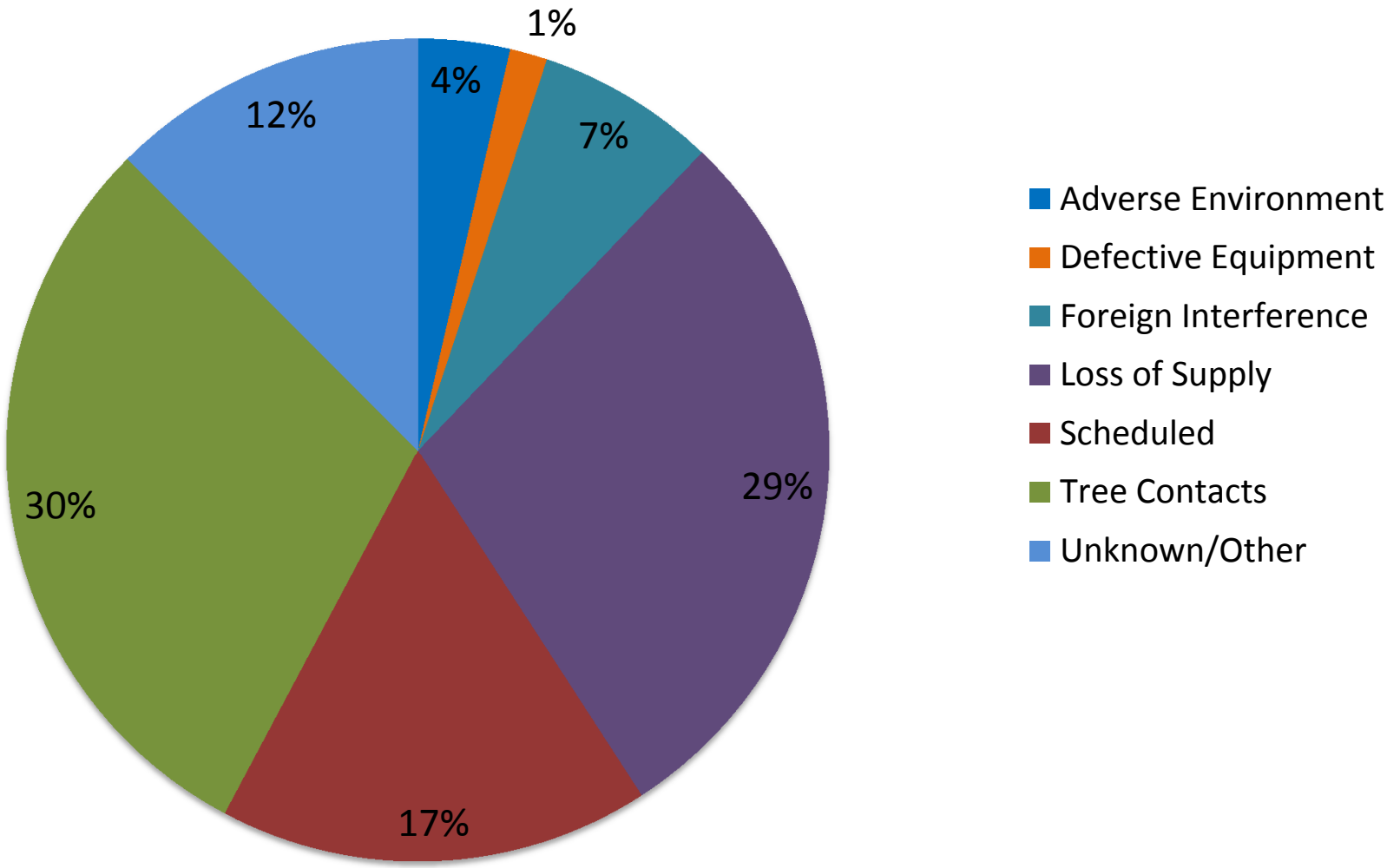

Nakina DS F2
Total Feeder Length: 26.3km
Customer count: 135
Length from DS to Proposed Battery Location: 15km
Proposed Battery Location
Aroland
F2
NAKINA DS
643
584
Exton Rd

Nakina DS F2 - Frequency of Upstream Outages by Cause (5 years)



*Vegetation management will improve by 20-40% over the planning period.

Nakina DS F2 - Duration of Upstream Outages by Cause (5 Years)

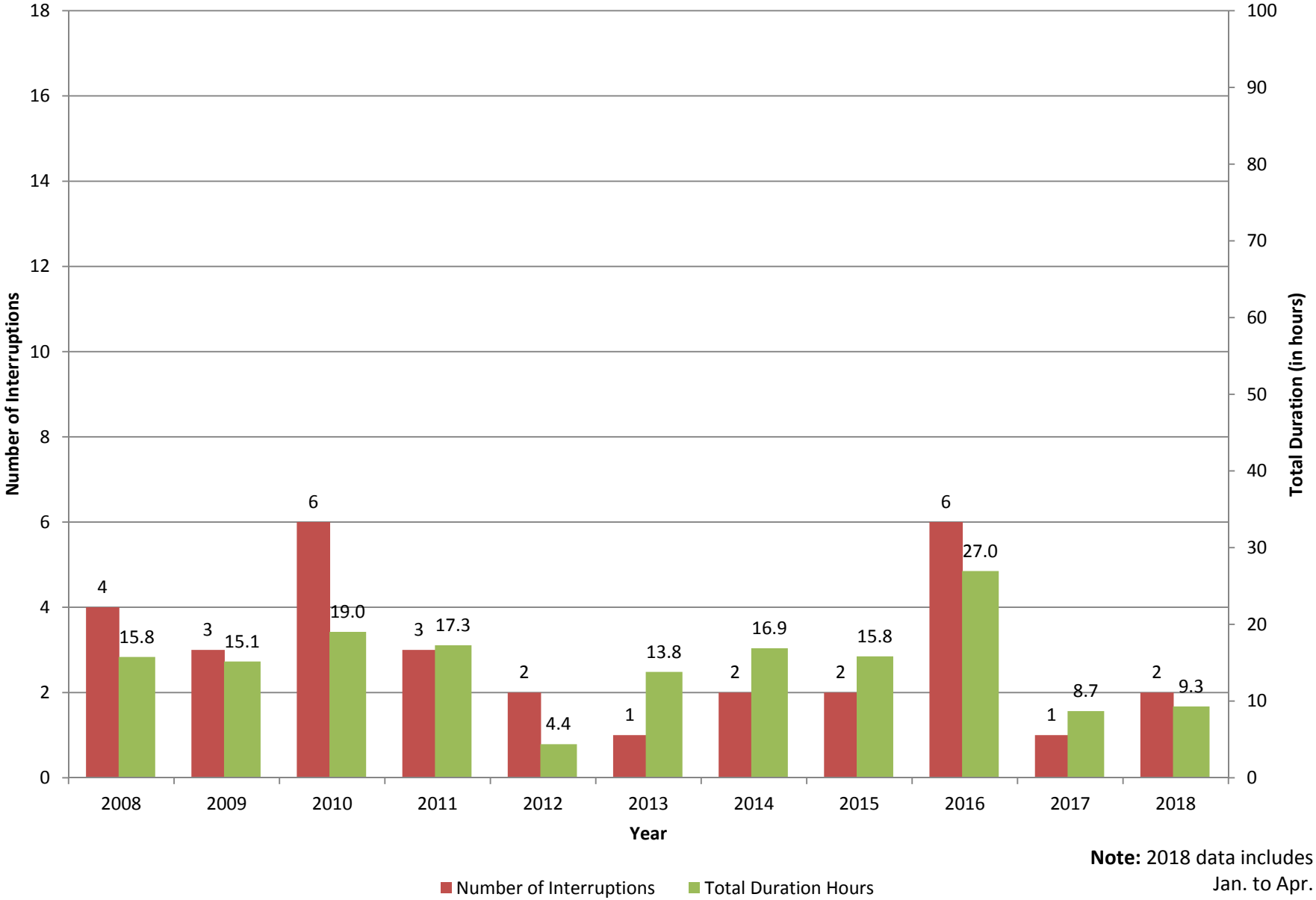


*Vegetation management will improve by 20-40% over the planning period.

Nakina DS F2 - Number and Total Duration of Outages by Year

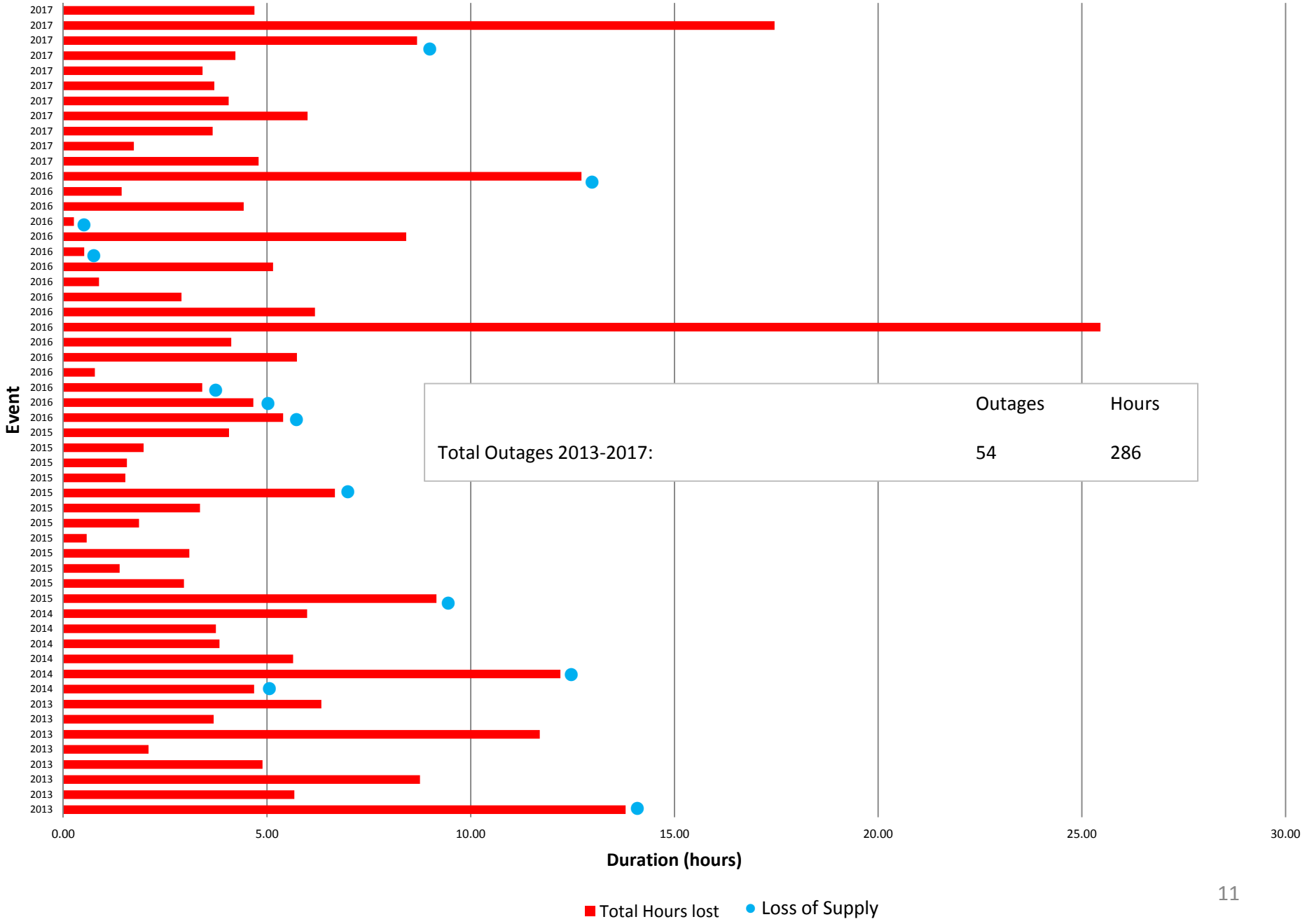
Year	Number of Outages	Total Duration of Outages (Hours)
2013	8	57
2014	6	36
2015	12	38
2016	17	92
2017	11	62

Transmission Loss of Supply Interruptions for Nakina DS over 10 Years



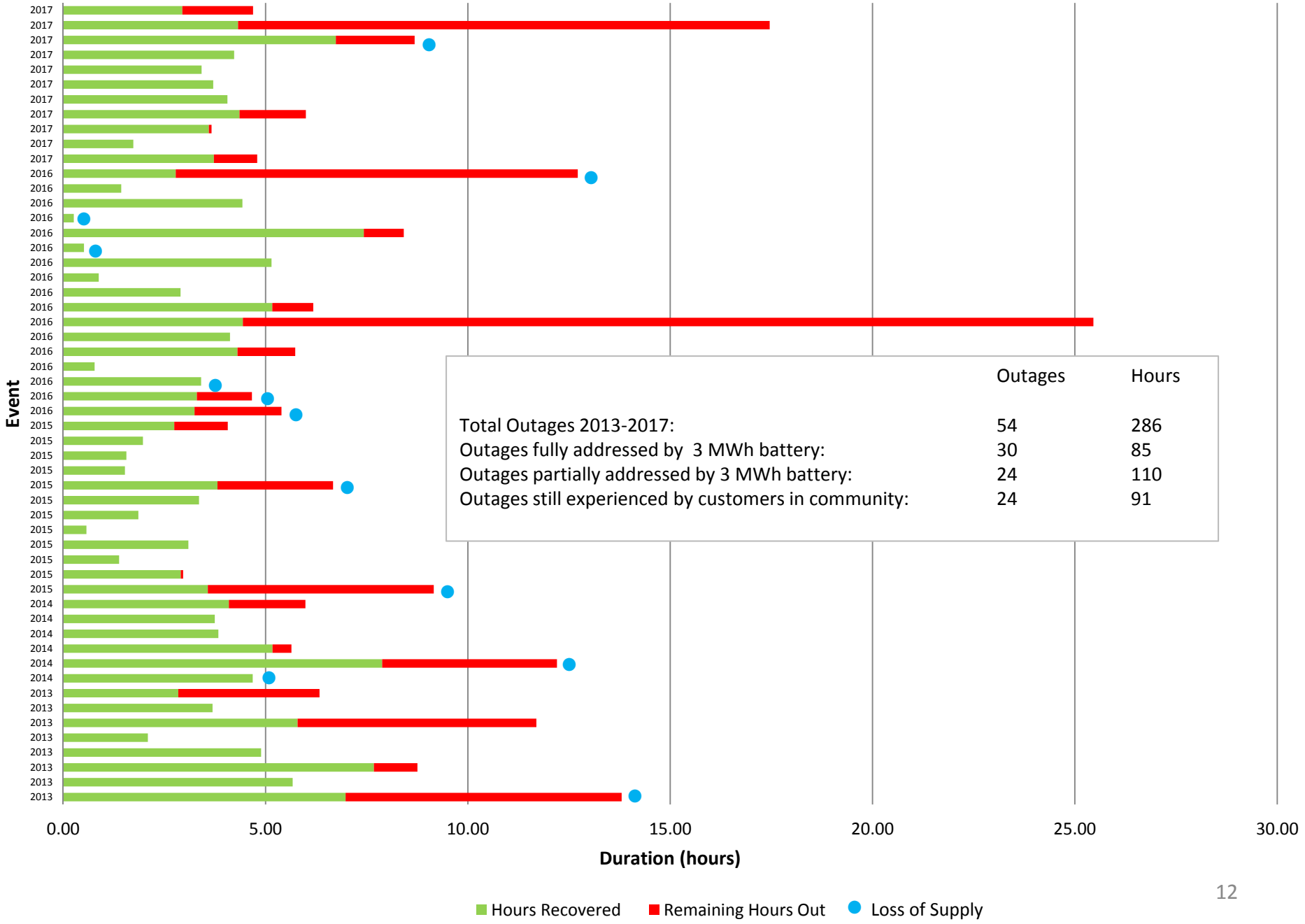
Note: 2018 data includes Jan. to Apr.

Nakina DS F2: Outages Experienced Over Last 5 Years



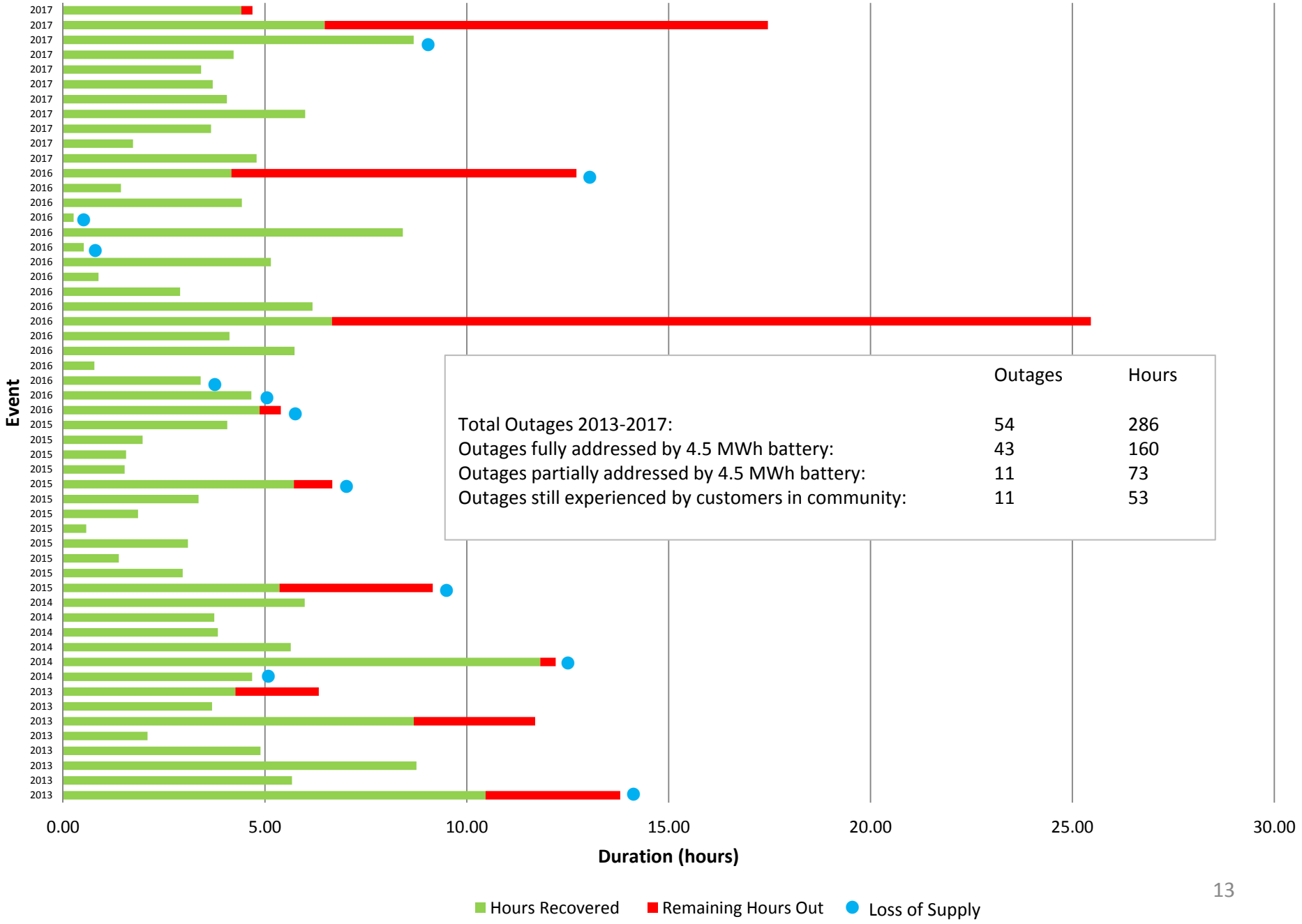
	Outages	Hours
Total Outages 2013-2017:	54	286

Nakina DS F2: Outage Impact with 1.5MW, 3MWh energy storage ($4.5M)



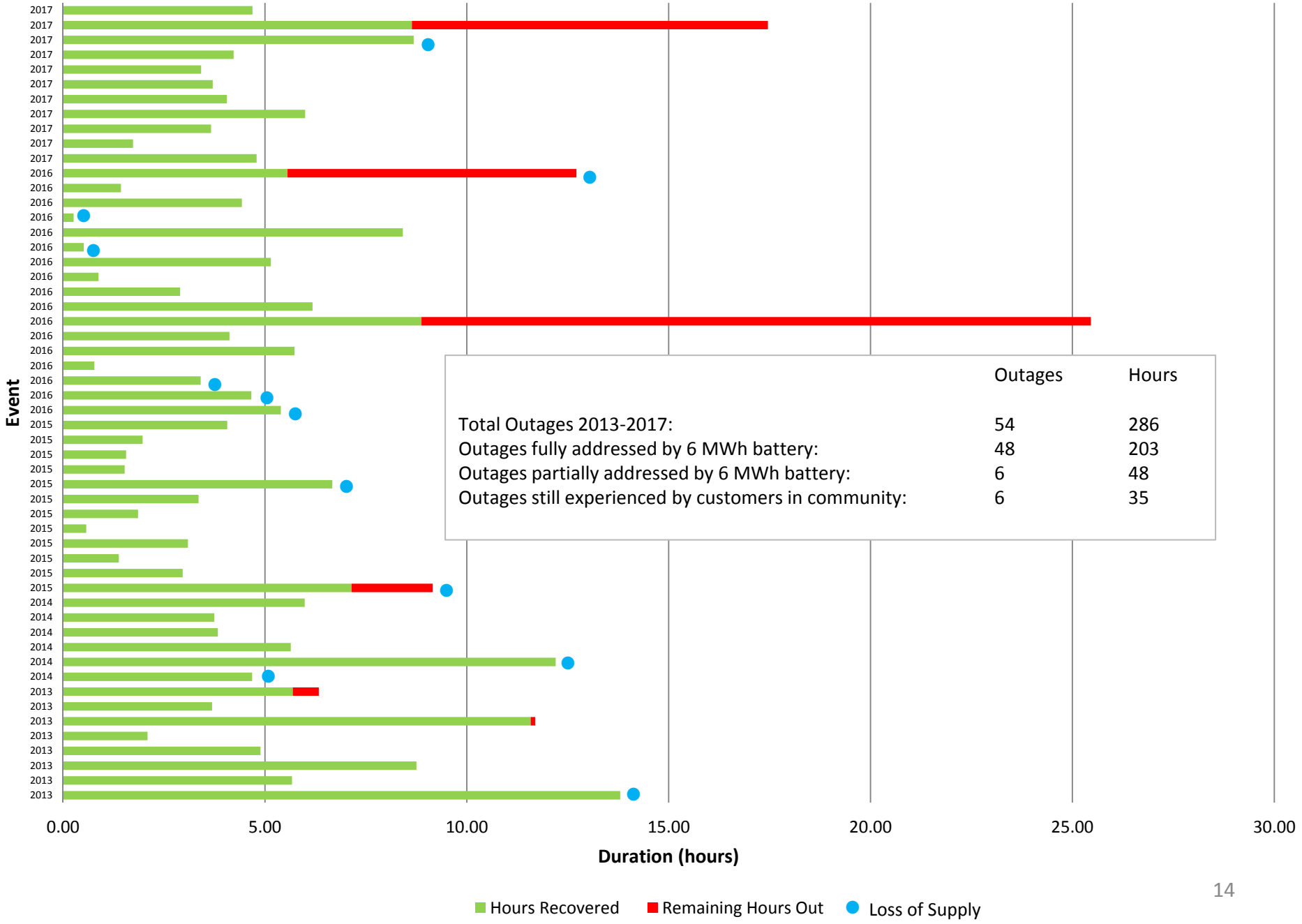
	Outages	Hours
Total Outages 2013-2017:	54	286
Outages fully addressed by 3 MWh battery:	30	85
Outages partially addressed by 3 MWh battery:	24	110
Outages still experienced by customers in community:	24	91

Nakina DS F2: Outage Impact with 1.5MW, 4.5MWh energy storage ($6.8M)



	Outages	Hours
Total Outages 2013-2017:	54	286
Outages fully addressed by 4.5 MWh battery:	43	160
Outages partially addressed by 4.5 MWh battery:	11	73
Outages still experienced by customers in community:	11	53

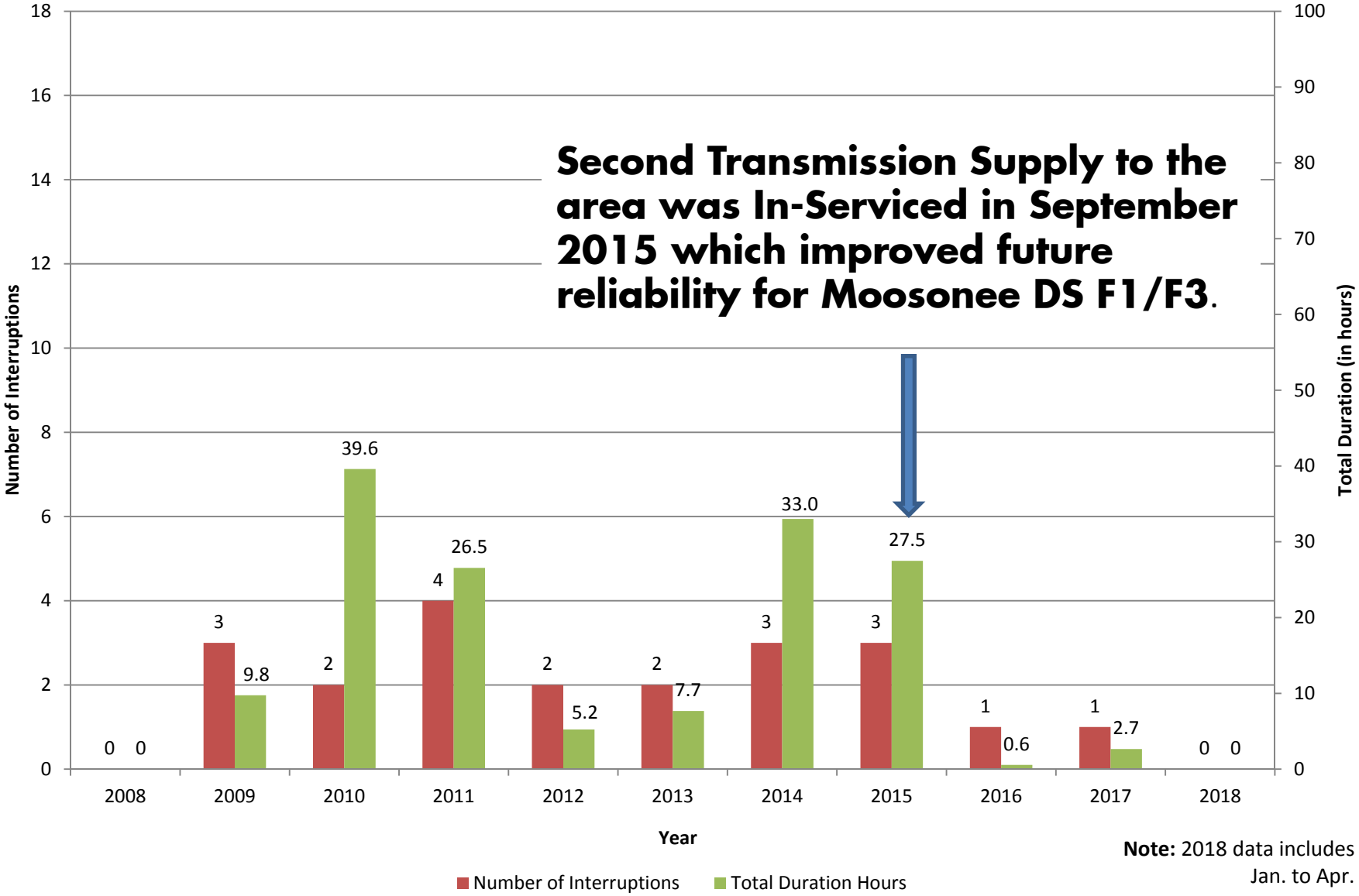
Nakina DS F2: Outage Impact with 1.5MW, 6MWh energy storage ($9M)



	Outages	Hours
Total Outages 2013-2017:	54	286
Outages fully addressed by 6 MWh battery:	48	203
Outages partially addressed by 6 MWh battery:	6	48
Outages still experienced by customers in community:	6	35

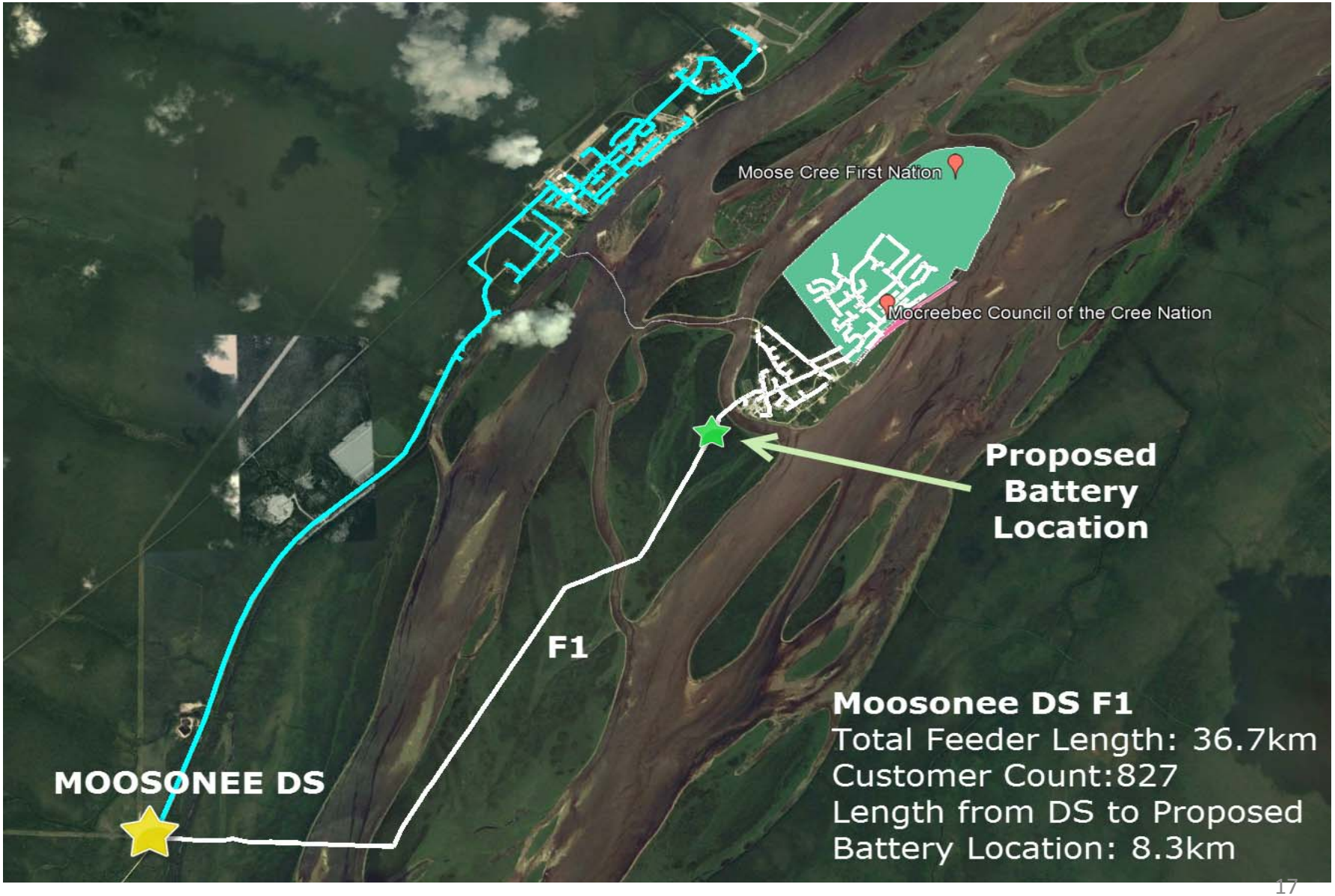
Moosonee DS F1/F3 Energy Storage Reliability Overview

Transmission Loss of Supply (LOS) Interruptions for Moosonee DS F1/F3 over 10 Years

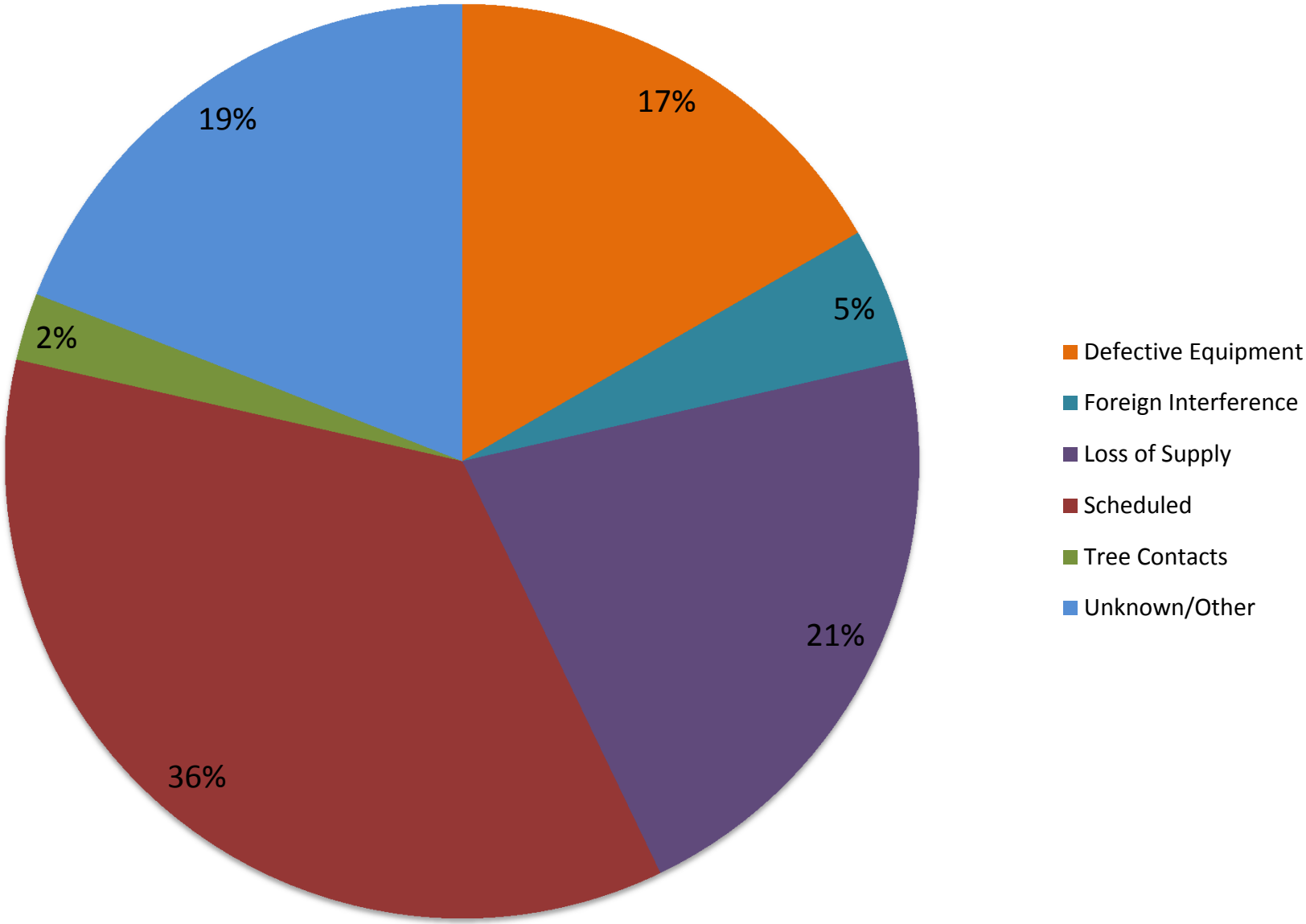


Note: 2018 data includes Jan. to Apr.

Moosonee DS F1

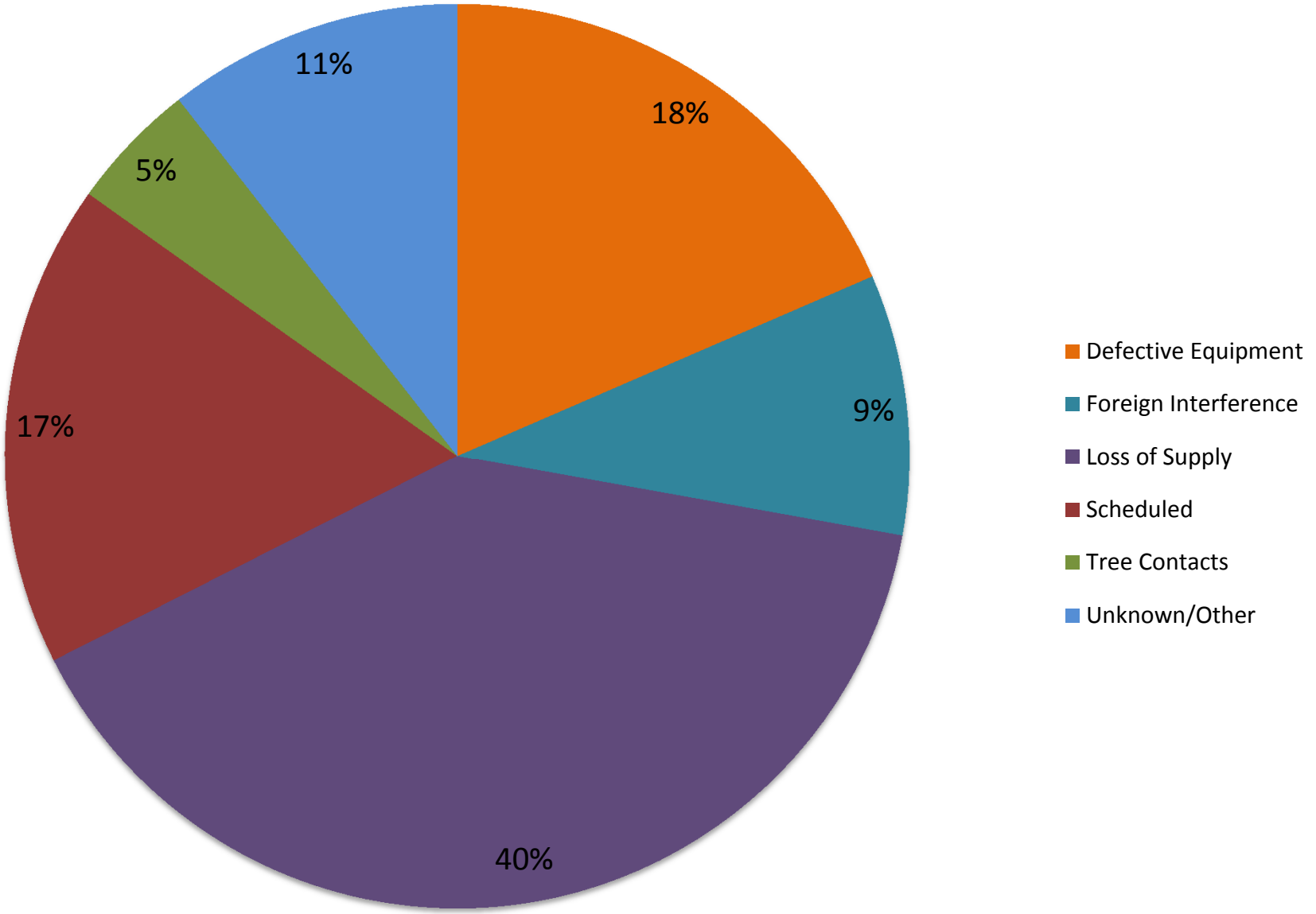


Moosonee DS F1: Frequency of Upstream Outages by Cause (5 years)



*Vegetation management will improve by 20-40% over the planning period.
** Reduction in frequency of Loss of Supply is expected due to upstream transmission investments.

Moosonee DS F1: Duration of Upstream Outages by Cause (5 years)

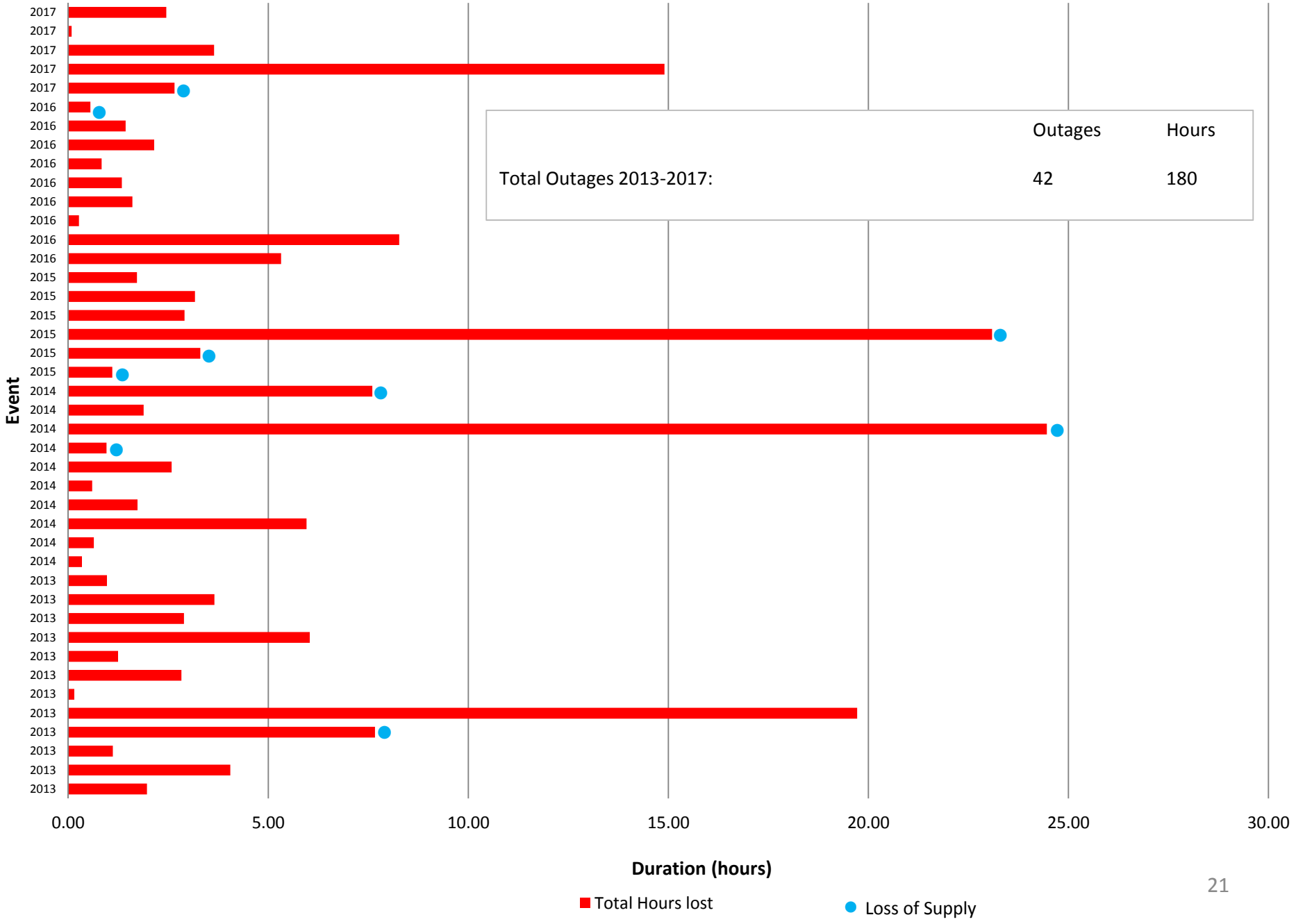


*Vegetation management will improve by 20-40% over the planning period.
** Reduction in frequency of Loss of Supply is expected due to upstream transmission investments.

Moosonee DS F1 - Number and Total Duration of Outages by Year

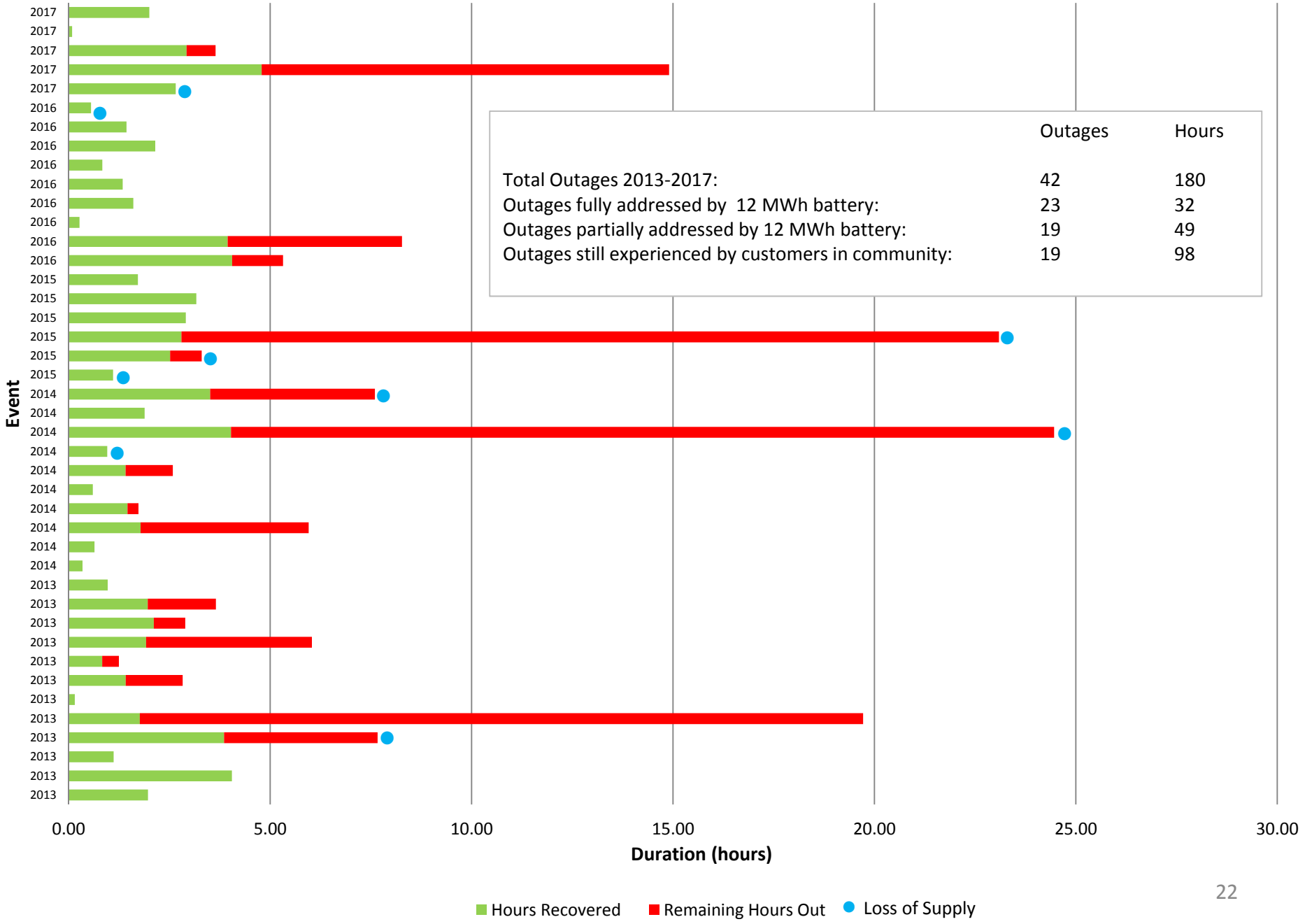
Year	Number of Outages	Total Duration of Outages (Hours)
2013	12	52
2014	10	47
2015	6	35
2016	9	22
2017	5	24

Moosonee DS F1: Outages Experienced Over Last 5 Years



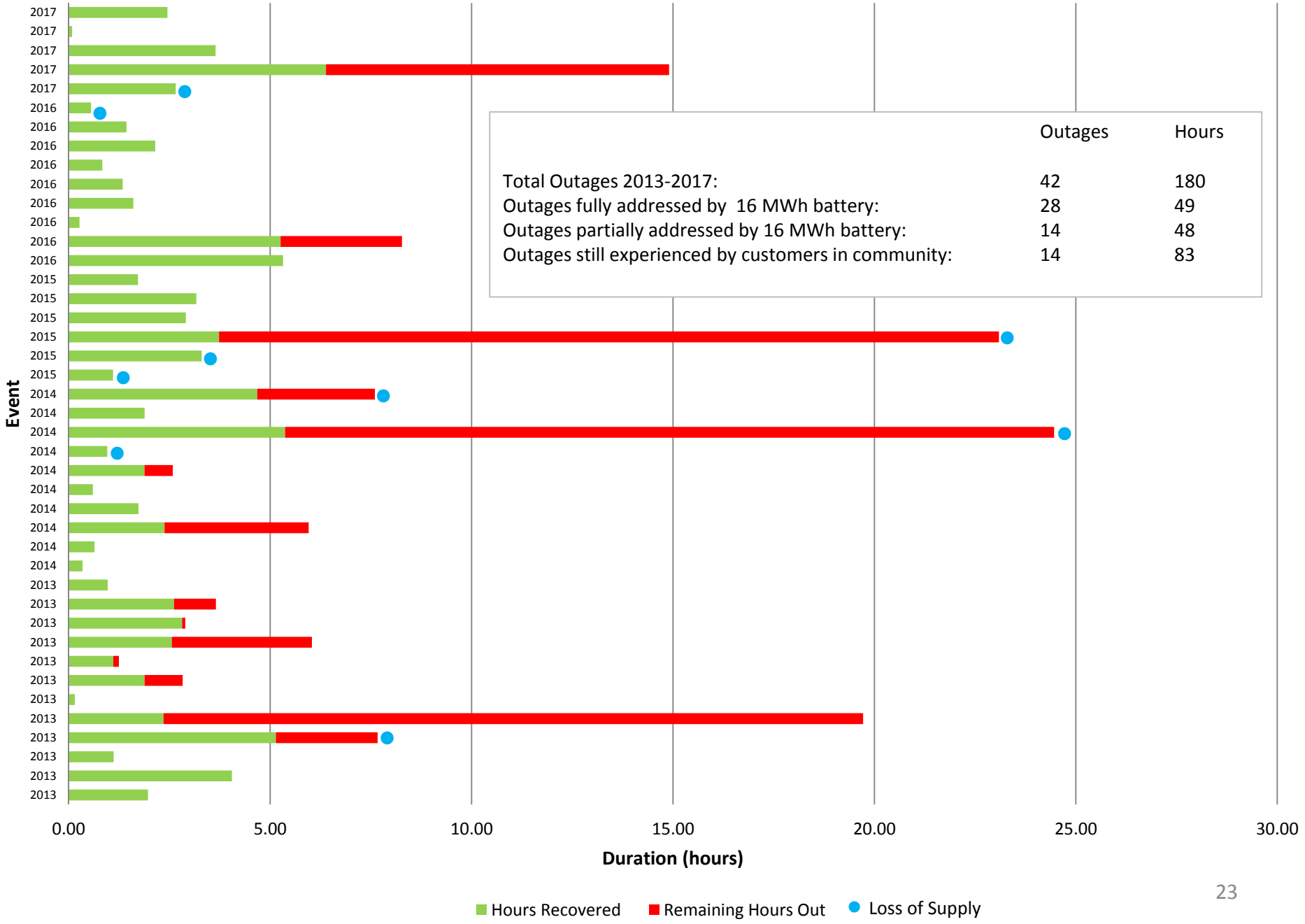
	Outages	Hours
Total Outages 2013-2017:	42	180

Moosonee DS F1: Outage Impact with 8MW, 12MWh energy storage ($18M)



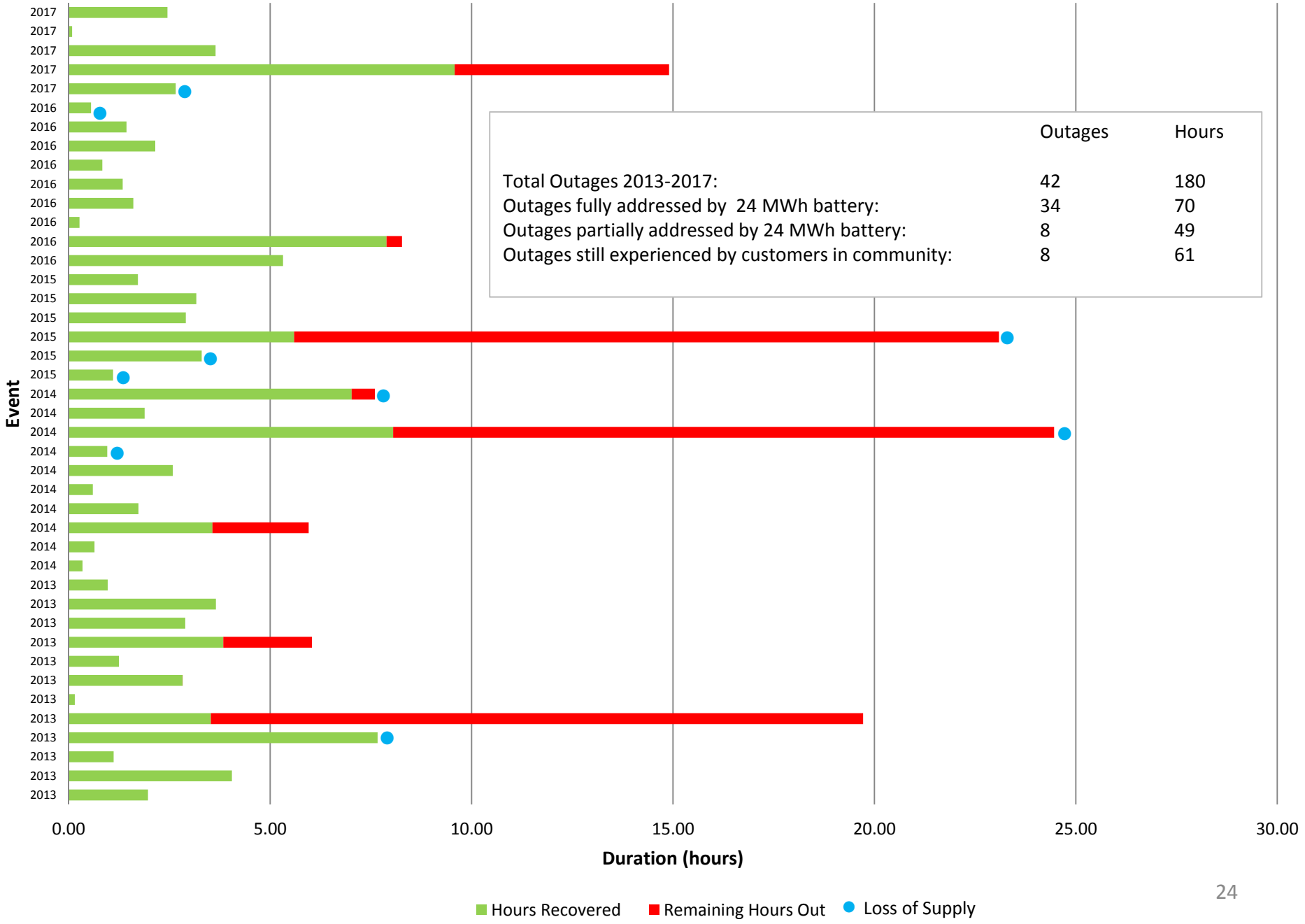
	Outages	Hours
Total Outages 2013-2017:	42	180
Outages fully addressed by 12 MWh battery:	23	32
Outages partially addressed by 12 MWh battery:	19	49
Outages still experienced by customers in community:	19	98

Moosonee DS F1: Outage Impact with 8MW, 16MWh energy storage ($24M)



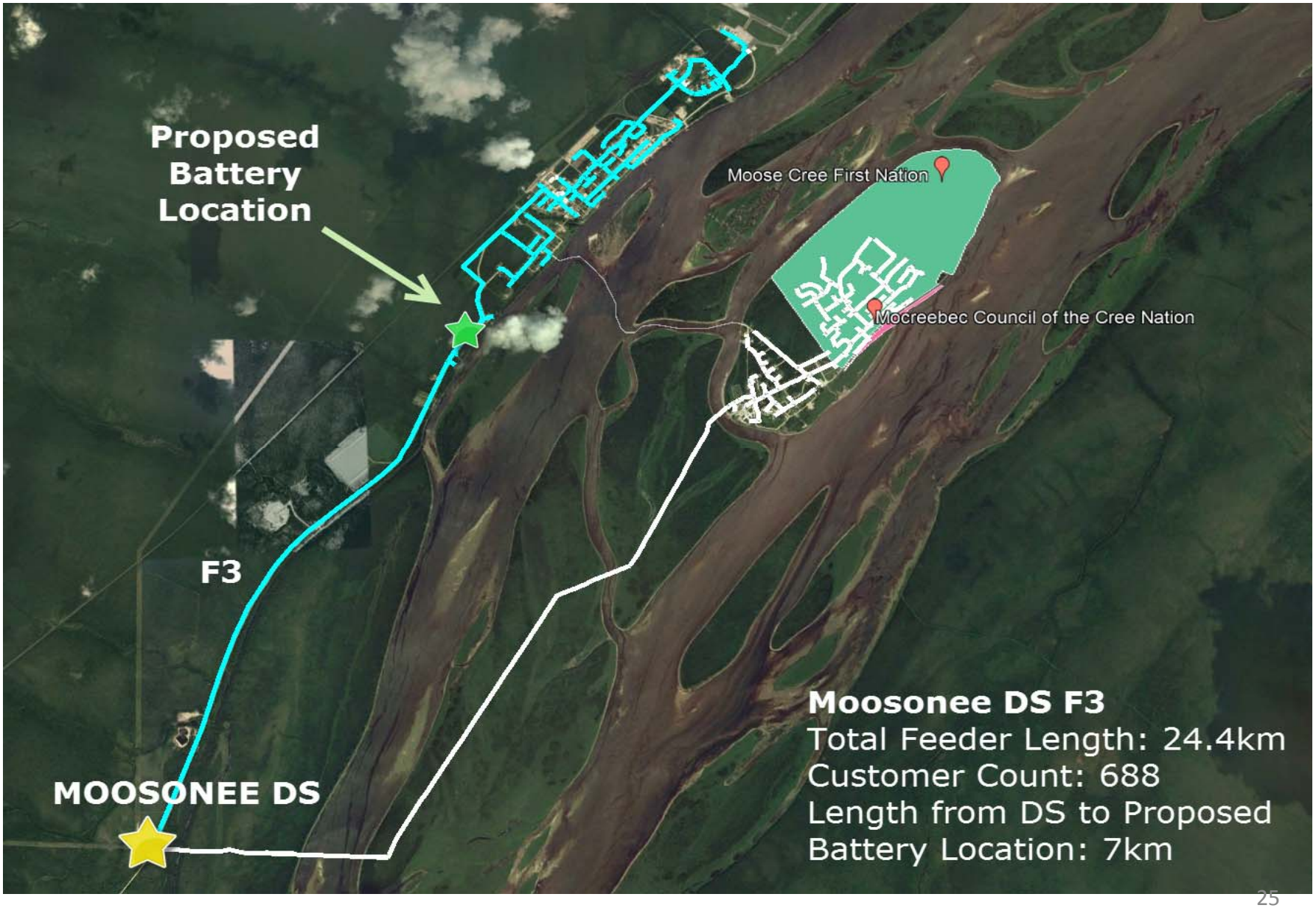
	Outages	Hours
Total Outages 2013-2017:	42	180
Outages fully addressed by 16 MWh battery:	28	49
Outages partially addressed by 16 MWh battery:	14	48
Outages still experienced by customers in community:	14	83

Moosonee DS F1: Outage Impact with 8MW, 24MWh energy storage ($36M)

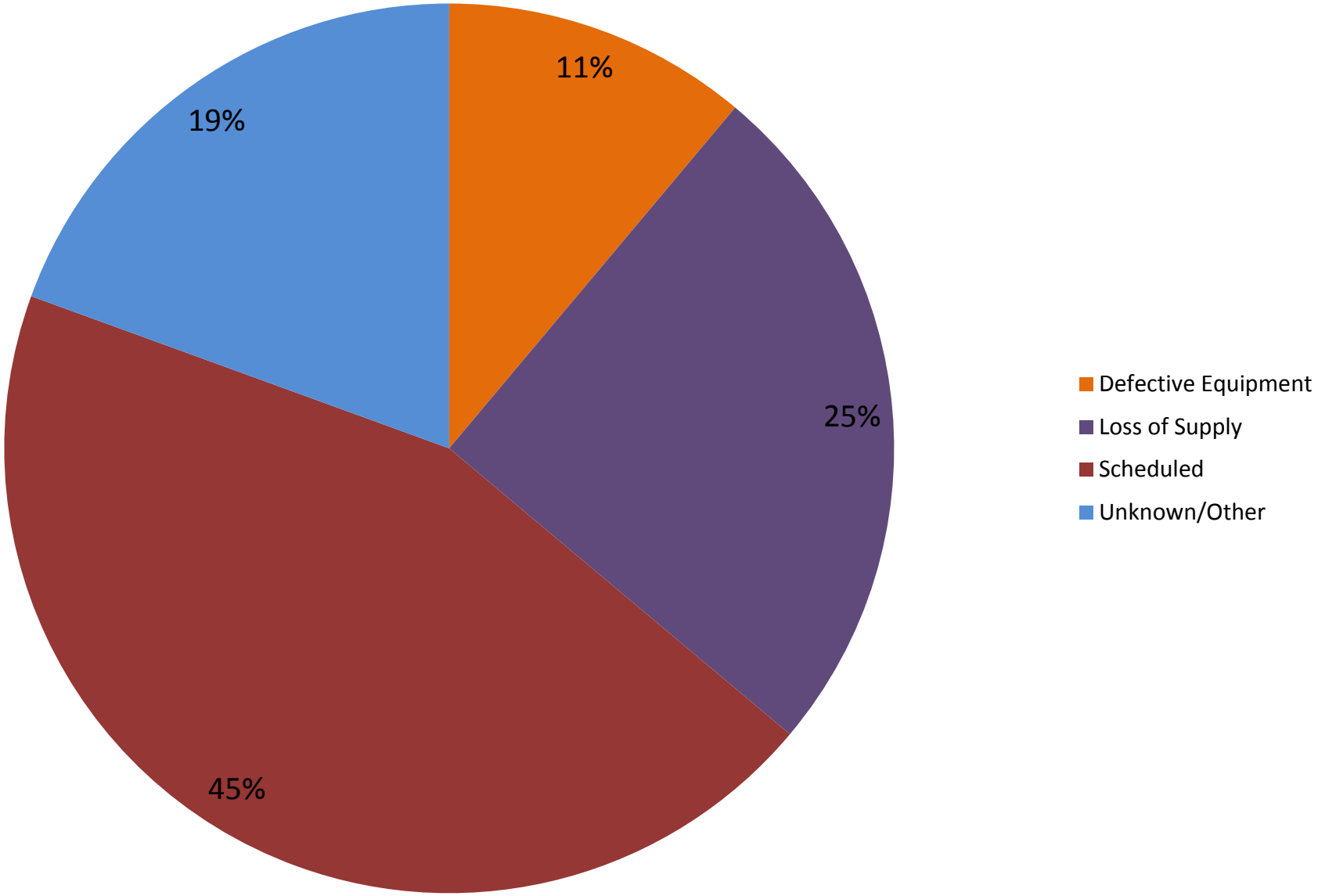


	Outages	Hours
Total Outages 2013-2017:	42	180
Outages fully addressed by 24 MWh battery:	34	70
Outages partially addressed by 24 MWh battery:	8	49
Outages still experienced by customers in community:	8	61

Moosonee DS F3

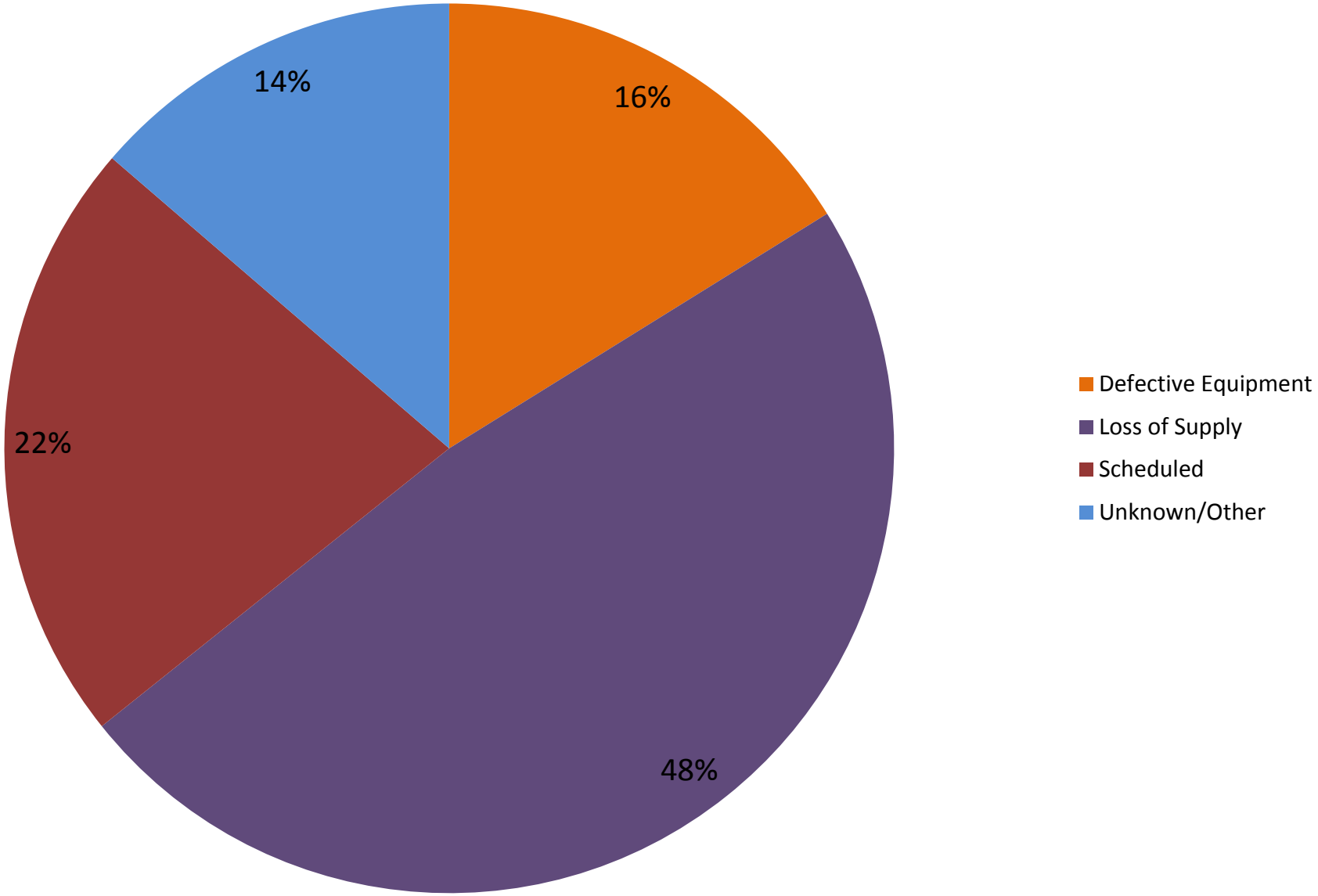


Moosonee DS F3: Frequency of Upstream Outages by Cause (5 years)



* Reduction in frequency of Loss of Supply is expected due to upstream transmission investments.

Moosonee DS F3: Duration of Upstream Outages by Cause (5 years)

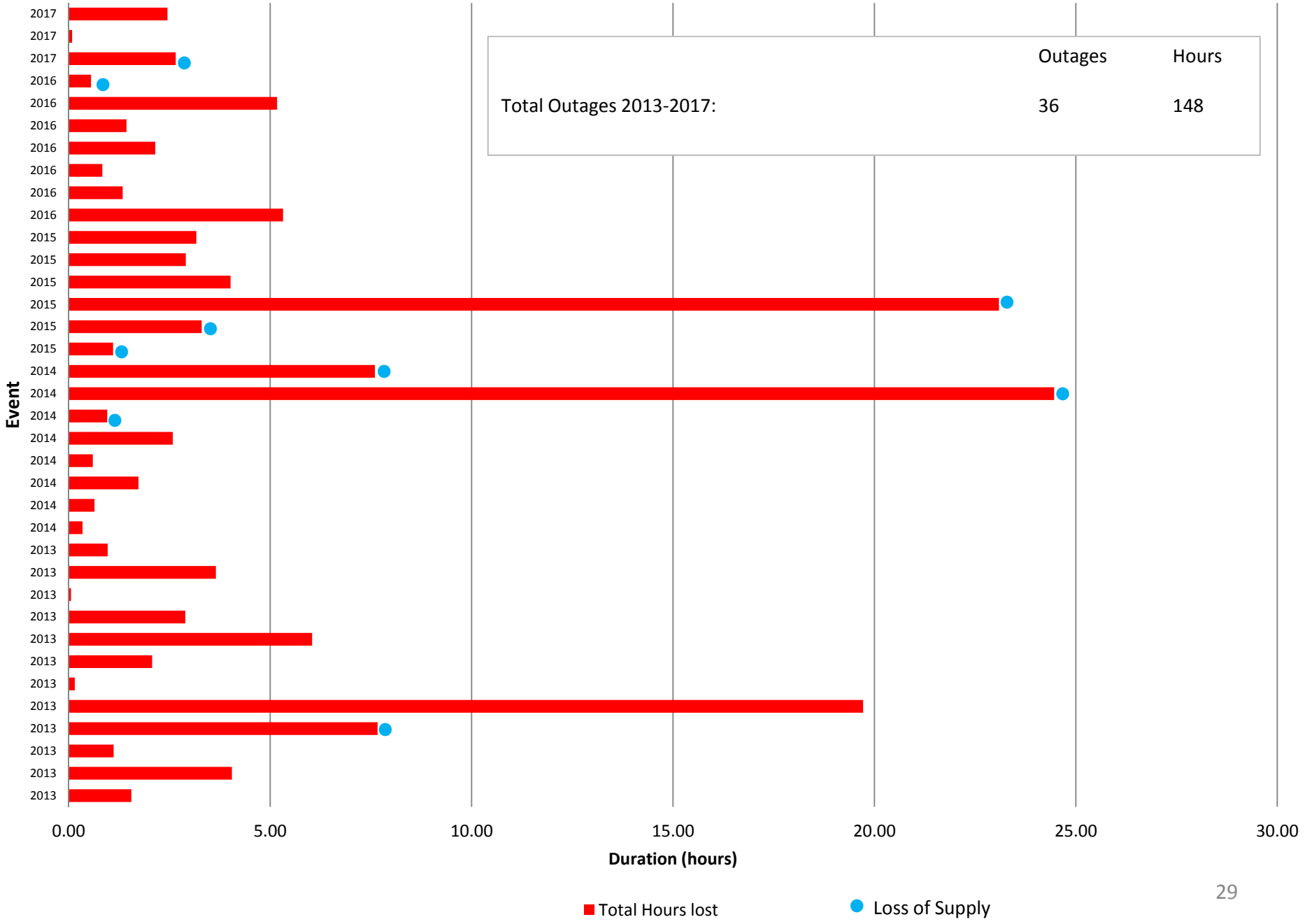


* Reduction in frequency of Loss of Supply is expected due to upstream transmission investments.

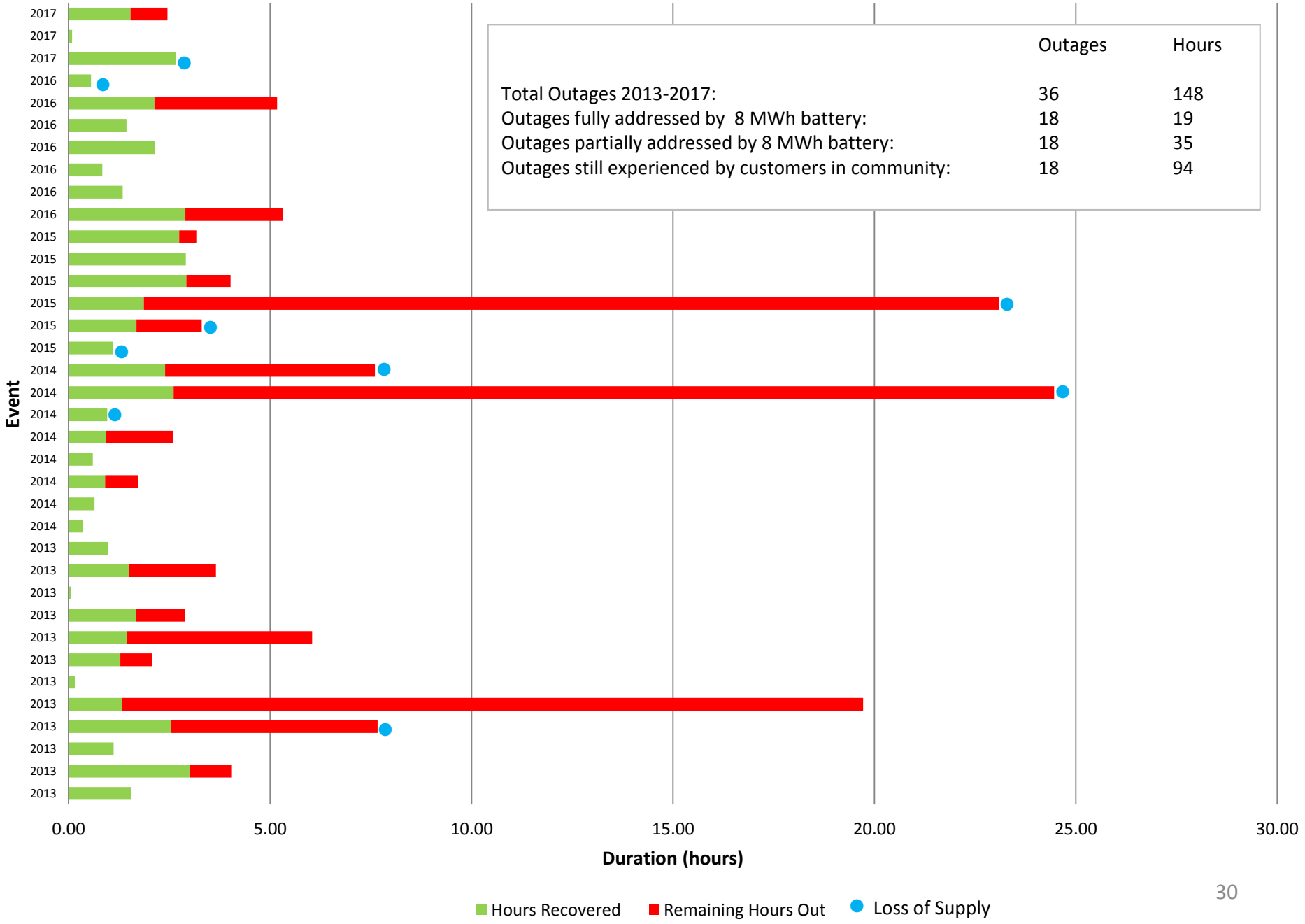
Moosonee DS F3: Number and Total Duration of Outages by Year

Year	Number of Outages	Total Duration of Outages (Hours)
2013	12	50
2014	8	39
2015	6	38
2016	7	17
2017	3	5

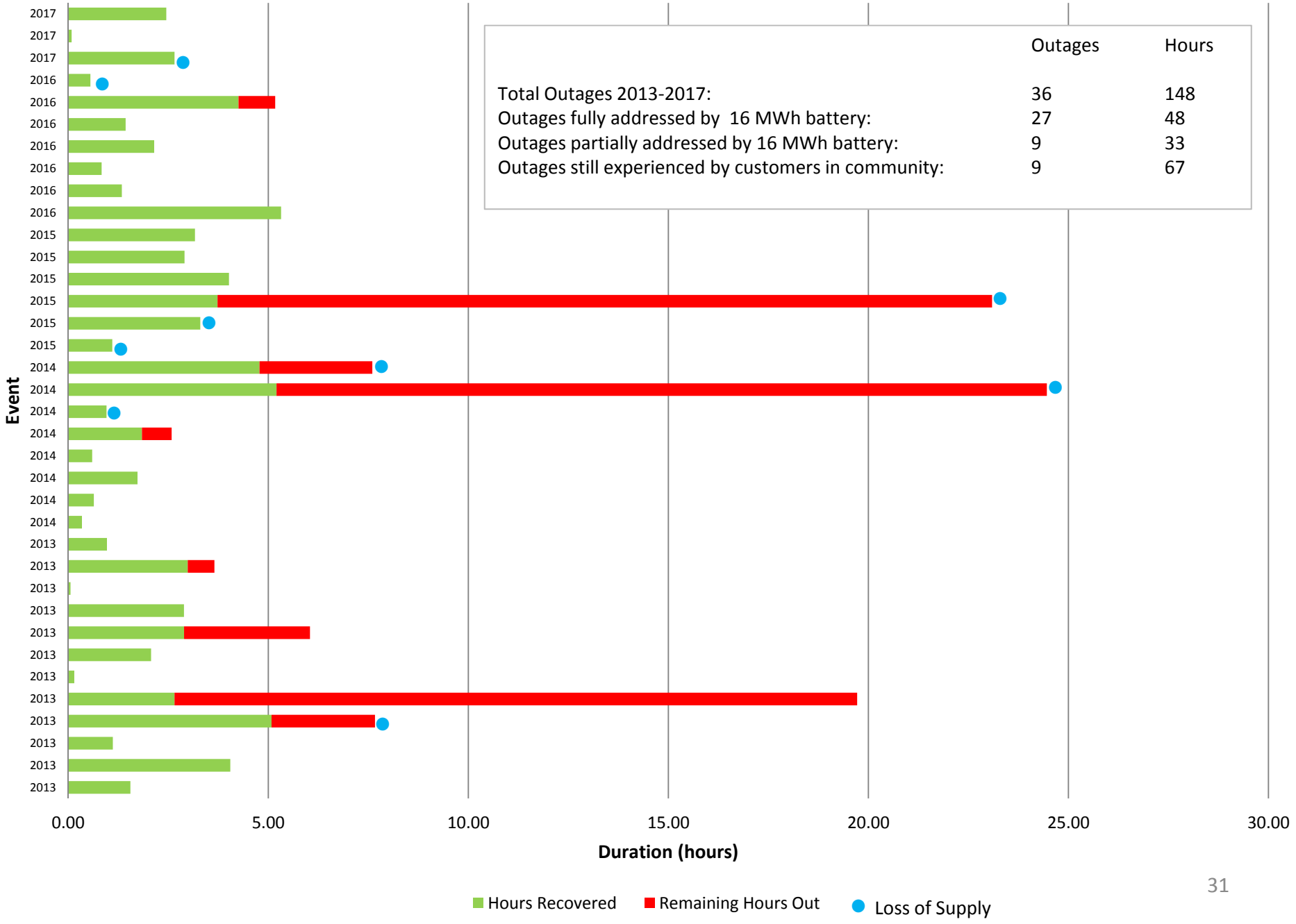
Moosonee DS F3: Outages Experienced Over Last 5 Years



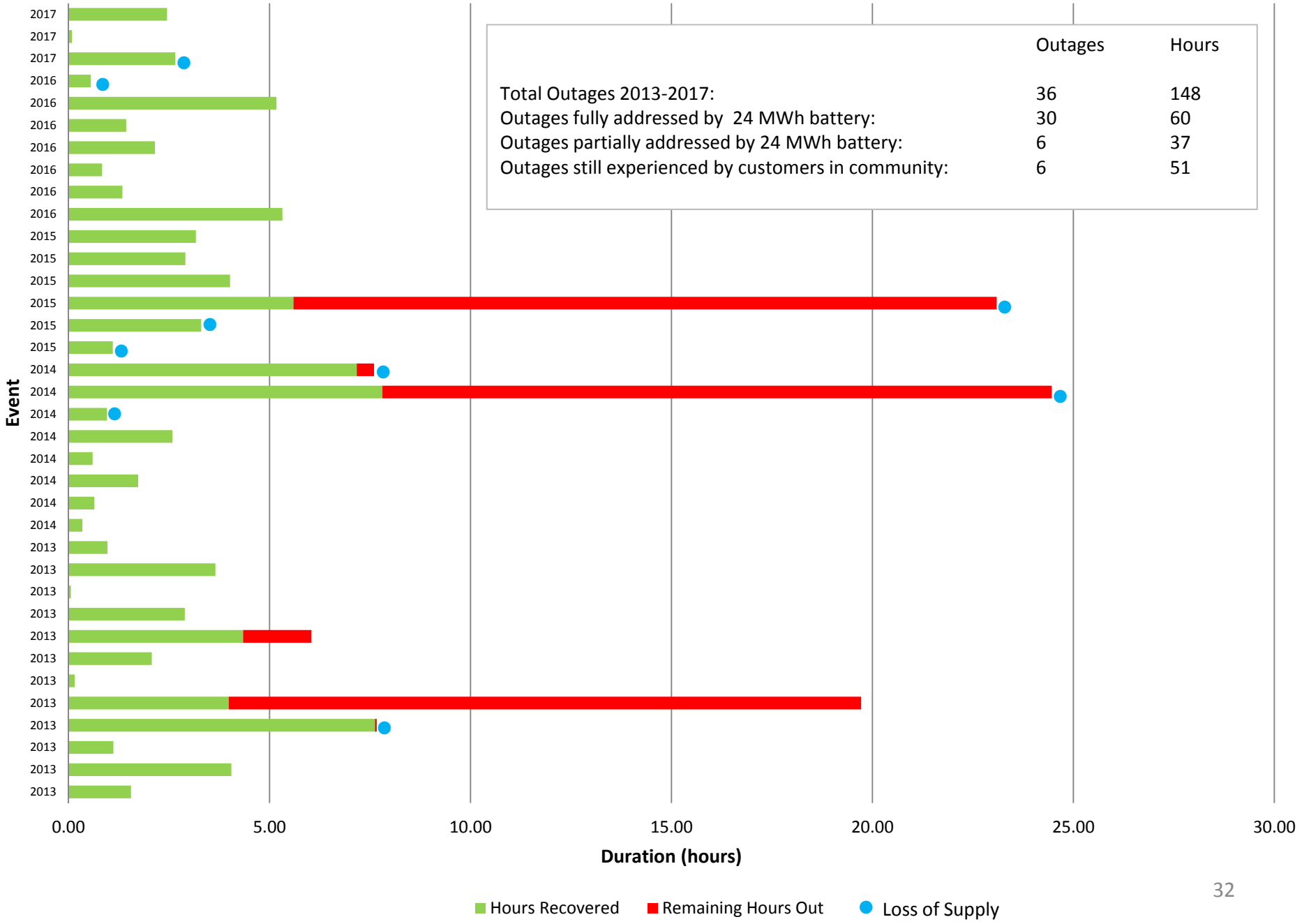
Moosonee DS F3: Outage Impact with 8MW, 8MWh energy storage ($12M)



Moosonee DS F3: Outage Impact with 8MW, 16MWh energy storage ($24M)



Moosonee DS F3: Outage Impact with 8MW, 24MWh energy storage ($36M)



Investment Prioritization

- Retention of an experienced storage and engineering partner is underway.
- The detailed engineering and financial viability review is targeted by September 30, 2018.
- There may be additional value due to scalability.
- Pilot project funding sourced through redirection ($5M) and may be offset or augmented by government funding programs.