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November 29, 2018

VIA HAND DELIVERY

Lora W. Johnson  
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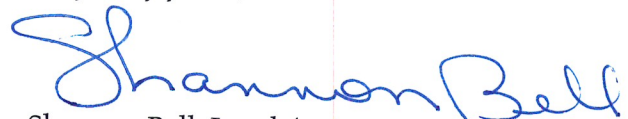
Re: *Council of the City of New Orleans Docket No.: UD-17-04  
Resolution Directing Entergy New Orleans, Inc. to Investigate and Remediate Electric Service  
Disruptions and Complaints and to Establish Minimum Electric Reliability Performance  
Standards and Finance Penalty Mechanisms*

Dear Lora:

Enclosed please find original and two (2) copies of The Sewerage and Water Board of New Orleans' Comments Regarding Quanta Report.

Should you have any questions whatsoever, please do not hesitate to contact me.

Very truly yours,



Shannon Bell, Legal Assistant to  
Luke F. Piontek, Christian J. Rhodes &  
Shelley Ann McGlathery

Enclosure

cc: All Counsel of Record via email

**BEFORE THE  
COUNCIL OF THE CITY OF NEW ORLEANS**

**RESOLUTION DIRECTING ENTERGY )  
NEW ORLEANS, INC. TO INVESTIGATE )  
AND REMEDIATE ELECTRIC SERVICE )  
DISRUPTIONS AND COMPLAINTS AND )  
TO ESTABLISH MINIMUM ELECTRIC )  
RELIABILITY PERFORMANCE )  
STANDARDS AND FINANCIAL PENALTY )  
MECHANISMS )**

**DOCKET NO. UD-17-04**

**THE SEWERAGE AND WATER BOARD OF NEW ORLEANS'  
COMMENTS REGARDING QUANTA REPORT**

Now comes the Sewerage and Water Board of New Orleans (“S&WB”), which respectfully submits its comments regarding the Quanta Report submitted by Entergy New Orleans, LLC (“ENO”) on October 31, 2018 in the captioned proceeding, in accordance with the Hearing Officer’s Order dated November 19, 2018.

**INTRODUCTION**

The Advisors to the Council of the City of New Orleans (“Council” or “City Council”) filed a report regarding the reliability of ENO’s distribution system in this matter, entitled a “Technical Review of Entergy New Orleans, Inc.’s Outages and Reliability Performance, Initial Report to the Council of the City of New Orleans” (“Advisors’ Preliminary Report”), on September 11, 2017. In that report, the Advisors noted that over 50% of the outages on ENO’s distribution system during the study period, or approximately 1,462 outages out of 2,599 outages, occurred during fair weather conditions.<sup>1</sup> Further, 85% of the total of 2,599 outages were caused by electrical equipment failure, emergency switching, poles and crossarms, substations, transformers and wire/connectors failure.<sup>2</sup> The Advisors concluded:

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<sup>1</sup> Advisors’ Initial Report, at 3.

<sup>2</sup> *Id.*

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.<sup>3</sup>

The outages reported in ENO's data were also often lengthy. The Advisors' Preliminary Report indicated that over 50% of the 2,599 outages lasted over 2 hours, and that 50% of these lengthy outages occurred during fair weather conditions.<sup>4</sup> In addition, over 33% of the 2,599 outages lasted longer than 3 hours.<sup>5</sup> These data further showed that the bulk (56%) of the outages occurred in two of the five councilmanic districts – District D and District E.<sup>6</sup> When using the reliability standards adopted by the Louisiana Public Service Commission ("LPSC"), 20 of ENO's 261 total distribution feeders did not achieve the minimum System Average Interruption Frequency Index ("SAIFI") reliability performance standard and 121 of the 261 feeders did not achieve the minimum System Average Interruption Duration Index ("SAIDI") reliability performance standard.<sup>7</sup>

The Advisors' Preliminary Report identified needed improvements in ENO's distribution system. The Advisors recognize that the sheer number of outages in such a compressed period of time is of "significant concern" and indicates that ENO's distribution system equipment is aging in likely in need of replacement.

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<sup>3</sup> *Id.*

<sup>4</sup> *Id.*, at 4, and see Figure 1.

<sup>5</sup> *Id.*

<sup>6</sup> *Id.*, at 6, and see Table 2.

<sup>7</sup> *Id.*, at 7.

## THE SEWERAGE AND WATER BOARD'S COMMENTS

### The S&WB's Experience with ENO's Lack of Reliability

The S&WB agrees with the Advisors' assessments, but is compelled to ask: "How did we get to this point?" The S&WB has experienced numerous outages in service from ENO.

In most, if not all instances the S&WB's facilities are serviced by residential distribution lines, as opposed to commercial or dedicated feeders. When approached by the S&WB about installing dedicated feeders or upgrading the distribution lines servicing the S&WB's facilities, ENO stated it could do so, but at prohibitive cost to the S&WB. Electric service reliability should be ENO's primary responsibility as the incumbent, franchised electric utility.

The S&WB's equipment has suffered multiple trips and outages as a result of sags and swells in its power supply from ENO. Reliability should not be viewed solely through the narrow lens of total outages, as it was in the Quanta Report. Power supply should not be expected to be perfect; however, it should be dependable. Whether one measures it by the frequency or duration of complete outages, sags and swells, interruptions, or some other metric, ENO's supply to the S&WB has not been dependable. The multiple trips and outages S&WB's equipment has suffered over the last several years have led to boil water advisories and equipment damage.

The S&WB compiles ENO outages/interruptions and attaches a sample of such compilation. Based on ENO's reliability issues, and, in an attempt to insure a more reliable power source, the S&WB bore the expense of rental generators at several its facilities after August 5, 2017. It was determined that the expense was necessary after experiencing multiple interruptions in power delivery systems throughout the City.

The S&WB has communicated information regarding the numerous outages to ENO over the last few years. ENO's communication regarding corrective maintenance plans that will result



in service interruptions to S&WB's operations facilities and scheduling preventative maintenance with consideration for S&WB's operations has improved demonstrably. That said, the overall quality of service shows room for improvement. ENO plans significant investment in its distribution system which it will ask its customers to fund. Serious consideration should be given to all factors leading to the current state of the grid and methods of improving the reliability of ENO's distribution system.

### **The Quanta Report Identified Serious Concerns Regarding ENO's Reliability**

In response to the Advisors' Preliminary Report, ENO commissioned its own study of its distribution system's reliability by retaining Quanta Technology, LLC ("Quanta"). Quanta was retained on August 13, 2018 and submitted its report on October 31, 2018, meaning it only had roughly 60 days to study the state of ENO's distribution system, conduct site visits, analyze voluminous amounts of outage data, and prepare a lengthy report. Despite the limited amount of time Quanta was permitted to work on this project, the Quanta Report acknowledges that ENO's distribution system's reliability could be improved. For example, the Quanta Report notes, "ENO's distribution reliability performance had declined in the last five years, and its 2017 key distribution reliability indices (SAIFI and SAIDI) were close to the borderline between the 3<sup>rd</sup> and 4<sup>th</sup> quartile of the 2017 IEEE Annual Distribution Reliability Benchmark."<sup>8</sup> While Quanta notes that ENO's investment in distribution system reliability increased the last 3 years and the total minutes of customer outages has decreased from 2017 to 2018 (through October 21, 2018), the magnitude of outages is still quite large. For example, Quanta reports that for 2018 (through October 21, 2018), there were 285,378 minutes of customer outages.<sup>9</sup> That figure equates to over 4,756 hours. There are only 8,760 total hours in a year. So, from January 1, 2018 through October 21, 2018, one could

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<sup>8</sup> Quanta Report, at ii.

<sup>9</sup> *Id.*

argue that ENO’s customers have experienced a cumulative total of over 6 months’ worth of outages. This can and should be improved.

The Quanta Report also must be read in context. As the report makes clear, it studied “interruptions”, which it defines as “the total loss of electric power on one or more normally energized conductors to one or more customers connected to the distribution portion of the system.”<sup>10</sup> As Quanta acknowledges, “This does not include any of the power quality issues such as: sags, swells, impulses, or harmonics.”<sup>11</sup> In other words, the Quanta Report did not study dips, surges, or fluctuations in power supply – which often can cause equipment to trip – it only studied “total loss[es]” of power supply. In this sense, the Quanta Report is a conservative assessment of the quality of service on ENO’s distribution system.

That said, the Quanta Report makes some useful observations. For instance, Quanta notes that Customer Interruptions index (“CI”) and Customer-Minutes Interruption index (“CMI”) can reveal the number of customers interrupted and for how many minutes with regard to particular feeders, whereas the traditional SAIFI and SAIDI indices do not provide such level of granularity.<sup>12</sup> The use of CI and CMI along with SAIFI and SAIDI can more precisely identify and prioritize needed upgrades and improvements. The Quanta Report also recognizes that the traditional performance indices, such as SAIFI and SAIDI, measure average performance of distribution systems, and, consequently, do not consider certain factors such as the topological features of the system being studied. For example, SAIFI and SAIDI will not differentiate between customers located near to a substation (which tend to enjoy greater reliability) and customers located at feeder ends (which tend to experience lower reliability).<sup>13</sup> Therefore, historical outage

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<sup>10</sup> *Id.*, at 2.

<sup>11</sup> *Id.*

<sup>12</sup> *Id.*, at 3-4.

<sup>13</sup> *Id.*, at 7.

and operational data must be utilized to identify poorly-performing feeders. The S&WB agrees that historical outage and operational data must be utilized in conjunction with the traditional performance indices to obtain the clearest picture possible of reliability on the distribution system, but the analysis should go further.

### **Areas in which the Quanta Report is Lacking**

There are some areas where the Quanta Report is lacking, in the S&WB's estimation. One such area is the lack of a detailed study of the vintage of various components of ENO's distribution system. Quanta concludes: "ENO is challenged with a legacy design that has many more components than a modern design would use, the age of the components, and the urban environment that makes infrastructure upgrades more complex and therefore more expensive."<sup>14</sup> Quanta lists the variables and information it requested and ostensibly received from ENO regarding its distribution system.<sup>15</sup> These variables pertained primarily to outage or performance indices. While reliability can be measured in multiple ways, and performance indices are traditionally utilized in this effort, they do not tell us where the next trouble spot may occur. As an example, if a particular feeder experiences a low SAIFI and SAIDI measurement, it will be considered reliable under Quanta's analysis. However, if that same feeder is of an advanced age, relative to other components of the distribution system, it may experience greater and greater outages simply due to wear and tear and the ravages of time. As Quanta acknowledges, "In fact, some older equipment designs and manufacture are much more robust than new equipment. Older facilities do, however, represent increased risk of failure simply due to approaching end of normal service life."<sup>16</sup> Quanta, nonetheless, admits, "Entergy's current asset information *does not allow*

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<sup>14</sup> *Id.*, Sec. 4.1.1, at 14.

<sup>15</sup> *See id.*, Sec. 3.2.3, at 10-11.

<sup>16</sup> *See id.*, Sec. 4.1.2, at 16.

*for an in-depth analysis of age* of a class of equipment or other analysis often done in review of equipment failure situations. Some data on the distribution line transformer and wood pole population at ENO was obtained and is basis for discussion of those asset classes.”<sup>17</sup> Greater information and analysis regarding the relative age of the various components of ENO’s distribution system would allow the Council to better identify future trouble areas and head-off outages before they occur.

Another area not examined in sufficient detail in the Quanta Report is the particular topology of ENO’s transmission system. The S&WB understands that the metrics relied upon in the report tend to identify problematic feeders and other components, but they do not evaluate feeders and other components with regard to their robustness. For instance, the S&WB’s Carrollton Campus is fed by residential distribution lines. The S&WB believes this is one of the reasons it has experienced so many interruptions. The S&WB provides potable water, sewerage, and drainage services to the entire city. If the residential distribution lines serving it experience an outage, thousands of residents may go without vital services for a period of time. So, even if one distribution line performs well according to the traditional indices, that level of performance, alone, does not account for the risks of having the S&WB rely on residential distribution lines. More emphasis should be placed on thoroughly analyzing the distribution topology surrounding and serving entities that provide vitally important services (*e.g.*, the S&WB’s operations, hospitals, fire stations, etc.).

Also, and as mentioned previously, the Quanta Report did not examine “sags, swells, impulses, or harmonics,”<sup>18</sup> but the S&WB’s equipment has suffered multiple trips and outages as a result of such sags and swells in its power supply from ENO. These trips caused by power sags

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<sup>17</sup> *Id.* (Emphasis added).

<sup>18</sup> *Id.*, at 2.

and the like, in turn, can lead, and have led, to boil water advisories. As such, the root causes of such sages, swells and other disturbances that do not result in total outages should be investigated.

### **Reliability Improvement Programs and Initiatives**

The reliability improvement programs and initiatives ENO has implemented, and as discussed in the Quanta Report, are welcome news to its customers who are weary of service interruptions. ENO has instituted several programs, such as the FOCUS program, to identify and address root causes for outages.

Although not expressly stated, implied in the discussion of these reliability improvement programs is the indication that a number of ENO's distribution feeders may lack proper Basic Insulation Level ("BIL") or that such BIL does not meet current standards. For example, in discussing the FOCUS program, Quanta states that ENO has established criteria for equipment inspections that, in part, will "[i]mprove Basic Insulation Level (BIL)"<sup>19</sup> of such equipment. Quanta then explains, "ENO has *placed emphasis on the BIL ratings* and upgrades of the distribution system to enhance its resiliency against lightning events."<sup>20</sup> Again, while providing an overview of the R1 Program ("Build it Right the First Time"), Quanta notes that, "Key R1 efforts include *ensuring the structure meets the enhanced BIL ratings*, all visibly damaged equipment is resolved, ensuring structure spacing is maximized, and resolving vegetation issues, either by them or by a follow-up crew depending on the extent of trimming required."<sup>21</sup> ENO's program envisions a feeder-by-feeder inspection process, with the worst performing feeders receiving higher priority. Considering that appropriate BIL ratings enhance the distribution system's "resiliency against lightning events",<sup>22</sup> ENO should, instead, conduct a comprehensive inspection

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<sup>19</sup> *Id.*, Sec. 4.2.1, at 25. (Emphasis added).

<sup>20</sup> *Id.* (Emphasis added).

<sup>21</sup> *Id.*, Sec. 4.3.1, at 26. (Emphasis added).

<sup>22</sup> *Id.*, Sec. 4.2.1, at 25. *See also, id.*, Sec. 4.3.6 (Basic Insulation Level (BIL) Enhancements), at 28.

and analysis of its distribution equipment to ensure all of it includes BIL ratings that meet current standards.

ENO's Vegetation Management Program is noted by Quanta to include an average trim cycle of 1.4 years, which the report notes is considerably shorter than industry averages for trim cycles.<sup>23</sup> That said, however, the Quanta Report is silent regarding whether ENO's Vegetation Management Program is appropriate for the topography of its service territory in New Orleans. New Orleans is a heavily-treed city. There appears to have been no consideration given to whether ENO should shorten its trim cycle further or employ other vegetation management systems to address vegetation-related outages.

The Quanta Report also discusses ENO's Storm Hardening program, which it says is designed to improve the resiliency of the circuits serving Critical Customers. ENO defines Critical Customers as "public safety and health facilities, civil defense facilities, and facilities important to ENO's restoration process."<sup>24</sup> Unfortunately, the S&WB does not appear to have made the cut as a Critical Customer. In the S&WB's view, restoring the provision of potable water, drainage service, and sewerage service are highly "important" to the restoration process in the event of a storm. As discussed, herein, the S&WB's facilities are served almost exclusively by routine residential distribution feeders rather than dedicated or "storm hardened" feeders. The S&WB should, at a minimum, be considered as a Critical Customer on ENO's distribution system and steps designed to enhance service to S&WB should be taken.

### **Benchmarking and Industry Trends**

The Quanta Report discusses the shortcomings of comparing ENO's distribution system reliability to its peers due to its unique features, such as a higher customer density than its peers.

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<sup>23</sup> *Id.*, Sec. 4.3.5, at 28.

<sup>24</sup> *Id.*, Sec. 4.3.8., at 29.

The report states that, generally, higher customer density translates into increased reliability, since upgrades are more cost-effective in such areas.<sup>25</sup> Despite this trend, the Quanta Report concludes that, “although ENO’s customer density is higher than that of most peer utilities, its distribution reliability indices are also higher.”<sup>26</sup> Recall that a higher reliability index translates into *decreased* reliability. In other words, the higher the SAIFI and SAIDI score, for example, the worse the reliability.

Quanta illustrates that ENO’s relatively small amount of underground (as opposed to overhead) distribution feeders contributes to its higher reliability indices (*e.g.*, worse reliability). The report also spotlights that ENO is “less active” in converting overhead distribution feeders to underground feeders, which have produced far greater reliability scores.<sup>27</sup> Quanta reminds us that, “Underground conversion in the New Orleans area has been reviewed and discussed often as a method to prevent outages during major storm events.”<sup>28</sup> It also illustrates the estimated cost to convert the entirety of ENO’s distribution system in New Orleans from overhead to underground is high. What the Quanta Report doesn’t tell us is whether that all-or-nothing proposition is the only option. In other words, the Quanta Report does not identify major corridors or Critical Customer feeders that could be converted to underground lines or estimate the cost to carry out such conversion. The S&WB urges the Council to order such a study of the feasibility of converting critical portions of ENO’s distribution system to underground feeders. Quanta seems to share the S&WB’s position, stating, “a practice of targeted undergrounding for new facilities

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<sup>25</sup> *Id.*, Sec. 5.2, at 38.

<sup>26</sup> *Id.*, at 40.

<sup>27</sup> *Id.*, Sec. 5.3.2, at 49.

<sup>28</sup> *Id.*



and perhaps some existing facilities should be included as part of an overall infrastructure management strategy.”<sup>29</sup>

Finally, the Quanta Report compares several other utilities’ distribution reliability standards and improvement programs to ENO’s. One of the most important factors compared is the very first one mentioned – whether the utility has “regulatory performance metrics with economic impacts”.<sup>30</sup> The S&WB reads this factor as describing an adverse economic effect for not meeting the reliability standard. Quanta notes that less than half of the utilities in the survey face economic impact and acknowledges that ENO faces no such economic impact. The S&WB recognizes that ENO has proposed a form of economic impact tied to its reliability performance in the Combined Base Rate Case, and that proposal will be addressed in the rate case proceeding.

### **Quanta’s Recommendations**

The S&WB has reviewed the Quanta Report’s recommendations<sup>31</sup> and is generally supportive of them. In particular, the S&WB supports Quanta’s recommendations pertaining to Corrective Maintenance Program,<sup>32</sup> Vegetation Clearance Requirement,<sup>33</sup> Transmission Reliability Evaluation and Improvement Plan,<sup>34</sup> and Asset Management.<sup>35</sup>

### **CONCLUSION**

In conclusion, the Quanta Report does not address certain issues that need to be addressed (*e.g.*, sags and swells in power supply, topological differences on the distribution system, an in-depth analysis of age of a class of equipment or other analysis often done in review of equipment

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<sup>29</sup> *Id.*, at 51.

<sup>30</sup> *Id.*

<sup>31</sup> *See, e.g., id.*, at 67 – 73.

<sup>32</sup> *Id.*, Sec. 6.3.2.5, at 72.

<sup>33</sup> *Id.*, Sec. 6.3.2.6.

<sup>34</sup> *Id.*, Sec. 6.3.2.7.

<sup>35</sup> *Id.*, Sec. 6.3.3, at 73.

failure situations, and the cost-effectiveness of converting certain critical distribution lines from overhead to underground feeders), but nonetheless confirms what many have suspected for years. Primarily, the Quanta Report establishes that ENO’s distribution system suffers from multiple shortcomings, including advanced age, “legacy design” issues, and unique topography that increase the frequency and duration of outages in New Orleans. The report also highlights the fact that the number and length of outages on ENO’s distribution system have increased the last several years.<sup>36</sup> Average power supply restoration times also increased.<sup>37</sup> It is clear to the S&WB that ENO has under-invested in its distribution system for years. Now, in the context of the Combined Base Rate Case (Docket No. UD-18-07), ENO has requested a rate increase – including a return – to fund improvements to its distribution system. While ENO’s requests in its Combined Base Rate Case will be addressed in that proceeding, the Council should take an overarching view of the issues facing ENO and protect against piecemeal adjudication of such important issues.

The City Council should adopt the S&WB’s recommendations in these Comments, as well as the recommendations contained in the Quanta Report.

Respectfully submitted:

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<sup>36</sup> The Quanta Report states, Customer Interruptions (CI) and Customer-Minute Interruptions (CMI) “have trended upward from 2013 through 2017.” Quanta Report, Sec. 4.1.3, at 19. *See also, id.*, Sec. 4.1.3.1, at 20 (noting CI was 65% higher in 2017 than 2013 and CMI was 112% higher in 2017 than 2013).

<sup>37</sup> *Id.*, Sec. 4.1.3.1, at 20 (stating that the average restoration time has increased by almost 25 minutes, or 28%).

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**CERTIFICATE**

I hereby certify that on this day a copy of the foregoing Comments of the Sewerage and Water Board of New Orleans has been sent to the official service list by email, and/or served by United States mail, postage prepaid, through their representatives listed on the "Official Service List."

New Orleans, Louisiana, this 27<sup>th</sup> day of November.

S/ Luke F Piontek w/ Permission  
Luke F. Piontek