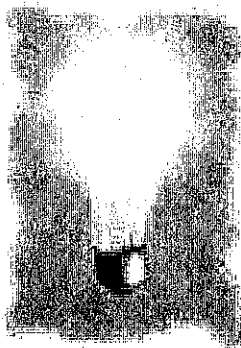


**DISTRIBUTION RELIABILITY  
QUARTERLY REPORT**



**SECOND QUARTER - CALENDAR YEAR 2020**

**Presented to Municipal Light Board  
July 14, 2020**

MERRIMAC MUNICIPAL LIGHT DEPARTMENT



MEMO

**To:** Municipal Light Board

**From:** Kenneth Lamb

**Date:** July 14, 2020

**Re:** 2nd Quarter Reliability Report

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The Municipal Light Department (“MLD”) is committed to providing the best electric service to the Town of Merrimac residents. The MLD strives to provide safe and reliable power by continuing capital improvements of the system, in turn, reducing the major industry accepted indexes used to track the reliability of electric systems.

The second page of this report contains the breakdown of equipment and non-equipment related outages. During the second quarter of 2020, there were a total of 8 outages within Merrimac; three caused by animal contact, two tree/branch contacts and the last two caused by equipment failure.

The System Average Interruption Duration Index (SAIDI) measures the number of minutes, on average, a Merrimac customer is without power. The System Average Frequency Index (SAIFI) measures the average frequency of interruptions for a Merrimac customer. The Customer Average Interruption Duration Index (CAIDI) identifies the average length of time, in minutes, that a customer who is interrupted can expect that interruption to last. All the indexes results, for both the combination of equipment and non-equipment related outages, are found in Page 4.

Performance and involvement of each distribution feeder and supply line along with individual CAIDI minutes are detailed in Page 5. The last page of this report provides a summary of all the outages sustained during the second quarter of 2020.

**MERRIMAC MUNICIPAL LIGHT DEPARTMENT**

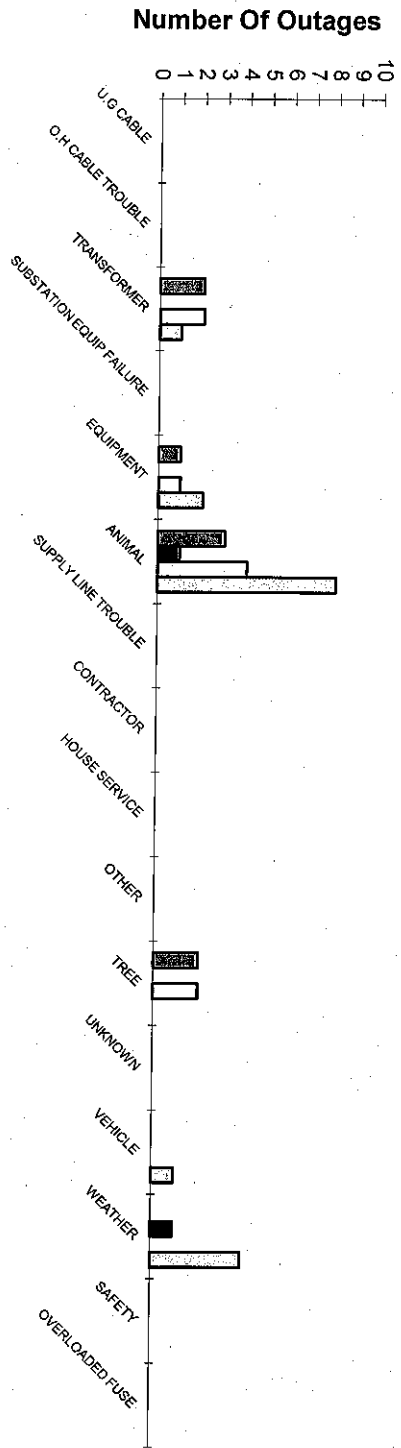
## Summary of 2nd Quarter Outages

Circuit Line	Date	Time	Cause	Customers Affected
4	April 5, 2020	8:10PM-9:20PM	Animal	50
3	April 9, 2020	9:00PM-10:00PM	Tree	15
3	April 13, 2020	3:50PM-5:30PM	Tree	21
4	May 2, 2020	9:15PM-11:40PM	Transformer Failure	3
3	May 20, 2020	4:50PM-6:00PM	Sectionalizer Failure	1200
3	May 24, 2020	9:35AM-10:30AM	Animal	3
4	May 27, 2020	7:25PM-10:25PM	Transformer Failure	8
4	June 22, 2020	7:50PM-9:00PM	Animal	1200

**COMPARISON BY QUARTER OF EQUIPMENT AND NON-EQUIPMENT RELATED OUTAGES  
2ND QUARTER - CALENDAR YEAR 2020  
(APR 2020 - JUN 2020)**

CAUSE	2ND QTR. 2020 (APR - JUN)	2ND QTR. 2019 (APR - JUN)	YEAR TO DATE 2020 (JAN - DEC)	YEAR TO DATE 2019 (JAN - DEC)
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<b>EQUIPMENT RELATED</b>				
U/G CABLE FAILURE				
O/H CABLE TROUBLE				
TRANSFORMER FAILURE	2		2	1
SUBSTATION EQUIQ FAILURE				
EQUIPMENT FAILURE	1		1	2
SUPPLY LINE TROUBLE				
OVERLOADED FUSE				
<b>NON-EQUIPMENT RELATED</b>				
ANIMAL	3	1	4	8
CONTRACTOR				
HOMEOWNER				
HOUSE SERVICE				
OTHER				
TREE	2		2	
UNKNOWN				
VEHICLE				1
WEATHER		1		4
WORKER SAFETY				
<b>TOTALS</b>	<b>8</b>	<b>2</b>	<b>9</b>	<b>16</b>

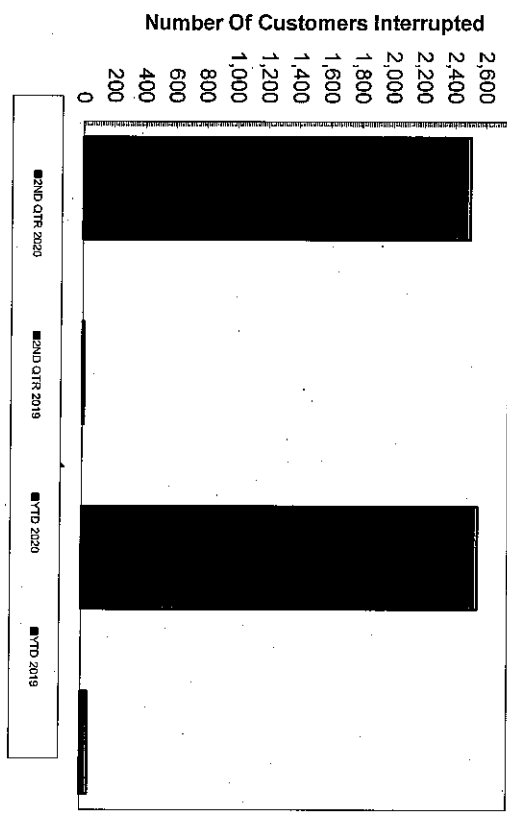


2ND QTR 2020
  2ND QTR 2019
  YTD 2020
  YTD 2019

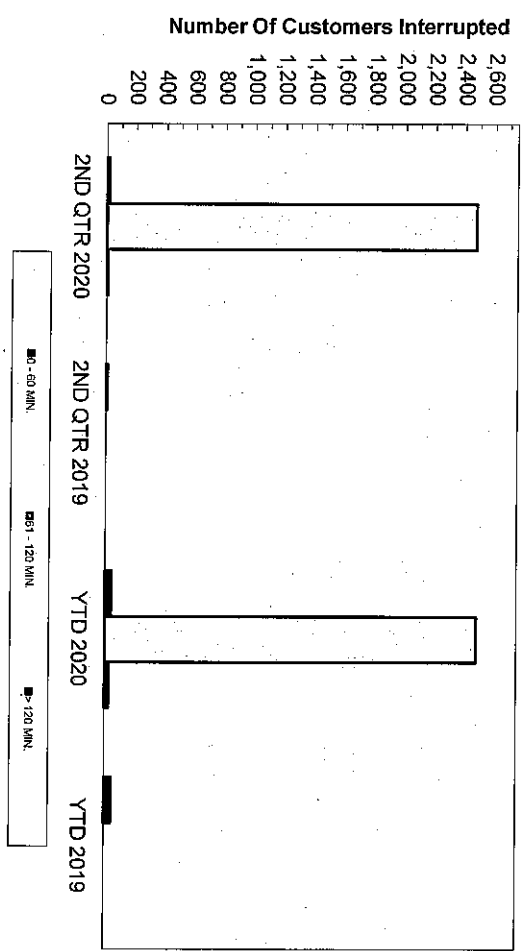
**COMPARISON BY INTERRUPTION INTERVAL OF NUMBER OF CUSTOMERS INTERRUPTED**  
**2ND QUARTER - CALENDAR YEAR 2020**  
 (APR 2020 - JUN 2020)

	NUMBER OF CUSTOMERS INTERRUPTED			TOTAL	PERCENTAGE OF TOTAL CUST. INTERRUPTED			TOTAL
	0 - 60 MIN.	61 - 120 MIN.	> 120 MIN.		0 - 60 MIN.	61 - 120 MIN.	> 120 MIN.	
2ND QTR 2020 (APR - JUN)	18	2,474	8	2,500	0.7%	99.0%	0.3%	100%
2ND QTR 2019 (APR - JUN)	12	0	0	12	100.0%	0.0%	0.0%	100%
YTD 2020 (JAN - DEC)	43	2,483	28	2,554	1.7%	97.2%	1.1%	100%
YTD 2019 (JAN - DEC)	48	0	0	48	100.0%	0.0%	0.0%	100%

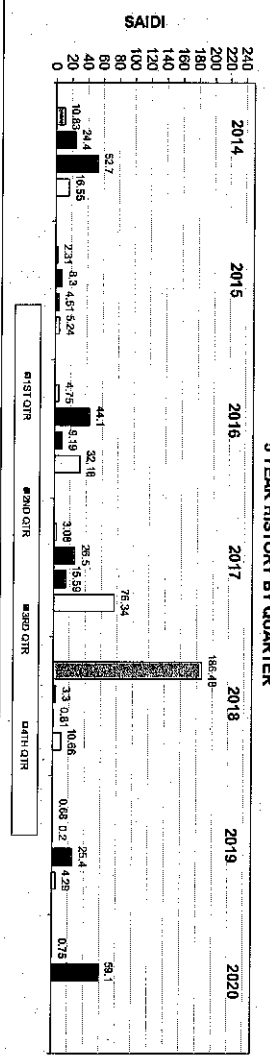
COMPARISON OF NUMBER OF CUSTOMERS INTERRUPTED



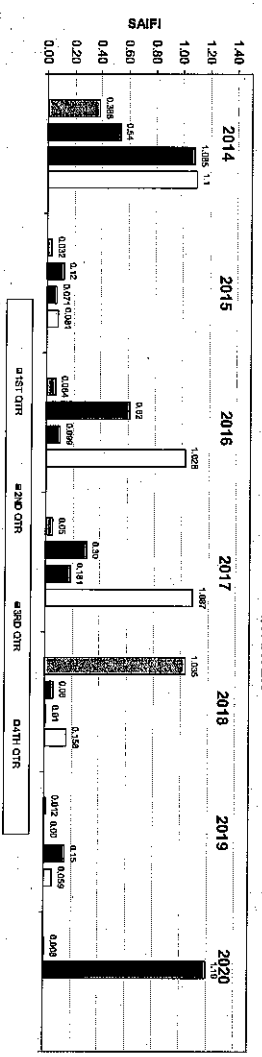
COMPARISON OF CUSTOMERS INTERRUPTED PER INTERVAL



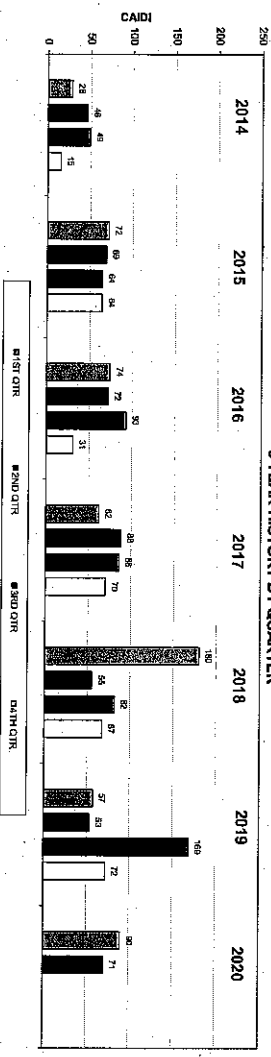
**SAIDI**  
5 YEAR HISTORY BY QUARTER



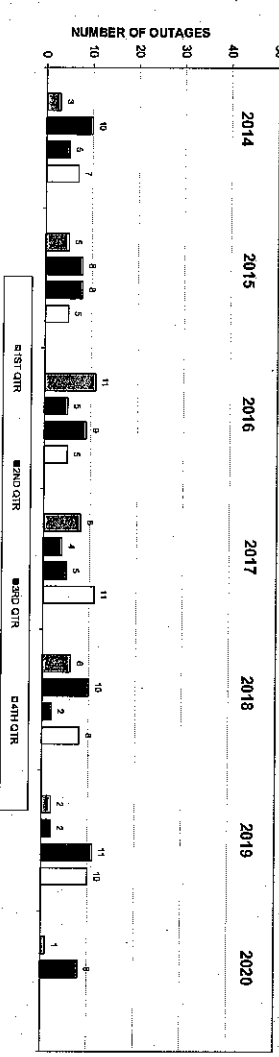
**SAIFI**  
5 YEAR HISTORY BY QUARTER



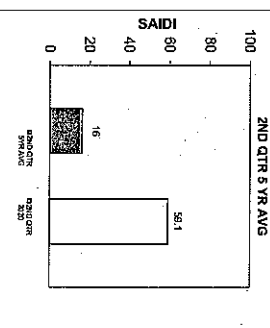
**CAIDI**  
5 YEAR HISTORY BY QUARTER



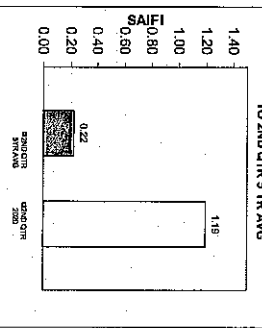
**NUMBER OF OUTAGES**  
5 YEAR HISTORY BY QUARTER



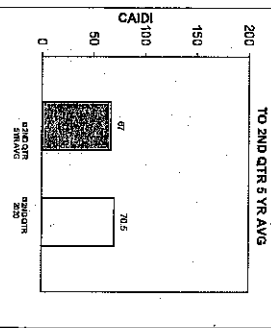
**SAIDI**  
COMPARISON OF 2ND QTR 2020 TO 2ND QTR 5 YR AVG



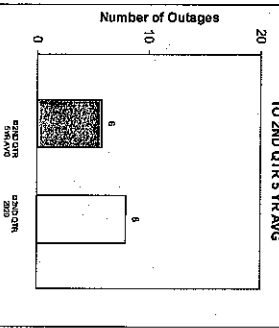
**SAIFI**  
COMPARISON OF 2ND QTR 2020 TO 2ND QTR 5 YR AVG



**CAIDI**  
COMPARISON OF 2ND QTR 2020 TO 2ND QTR 5 YR AVG



**NUMBER OF OUTAGES**  
COMPARISON OF 2ND QTR 2020 TO 2ND QTR 5 YR AVG



SAIDI = Total Customer Outage Minutes/Total No. of Customers  
 SAIFI = Total No. of Customers Out/Total No. of Customers  
 CAIDI = Total Customer Outage Minutes/Total No. of Customers Out

**COMPARISON OF NUMBER OF OUTAGES AND AVERAGE CUSTOMER INTERRUPTION DURATION  
2ND QUARTER - CALENDAR YEAR 2020  
(APR 2020 - JUN 2020)**

CIRCUIT NUMBER	NUMBER OF OUTAGES				CUMULATIVE (MINUTES)				CIRCUIT NUMBER
	2ND QTR. 2020 (APR - JUN)	2ND QTR. 2019 (APR - JUN)	YEAR TO DATE 2020 (JAN - DEC)	YEAR TO DATE 2019 (JAN - DEC)	2ND QTR. 2020 (APR - JUN)	2ND QTR. 2019 (APR - JUN)	YEAR TO DATE 2020 (JAN - DEC)	YEAR TO DATE 2019 (JAN - DEC)	
1									1
2									2
3	4	1	4	3	285	45	285	56	3
4	4	1	5	1	405	60	495	60	4
Ngrid 2377N									Ngrid 2377N
Ngrid 2396S									Ngrid 2396S
Burnside Substation									Burnside Substation
Mill Substation									Mill Substation
<b>TOTAL</b>	<b>8</b>	<b>5</b>	<b>9</b>	<b>16</b>	<b>AVERAGE 86 MINUTES</b>	<b>AVERAGE 53 MINUTES</b>	<b>AVERAGE 97 MINUTES</b>	<b>AVERAGE 56 MINUTES</b>	<b>TOTAL</b>