

**TECHNICAL ADVISORS' REVIEW  
OF  
ENERGY NEW ORLEANS, INC.'S OUTAGES AND RELIABILITY  
PERFORMANCE  
COUNCIL DOCKET NO. UD-17-04  
  
INITIAL REPORT  
  
TO  
  
THE COUNCIL OF THE CITY OF NEW ORLEANS**

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*Economic, Engineering and Regulatory Counsel*

October 31, 2017

## BACKGROUND

On June 8, 2017, Councilmember Brossett submitted a letter to Entergy New Orleans, Inc. (“ENO”) voicing concerns over ongoing outages and customer complaints in ENO’s service territory. The June 8, 2017 letter requested ENO to provide detailed outage information including identification of specific feeders that have failed, times, duration and causes of all outages. Additionally, Councilmember Brossett requested specific information regarding remediation activities that ENO has taken or plans to take, and ENO’s future short-term plans, costs and timelines to remediate such problems. At the June 28, 2017 Council Utility, Cable, Telecommunications and Technology Committee (“UCTTC”) meeting, the Committee members also voiced concerns to ENO regarding the ongoing outages and reliability issues and posed numerous questions to ENO. ENO provided a high-level presentation concerning ENO’s reliability and the causes of its outages and was able to answer some of the questions posed by Councilmembers, but deferred many of its answers to a later date.

On July 10, 2017, ENO responded to Councilmember Brossett’s June 8, 2017 letter with detailed statistical reliability and outage data covering the June 1, 2016 – May 31, 2017 period (“Analysis Period”), and 2017 year to date (through June 2017) System Average Interruption Frequency Indices<sup>1</sup> (“SAIFI”), System Average Interruption Duration Indices<sup>2</sup> (“SAIDI”) reliability statistics by individual distribution feeder and prevailing weather conditions for ENO’s entire distribution system. At the July 26<sup>th</sup>, 2017 UCTTC meeting, the Committee recommended the Council adopt Resolution R-17-427. <sup>3</sup> Resolution R-17-427 requires that:

1. Within 30 days of the adoption of the resolution (September 11, 2017), the Technical Advisors will file with the Council, with copies to all parties to the docket, the results of their analysis of ENO's outages and reliability performance, based upon ENO's information then received to date, along with the Technical Advisor’s request for clarifying and additional information for the Technical Advisors further analysis.
2. Within 60 days of ENO's receipt of the Technical Advisor’s analysis, ENO shall provide the Council with its formal plans, budgets, schedules for improving the reliability performance of its distribution system, and recommended minimum SAIFI and SAIDI standards to measure the reliability performance of its distribution system for monitoring and evaluation by the Council and its Technical Advisors.
3. ENO fully coordinate and cooperate with the Advisors throughout the term of Docket UD-17-04.

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<sup>1</sup> SAIFI measures the number of times the average customer experiences an electrical outage over a period of time.

<sup>2</sup> SAIDI measures the number of minutes over the year that the average customer is without power. It is calculated by dividing the number of minutes customers were without power over the year by the number of customers served.

<sup>3</sup> Resolution R-17-427, Resolution Directing ENO to Investigate and Remediate Electric Service Disruptions and Complaints and to Establish Minimum Electric Reliability Performance Standards and Financial Penalty Mechanisms.

4. ENO shall file bi-monthly reports, with the Council concerning ongoing outages and reliability issues until otherwise directed by the Council.
5. By January 31, 2018, ENO is to file with the Council a report which provides the annual SAIFI and SAIDI reliability values for each ENO distribution feeder for the prior calendar year.
6. By December 31, 2017, based upon the Technical Advisors' review of ENO's supplemental information, the Advisors will file with the Council, with copies to all parties to the docket, the results of their analysis of ENO outages and reliability performance, along with an evaluation and recommendation of appropriate minimum reliability performance standards for ENO taking into consideration the urban nature of ENO's service territory within Orleans Parish, and recommending appropriate financial penalties for non-compliance for consideration by the Council.
7. Within 30 days of the date the Advisors' filing of their findings and recommendations, all intervenors and ENO shall file any comments they deem appropriate relative to the Advisors' findings and recommendations.
8. A public hearing shall be had before the Council's Utility, Cable, Telecommunications and Technology Committee at which time the Committee shall consider appropriate action with regard to the establishment of minimum reliability standards for ENO and the submittal of a formal recommendation to the Council for its consideration.

This Initial Report ("Report") is filed in compliance with Resolution R-17-427's requirements.

### **REVIEW OF ENO'S RELIABILITY PERFORMANCE**

The Technical Advisors have performed a preliminary analysis of ENO's detailed reliability and outage data provided on July 10, 2017. ENO's detailed data provided in its response to Councilmember Brossett's inquiry was extensive and included many variables. The Technical Advisors preliminary review indicates that, during the Analysis Period ENO sustained a total of 2,599 outages from all causes under various weather conditions.

#### ***ENO'S OUTAGES BY WEATHER CONDITION***

A breakdown of ENO outages by Weather Condition over the Analysis Period is provided in Table 1.

<b>Table 1</b> <b>ENO Outages by Weather Condition</b>		
<b>Weather Condition</b>	<b>Number of Outages</b>	<b>Percent of Total Outages</b>
Fair	1,462	56%
Cold	53	2%
Fog	7	0.3%
Heat	73	3%
Rain	127	5%
Thunder	726	28%
Tornado	106	4%
Wind	45	2%
Total	2,599	100%

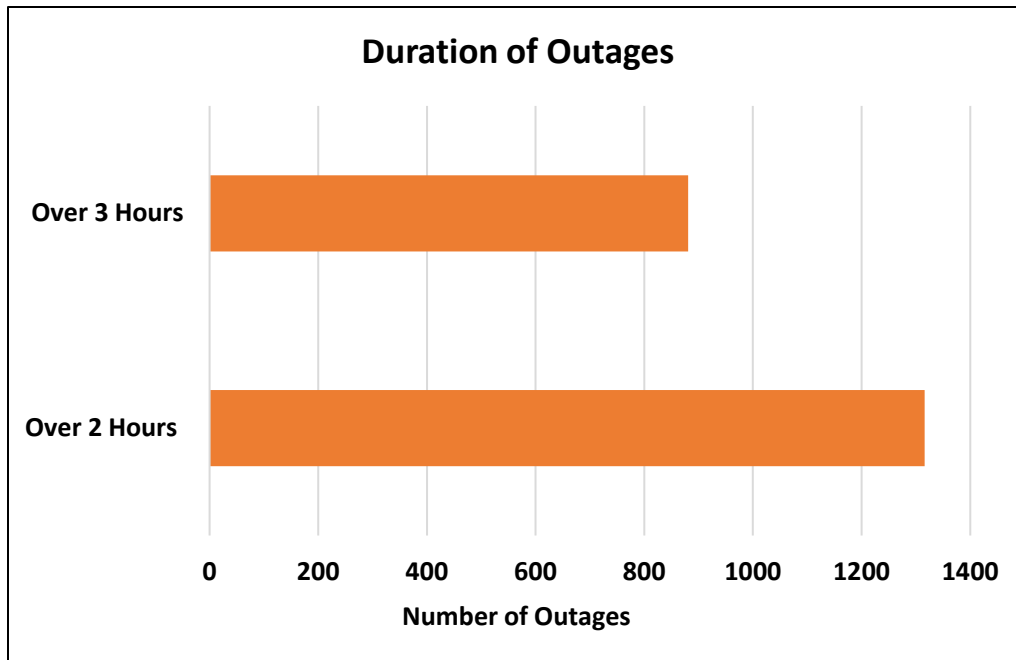
*Observations*

As can be seen in the table above and of significant importance, 1,462 (over 50%) of ENO’s total outages from all causes occurred during fair weather conditions. The preliminary analysis shows that, of the total 2,599 outages, 994 outages were the result of electrical equipment failure, emergency switching, poles & crossarms, substation, transformers and wire/connectors failure. Of these 994 outages, 85% occurred during fair weather conditions, alluding to the condition of ENO’s distribution system.

The sheer number of outages that have been occurring throughout ENO’s distribution system is of significant concern. Owing to the types of distribution equipment that have been failing, this suggests that ENO’s equipment is aging and in all likelihood needs replacement. This opinion is supported by the fact that the majority of ENO’s outages have occurred during fair weather conditions further suggesting that ENO may need to increase its spending and accelerate its work efforts related to distribution maintenance and equipment replacement.

***DURATION OF ENO’S OUTAGES***

The data provided by ENO in their July 10<sup>th</sup> response included values for the total duration of each outage in minutes. A breakdown of outages by duration is shown in Figure 1 below.



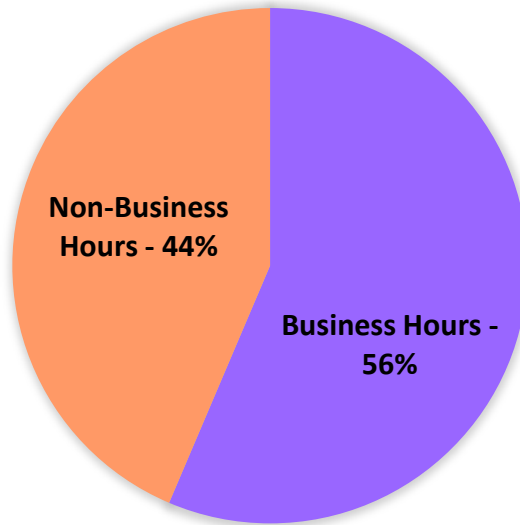
**Figure 1: ENO's Outages by Duration**

*Observations*

The Technical Advisors preliminary analysis concludes that a significant number of ENO's outages exceeded 2 – 3 hours in duration. Of the total 2,599 outages, 50% of the outages exceeded 2 hours in duration, with over 50% of these long duration outages occurring during fair weather conditions. In total, 881 outages or 33% of the total 2,599 outages lasted longer than 3 hours, with 48% of these long duration outages occurring during fair weather conditions. In total, 47 outages exceeded 50 hours in duration. Upon receipt of further detailed information from ENO, the Technical Advisors will continue their review of the root cause and underlying reasons for the outage durations currently being experienced.

***ENO OUTAGES BY TIME OF DAY***

A breakdown of ENO’s outages split between business and non-business hours, or by time of day, can be seen in Figure 2 below.



**Figure 2: ENO’s Outages by Time of Day**

***Observations***

The Technical Advisors analysis shows that, outages were generally evenly split occurring during normal business hours and outside normal business hours. In total, 56% of outages occurred between the hours of 8AM and 5PM and 44% occurred between 5PM and 8AM or outside of business hours. Of all outages occurring during business hours, 48% had a duration lasting longer than 120 minutes with 31% lasting longer than 180 minutes. Outages occurring during non-business hours followed a similar trend, with 54% lasting longer than 120 minutes in duration and 38% lasting over 180 minutes in duration.

***ENO OUTAGES BY COUNCILMANIC DISTRICT***

The Technical Advisors preliminary analysis also evaluated the ratio of outages occurring in each Councilmanic District. As part of its July 10, 2017 response letter, ENO provided Appendix A which included the Feeder ID and Substation name for each feeder within ENO’s system. The Technical Advisors used this information, along with our best knowledge of the geographical mapping of each feeder and the Councilmanic District’s to determine the magnitude of outages occurring in each District. A preliminary breakdown of ENO outages by Councilmanic District over the Analysis Period is provided in Table 2.

<b>Table 2</b>		
<b>ENO Outages by Councilmanic District</b>		
<b>Councilmanic District</b>	<b>Number of Outages</b>	<b>Percent of Total Outages</b>
District A	287	11%
District B	483	19%
District C	348	13%
District D	729	28%
District E	732	28%
Total	2,579 <sup>4</sup>	100%

*Observations*

Validating Councilmember Brossett’s concern in this matter, it can be seen that approximately 28% of all outages occurred in Councilmanic District D, with another 28% occurring in Councilmanic District E. As can be seen above, the outages occurring in ENO’s service territory are not evenly distributed. This suggests that ENO should better focus its efforts on the individual distribution feeders that are experiencing the highest number of outages, specifically in Councilmanic Districts D and E, as those are the districts experiencing the highest number of outages.

*OUTAGES OCCURRING IN DISTRICT D*

As directed by Councilmember Brossett, a further preliminary investigation into the 729 outages that occurred in District D was conducted. Of the total 729 outages occurring in District D, during the Analysis Period, 450 (approx. 62%) occurred during fair weather following the same pattern as the total outages occurring in ENO’s total service area. In District D alone, 358 outages (approx. 49%) lasted longer than 2 hours, with 255 outages (approx. 30%) exceeding 3 hours in duration.

**NUMBER OF CUSTOMERS AFFECTED BY OUTAGES**

An analysis into the number of customers affected by each outage during the Analysis Period was conducted by the Technical Advisors, given the sheer number of outages that occurred.

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<sup>4</sup> There were a total of 20 outages with no associated feeder numbers or feeder numbers that were not identifiable to any feeder number found in Appendix A provided by ENO, so the Technical Advisors were unable to associate them with a Councilmanic District.

### *Observations*

The analysis performed by the Technical Advisors' shows that the magnitude of customers affected by each single outage during the Analysis Period falls within a more reasonable range. While it is never desirable to have a large number of customers without power as a result of an outage, of the total 2,599 outages, 162 outages (approx. 6%) affected over 1,000 customers. In total 549 outages or approximately 21% of all outages occurring during the Analysis Period affected over 100 customers, with 1,761 outages (approx. 68%) affecting less than 50 customers. Further analysis is required to better understand why ENO's outages have been affecting large numbers of customers. The occurrence of outages affecting large numbers of customers suggest that ENO's feeders need sectionalization.

### ***ENO'S RELIABILITY STANDARDS***

The Technical Advisors preliminary analysis also evaluated the reliability statistics of each feeder in ENO's service territory. As part of the July 10, 2017 response letter, included in Appendix A, ENO provided the SAIFI and SAIDI values for each feeder with ENO's system allowing the Technical Advisors to compare these values to the standards established under the Louisiana Public Service Commission ("LPSC").

### *Observations*

A significant number of state utility regulatory commissions have established minimum reliability performance standards for the utilities in their respective jurisdictions, including performance standards measuring their annual SAIFI, SAIDI and Customer Average Interruption Duration Index<sup>5</sup> ("CAIDI"). The LPSC requires that all utilities under its jurisdiction design and maintain a program to improve the reliability of electric distribution systems to within a minimum performance standard consisting of an annual maximum SAIFI of 2.28 and an annual maximum SAIDI of 2.87 for the utility's service distribution area, applying these standards to both rural and urban geographic areas. ENO's reliability performance must be measured against standards related to ENO's urban service territory. When measuring ENO's reliability data against relevant standards, the Technical Advisors' preliminary analysis found that, during the Analysis Period, 19 of ENO's 261 total feeders' did not achieve the LPSC's minimum SAIFI reliability performance standard and 121 of the 261 total feeders' did not achieve the LPSC's minimum SAIDI reliability performance standard.

As required by Resolution R-17-427, upon receipt of ENO's recommended SAIFI and SAIDI reliability standards, the Technical Advisors will evaluate ENO's proposed reliability standards in conjunction with reliability standards which have been adopted by other retail regulatory commissions throughout the country and provide their recommendations for the establishment of specific minimum reliability standards for the Council's consideration.

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<sup>5</sup> CAIDI is measured in minutes and gives the average outage duration that any given customer would experience. CAIDI can also be viewed as the average restoration time.