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July 1, 2022

**Via Electronic Delivery**

Ms. Lora W. Johnson, CMC, LMMC  
Clerk of Council  
City Hall - Room 1E09  
1300 Perdido Street  
New Orleans, LA 70112

**Re: IN RE: SYSTEM RESILIENCY AND STORM HARDENING  
Council Docket No. UD-21-03**

Dear Ms. Johnson:

Attached please find Entergy New Orleans, LLC's Resiliency and Storm Hardening Filing. Certain of the exhibits (namely, Exhibits A and B) contain Highly Sensitive Protected Materials, and are being provided this date via electronic means only to those appropriate reviewing representatives who have executed the Council's Official Protective Order set forth in Resolution R-07-432, and as further provided therein. Please let me know if you have any questions or concerns.

Sincerely,



Edward R. Wicker, Jr.

ERW/bkd

cc: Official Service List (UD-21-03)

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

**IN RE: SYSTEM RESILIENCY AND                    )**  
**STORM HARDENING                                    )**                   **DOCKET NO. UD-21-03**  
**)**

**RESILIENCY AND STORM HARDENING FILING**

Entergy New Orleans, LLC (“ENO” or “the Company”), in compliance with the requirements of Resolution No. R-21-401 issued on October 27, 2021 (the “Resolution”), presents its Resiliency and Storm Hardening Filing consisting of various infrastructure resiliency and storm hardening projects for consideration by the Council for the City of New Orleans (“Council”).<sup>1</sup> Given the extreme weather events impacting New Orleans with increased frequency and severity, and also that customers are more dependent than ever on connectivity, the need to construct incremental resiliency and hardening infrastructure in New Orleans, and in the Gulf South region in general, cannot be overstated. To further that effort, this filing presents a comprehensive set of projects expected to improve the resiliency of ENO’s electric system and significantly reduce restoration costs and customer minutes interrupted following a major weather event. The Company looks forward to taking a leading role in this effort, and also continuing to work with the Council and all parties to determine in a collaborative way the best path forward to advance local resiliency objectives. Indeed, improving resiliency in New Orleans, while maintaining affordable electric rates for ENO’s customers, will be a comprehensive undertaking requiring combined and coordinated engagement across all stakeholders.

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<sup>1</sup> The Resolution initially required compliance filings on March 1, 2022, which was extended until July 1, 2022. See Order dated March 1, 2022, as clarified by Order dated March 4, 2022.

## I. Introduction

ENO takes seriously its responsibility to provide customers with safe and reliable service at the lowest reasonable cost. To that end, in collaboration with the Council, ENO historically has planned its electric system to withstand reasonably expected risks, and the Company has been modernizing its system over time. Being resilient requires, among other things, significant investments in assets that are necessary to deliver reliable electric service to customers (*i.e.*, generation, transmission, and distribution infrastructure). The Company has delivered on such investments with oversight from the Council. In May 2020, for example, the Company brought into service the New Orleans Power Station (“NOPS”), which added 128 megawatts (“MW”) of needed local generation, facilitated the deployment of renewable resources, and played a vital role in New Orleans’ recovery from Hurricane Ida. The 20 MW New Orleans Solar Station (“NOSS”) followed later in 2020, and the Company also has deployed distributed commercial and residential rooftop solar facilities throughout New Orleans. The Company also has made significant investments in transmission lines and substations in New Orleans that have improved ENO’s resiliency and ability to reliably serve customers.

Moreover, the Company has invested significantly in its distribution system to modernize and improve the reliability and resiliency of the grid, as documented extensively in Council Docket No. UD-17-04 and elsewhere. The Company and the Council also have worked together on storm hardening. Upon Council approval in July 2017,<sup>2</sup> the Company executed an approximately \$30 million storm hardening plan, which included activities such as pole treatment or replacement, targeted equipment replacement or upgrade, grid sectionalization and automation, and circuit reconfiguration. As the Council’s Utility Advisors noted in their recent

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<sup>2</sup> See Council Resolution R-17-331.

report on Hurricane Ida, the Company’s “distribution system capital investments, and additional focus and expense on operation and maintenance, have resulted in improved reliability, less frequent outages, and quicker outage restoration.”<sup>3</sup>

The last two hurricane seasons have shown, however, that extreme weather events are impacting the New Orleans area, and the entire Gulf Coast region, with increased frequency and severity, with greater costs and disruptions to ENO, its customers, and New Orleans itself.<sup>4</sup> Indeed, over the last five years, major hurricanes have become more frequent and intense, and slower and wetter, further increasing the potential for devastation.<sup>5</sup> Additionally, coastal erosion caused by severe storms, among other things, has increased the vulnerability of New Orleans by removing an important wetlands buffer. In short, the increasingly frequent threat of severe weather poses an existential threat to the region, including New Orleans. Cognizant of this reality, the Company has undertaken programs aimed at addressing these risks. By way of example, Entergy New Orleans currently serves its customers with one of the cleanest generation fleets in the utility industry, and, in addition to the aggressive goals championed by Entergy Corporation,<sup>6</sup> the Council recently passed the Renewable Clean Portfolio Standard, which aims to achieve net-zero emissions by 2040 and a carbon-free fleet by 2050.

Nonetheless, the entire Gulf Coast region must plan to mitigate the impacts of extreme weather events for its citizens, and the Company is prepared to play a leading role in the utility

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<sup>3</sup> Council Utility Advisors’ Report issued pursuant to Resolution R-21-343, pp. 9-10.

<sup>4</sup> See Resolution R-21-401, p. 1 (“[T]he frequency and intensity of severe weather events has increased dramatically.”).

<sup>5</sup> Between 2005 and 2017, no hurricanes higher than a Category 2 struck the United States. Since 2017, however, seven major hurricanes have made landfall in the contiguous United States or Puerto Rico: Harvey (2017), Irma (2017), Maria (2017), Michael (2018), Laura (2020), Zeta (2020), and Ida (2021).

<sup>6</sup> In 2001, Entergy Corporation was the first electric company in the United States to publicly announce a voluntary greenhouse gas emission target and to develop long-term emission targets. Moreover, Entergy Corporation has earned a place on the Dow Jones Sustainability Index North America for 20 straight years.

space.<sup>7</sup> As the Council has observed, “this cycle of damage and repair is not sustainable for the Company or ratepayers.”<sup>8</sup> The Company agrees. In the face of increasingly severe weather, and rapidly changing customer expectations, resiliency is vital for customers and communities, as well as for the Company.<sup>9</sup> With that in mind, the Company views this docket as an ideal venue to continue to engage in productive, collaborative discussions, and explore new strategies, standards, and technologies to help mitigate future storm damage and the resulting costs and customer outages, while also balancing the impact on customers’ bills.<sup>10</sup> In furtherance of such discussions, the Council opened this docket to “increase resiliency and storm hardening on ENO’s system, with a particular focus on reducing weather-related power outages.”<sup>11</sup> Under the Resolution, the Council directed ENO and other parties “to propose for the Council’s consideration an infrastructure resiliency and storm hardening plan,” including:

- a. A detailed explanation of the specific investments to be made under the plans including a proposed timeframe for such investments;
- b. A detailed explanation and, as appropriate, calculations of the benefits to be achieved through each investment; and

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<sup>7</sup> Improving resiliency in New Orleans will involve more than just strengthening the electric grid. It will involve consideration of the adequacy of building code standards, urban planning, elevation requirements, water management, and coastal restoration, among other things. ENO is open to collaborating on these issues with state and city officials, and all stakeholders, as part of a community approach to resiliency.

<sup>8</sup> See Resolution R-21-401, p. 2.

<sup>9</sup> Given that many people are now working from their homes and are more dependent on constant connectivity for daily life and in storm events, a higher demand is being placed on resiliency than even the very recent past.

<sup>10</sup> ENO continues to diligently explore availability of federal funding for resiliency, in particular under the Infrastructure Investment and Jobs Act (“IIJA”), to help offset the cost to its customers. Recently, ENO, in coordination with The Governor’s Office of Homeland Security and Emergency Preparedness, and together with Entergy Louisiana, LLC, submitted grant applications to the Federal Emergency Management Agency (“FEMA”) requesting funding for projects to enhance the resilience of the electric grid through FEMA’s Building Resilient Infrastructure and Communities (“BRIC”) Program. One of the projects submitted for consideration includes strengthening the overhead distribution lines from the Derbigny substation, which serves portions of New Orleans, to withstand winds up to 140 miles per hour.

<sup>11</sup> Resolution R-21-401, p. 2.

- c. A detailed explanation of the estimated costs of the plans along with proposed cost recovery mechanisms and rate impact calculations.<sup>12</sup>

In compliance with the Resolution, the Company presents herein various infrastructure resiliency and storm hardening projects for consideration and discussion. The projects include specific distribution and transmission hardening projects, to be implemented over 10 years,<sup>13</sup> which were identified through a comprehensive, resiliency-based planning approach and prioritized using a cost-benefit model designed to select the set of resiliency projects expected to deliver the largest benefits to ENO's customers.<sup>14</sup> In addition, the projects presented herein include planning-level details regarding innovative options for resiliency, such as microgrids powered by batteries and other sources, to begin a discussion regarding the benefits and challenges related to incorporating alternative technologies into a resiliency strategy for New Orleans.<sup>15</sup>

By way of summary, the projects and their modeled benefits include:

- strengthening more than 33,000 structures and nearly 650 line-miles through 890 hardening projects on ENO's distribution and transmission systems;
- several potential microgrids, each anchored by various sources of power,<sup>16</sup> for which the Company has performed a planning-level analysis of expected costs and benefits on a preliminary basis to facilitate discussion with the Council and the parties;<sup>17</sup> and

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<sup>12</sup> *Id.* pp 2-3.

<sup>13</sup> Distribution and Transmission Hardening Projects, attached hereto as Highly Sensitive Protected Materials ("HSPM") Exhibit A.

<sup>14</sup> To assist in developing certain aspects of this portfolio, ENO used the services of 1898 & Co., the advisory and technology consulting division of Burns & McDonnell Engineering Company, Inc.

<sup>15</sup> *See* Microgrid Options, attached hereto as HSPM Exhibit B.

<sup>16</sup> ENO is proposing for consideration a variety of opportunities for microgrids in each Council District, with examples of their potential applications, to ensure that the benefits of this emerging technology may be realized in neighborhoods and communities across New Orleans.

<sup>17</sup> The Company's evaluation of microgrids is ongoing. As discussed herein, the Company welcomes feedback from all stakeholders in determining the best technology, costs and benefits, and locations for microgrids in New Orleans.

- an estimated \$2.6 billion in benefits to customers over the next 50 years in a more intense storm future as a result of the distribution and transmission hardening projects, including approximately 8.3 billion avoided customer minutes interrupted and \$461 million in avoided restoration costs.

The transmission and distribution hardening projects presented in this filing result from a comprehensive and rigorous analysis, using a cost-benefit model that incorporated assumptions of a future with increased storm frequency and intensity, which is a scenario that has broad consensus among the parties based on the two initial technical conferences already conducted in this docket. Moreover, the model focused on providing the highest level of customer benefits for the dollars invested.

The projects presented herein, however, are not intended to strengthen every line, pole, or piece of equipment on the Company's system. Such a plan would be cost-prohibitive, and, as will be the case with the projects presented in this filing, the Company and the Council must always balance service improvements with customer affordability. Considering the increasing frequency and intensity of extreme weather events along the Gulf Coast, however, the approach to addressing resilience must evolve with the changing circumstances, for the benefit of the Company, customers, and New Orleans. A substantial investment in incremental infrastructure is needed, as was recognized in the Resolution, and that investment is expected to pay dividends for customers in the long-run, producing significant customer benefits by lowering post-storm restoration costs and reducing customer minutes interrupted ("CMI").

Importantly, ENO believes the projects presented herein should reasonably be considered, though it is not seeking Council approval of the projects at this time. Nor does ENO necessarily see all of the projects as a final plan for New Orleans. Rather, the Company is presenting these projects for consideration by the Council because virtually all of them have met an initial cost-benefit threshold. Moreover, developing hardened and resilient communities

requires stakeholder input, which the Company expects will be facilitated through further proceedings conducted under a Council-issued procedural schedule. It is critical to understand, however, that no amount of infrastructure investment can make an electric system completely resistant to the impacts of extreme weather conditions or to damage caused by third parties (*e.g.*, vehicle accidents). While the projects presented herein are expected to produce significant customer benefits, no one can predict those benefits or reduced customer minutes interrupted with absolute certainty.

The Company appreciates the importance of this docket and sees this filing as a key step to collaboratively chart a path forward with the Council and community partners in order to increase overall system resiliency in New Orleans. ENO respectfully suggests that, once all resiliency proposals are filed, the Council issue a procedural schedule that provides an opportunity for all parties to review them and provide feedback and suggestions for alternatives for the Council's and parties' consideration.

## **II. The Model and Infrastructure Projects**

The Company's analysis of the projects submitted for consideration began with a rigorous modeling process that projected a thousand storm scenarios and evaluated potential damage to ENO's system asset by asset. As stated, the model assumed a more intense storm future, with increased storm frequency and intensity, and selected those projects that would be most cost effective for customers. In addition, the Company identified a number of microgrid projects that could provide additional resiliency in the wake of extreme weather events. Below is a more detailed description of the model, the hardening projects, and the microgrids.



**A. Storm Resiliency Model**

The Company utilized a resiliency-based planning approach to identify and prioritize distribution and transmission hardening projects through a Storm Resiliency Model (“SRM”). The SRM employs a data-driven, decision-making methodology utilizing robust and sophisticated algorithms to evaluate the assets on ENO’s system and calculate resiliency costs and benefits. The assets of the Company’s electric system were strategically grouped into potential hardening projects. In total, the SRM evaluated 470 feeder hardening projects and 4,275 lateral hardening projects for the distribution system, and 35 rebuild projects for the transmission system. The ultimate purpose of the SRM, using the 4-step process described below, is to identify and prioritize projects that would have the highest benefits to customers.

*First*, the SRM starts with a universe of major storm events that have impacted the area within 150 miles of New Orleans over the last 150 years, called the Major Storm Event Database.<sup>18</sup> From that information, 49 unique storm types were identified with respect to New Orleans based on varying combinations of storm category, storm distance, and storm side (*i.e.*, weak side or strong side). Additionally, 100-year rolling storm probabilities were developed for different types of storms.

*Second*, each of the 49 storm types identified by the SRM is modeled within a Storm Impact Model to identify which portions of the Company’s system are likely to fail and cause an outage if subjected to each storm type. The SRM calculates the likelihood of failure for each asset based on a vegetation rating, an age and condition rating, and a wind zone rating for each asset. The vegetation rating factor is based on the vegetation density around the conductor. The

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<sup>18</sup> The Major Storm Event Database utilizes information drawn from the National Oceanic and Atmospheric Administration (“NOAA”) database of major storm events, available information on the impact of major storms to other utilities, and the Company’s experience with storms and storm recovery.

age and condition rating utilize expected remaining life curves with the asset's effective age, determined using condition data. The wind zone rating is the maximum wind design of an asset and is governed by the applicable engineering design basis at the time of construction. Once the Storm Impact Model identifies those portions of the system, the model then calculates the restoration costs to rebuild the system to provide service as well as the customer minutes interrupted for each project.

At this stage, the Storm Impact Model models each of the 49 storm types for both a "Status Quo Scenario," *i.e.*, the potential impact and costs for the system in its current state; and a "Hardened Scenario," *i.e.*, the potential impact and costs assuming the assets that make up each project have been hardened in accordance with the alternatives considered for each project. For distribution, the model considered two project alternatives for each feeder and lateral project: (1) rebuild;<sup>19</sup> and (2) overhead to underground conversion.<sup>20</sup> The model also evaluated each transmission project for rebuild.<sup>21</sup> Accordingly, the Storm Impact Model determines the

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<sup>19</sup> "Rebuild" involves the evaluation and potential rebuilding or replacement of every asset in the protection zone to bring such assets up to the Company's current design standards as opposed to the standards in place when the assets were constructed. With respect to distribution, assets would be rebuilt to minimum current design standards including extreme wind loading. It bears noting that the electric utility industry traditionally has not replaced or reconfigured distribution assets until they fail. This approach has been considered cost-effective for customers and reflects the balance that utilities must strike between reliability and cost. In recent years, however, ENO and the industry have evolved and modified that approach by deploying new technology and preventive elements. The last two hurricane seasons support the further evolution of the traditional approach that is reflected in the proposed hardening projects.

<sup>20</sup> "Overhead to underground conversion" involves the undergrounding of overhead distribution or lateral segments. It is worth noting that the costs of undergrounding overhead distribution and lateral segments can be higher than the cost of rebuilding or hardening those same segments. The relocation of long-established overhead electric facilities to underground can prove challenging, or in some cases infeasible, primarily due to the increased ground area required for underground equipment, which further increases the costs of such projects. While undergrounding the entirety of ENO's distribution or lateral segments would not be cost effective or beneficial, selective undergrounding of certain lateral segments, as shown below, is expected to produce net benefits as compared to rebuilding or replacing those segments.

<sup>21</sup> The model did not evaluate each transmission project for overhead to underground conversion. The construction of an underground transmission facility across the New Orleans footprint would pose particular challenges in terms of routing, conflicts with existing structures, trench construction in poor soils, excessive water, and/or trenchless installation techniques that require a large footprint for construction equipment, among other things.

likelihood of failure for each project, the CMI, and restoration costs for each of the 49 storm types for both the Status Quo and Hardened Scenarios.<sup>22</sup> A “benefit” for each hardening project is determined by taking the difference between the costs or CMI calculated for the Status Quo Scenario and the costs or CMI calculated for the Hardened Scenario.

**Third**, a Resiliency Benefit Module uses the benefit results of the Storm Impact Model and the estimated project costs to calculate the net benefits for each project. Stochastic modeling, or Monte Carlo Simulation, is used to randomly trigger the types of storm events from the Major Storm Event Database that may impact New Orleans over the next 50 years at various levels of storm frequency.<sup>23</sup> Each project’s CMI, monetized CMI, and restoration costs were calculated for the 49 storm types for each event triggered in the Monte Carlo Simulation for both the Status Quo and Hardened Scenarios over the 50-year time horizon. As mentioned above, the difference between the Status Quo and Hardened Scenarios is the benefit for that project for that storm event. The sum of the benefits for all 49 storm types for each iteration of the simulation equals the total benefits for the project. The CMI, monetized CMI, and restoration benefits are then weighted by the probability of the 49 storm types to calculate the weighted benefit. To calculate the net benefits, the project costs are determined.

**Fourth**, a Budget Optimization and Project Scheduling Model evaluates all the potential projects and develops a project list that is optimized to deliver the most benefits to customers, based on the sum of the restoration cost benefit and monetized CMI benefit. This approach facilitates the identification of the hardening projects that provide the most benefits. Prioritizing

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<sup>22</sup> The model monetizes CMI using the Interruption Cost Estimator (“ICE”). The ICE calculator was funded by the Office of Electricity Delivery and Energy Reliability at the United States Department of Energy (“DOE”) and provides a rough indication of the customer-incurred costs of customer interruptions.

<sup>23</sup> An assumption for the model is that most of the hardened infrastructure will have an average service life of 50 or more years.

and optimizing projects in this way is intended to ensure that the overall investment level is appropriate and customers get the most cost-effective solutions, *i.e.*, “biggest bang for the buck.”

**B. Hardening Projects Identified by the SRM**

The results of the SRM identified more than 890 beneficial hardening projects across the Company’s distribution and transmission systems, involving more than 33,000 structures and nearly 650 line-miles, at an estimated cost of approximately \$1.3 billion over 10 years.<sup>24</sup> The approximate amount of investment spend projected each year is shown in Table 1, below.<sup>25</sup>

**Table 1<sup>26</sup>**

<b>Year</b>	<b>Approximate Investment Spend (\$ in Millions)</b>
2023	\$0
2024	\$20
2025	\$36
2026	\$47
2027	\$197
2028	\$200
2029	\$205
2030	\$188
2031	\$230
2032	\$154
<b>Total</b>	<b>\$1,276</b>

<sup>24</sup> See HSPM Exhibit A. This amount assumes that ENO obtains authorization to capitalize conductor handling costs, which otherwise would be accounted for as operation and maintenance expense in Account 593. The capitalization of such costs benefits customers by allowing their recovery over time as projects are depreciated, instead of being recovered in their entirety in the year the cost is incurred. ENO intends to request such authorization in the future from the Council and, later, from the Federal Energy Regulatory Commission (“FERC”).

<sup>25</sup> The investment spend amounts for each year are based on the results of the budget optimization and prioritization process discussed above. The Company, nonetheless, looks forward to working with the Council and stakeholders to review and adjust, as appropriate, the proposed scheduling of the identified projects to address their concerns and priorities. As such, these numbers may be adjusted in accordance with that process.

<sup>26</sup> Numbers may not tie due to rounding.

**a. Distribution Projects**

Of the 470 distribution feeder hardening project candidates, the SRM identified 184 rebuild projects that have positive benefit to cost ratios and fall within the optimized budget, at an estimated cost of approximately \$821 million over 10 years. In addition, of the 4,275 lateral hardening candidates, the SRM identified 674 rebuild projects and 30 overhead to underground projects that have positive benefit to cost ratios and fall within the optimized budget, at a total estimated cost of approximately \$402 million over 10 years. Submitted with this filing is a spreadsheet containing each of these distribution projects.<sup>27</sup>

By way of example, one distribution project involves a feeder rebuild in Algiers, which serves or impacts service to 900 customers. This project would harden 324 structures up to ENO's current minimum wind rating design standards along nearly 4 line-miles. This project is projected to cost approximately \$12.7 million and is estimated to provide approximately \$19.5 million in benefits (in terms of net present value) over the next 50 years (including roughly \$4.6 million in avoided restoration costs). Another distribution project involves converting a 0.32 mile segment of overhead line to underground in the Treme / Lafitte area, which serves or impacts service to 611 customers. This project is estimated to cost approximately \$1.4 million and is projected to provide approximately \$5.4 million in benefits (including roughly \$1.3 million in avoided restoration costs).

**b. Transmission Projects**

Of the 35 transmission hardening candidates, the SRM identified 2 transmission rebuild projects that have positive benefit to cost ratios and fall within the optimized budget. Submitted

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<sup>27</sup> See HSPM Exhibit A.

with this filing is a spreadsheet containing these transmission projects.<sup>28</sup> One project is on the Front Street to Michoud 230 kV line, a 23-mile line that traverses Lake Pontchartrain from ENO's Michoud substation and connects with Cleco Power LLC's Front Street substation. This line provides an additional connection to the eastern interconnect from the eastern side of New Orleans that allows for additional flexibility to operate during and after a major event.<sup>29</sup> The other project is on the Gulf Outlet to Air Products 69 kV line, which is approximately 1 mile in length, and would involve the replacement of several structures on the transmission line. Together, these 2 transmission projects are calculated to produce roughly \$136 million in customer benefits.<sup>30</sup>

**C. Expected Benefits from the Hardening Projects**

Based on the SRM, the hardening projects identified in HSPM Exhibit A are expected to benefit ENO's customers by creating distribution and transmission systems that are more resilient in the face of increasingly severe weather. While no amount of investment or hardening will completely eliminate outages or restoration costs caused by future storms, the identified projects are expected to decrease storm restoration costs, the number of customers impacted by outages from future storms, and the overall duration of outages over the next 50 years. In terms of present value, assuming each hardening project in HSPM Exhibit A is performed, which together total approximately \$1.3 billion, the model projects that the Company and customers

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<sup>28</sup> See HSPM Exhibit A.

<sup>29</sup> Additional hardened paths increase the options available to operators when working on event restoration and ensuring grid stability. This particular hardened connection could deliver additional flexibility by providing a stable source for Ninemile 6 to remain or return online to serve load within New Orleans.

<sup>30</sup> The Company understands that Entergy Louisiana, LLC is considering transmission hardening projects in southeast Louisiana that would improve resiliency for the New Orleans metropolitan area, including the Southshore of Lake Pontchartrain and New Orleans.

will see benefits of approximately \$2.6 billion over the next 50 years,<sup>31</sup> including more than \$461 million in avoided restoration costs and an estimated 8.3 billion avoided customer minutes interrupted (at an estimated value of over \$2.1 billion). In addition, the identified projects will play a critical role in implementing non-wire, new technology options such as microgrids. To take full advantage of those options, investments in new technologies should be accompanied by investments in hardening the Company's distribution and transmission systems. In this way, the hardening projects further benefit ENO's customers by establishing a necessary, resilient foundation for potentially deploying new technologies throughout New Orleans.

#### **D. Microgrids**

In addition, ENO has considered infrastructure resiliency and storm hardening projects involving new technology options that could function as microgrids.<sup>32</sup> ENO believes that the ultimate resiliency portfolio selected by the Council should consider the use of microgrids powered by various types of generation resources. ENO has performed a planning-level analysis and included projects herein for the Council's consideration subject to further development and discussion.

Microgrids come in various types. They can be anchored by a natural gas generator that is capable of starting without any auxiliary power from the system and of operating in an island, provided the gas supply is maintained following a storm. Microgrids also can be anchored by a

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<sup>31</sup> The expected \$2.6 billion in benefits from the identified hardening projects correlates to the benefits estimated to be achieved in a more intense storm future. As discussed above, the model determined the expected benefits across a range of future storm activity, from a very high storm future (roughly \$3 billion in benefits) to a very low storm future (roughly \$2 billion in benefits). The benefits at a particular level of future storm activity are determined by combining an estimate of the avoided restoration costs and an estimate of the value of avoided customer outages using the DOE's ICE calculator.

<sup>32</sup> While there are various definitions of what constitutes a "microgrid," generally speaking, a microgrid consists of localized, distributed-scale resources or storage (or both) integrated by a controller that can island the targeted load and continue serving customers within this microgrid in response to an outage event or, in certain instances, can respond to market conditions and enhance reliability during times of peak usage.

bulk energy storage system (“BESS”), such as a battery. Such a microgrid is limited by the duration for which the battery can be discharged, which is governed by the energy capacity to which the battery is designed and the load being served at the time of operation as an islanded microgrid. Microgrids also can take a hybrid form. A battery may be integrated with a natural gas generator, whereby the battery can restore power over a short-term period before switching to the generator. A battery may also be integrated with solar panels, a format in which the panels can restore power and charge the battery during the day, and the battery can serve load at night.

Today, most microgrids are associated with providing enhanced resiliency to a single entity (*e.g.*, a hospital or a campus that has the capability to be islanded and stay in operation during an outage). However, there are also instances in the United States of microgrids that serve a broader area involving multiple electricity consumers.<sup>33</sup> One obvious benefit to constructing a microgrid that serves a broader area (*i.e.*, an entire feeder or lateral), as opposed to a single customer, is that the wider coverage brings incremental resiliency to more customers who are likely contributing to its costs. But whether a microgrid is suitable for a broader area and a particular resiliency application depends on a variety of factors, including the availability of suitable land and right of way for batteries or utility scale solar, or sufficient rooftop space for varying forms of power generation or energy storage, access to natural gas sources or pipelines, and the specific goals of the resiliency solution. ENO’s consideration of these factors in relation to deploying microgrids in New Orleans is in a relatively early stage.

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<sup>33</sup> An example is the Commonwealth Edison Company’s Bronzeville Community Microgrid project in Chicago, Illinois, which involves a utility-owned and operated microgrid serving approximately 7 MW of load and more than 1,000 retail electricity customers; includes multiple forms of power generation, energy storage, and sophisticated controls; and is capable of linking to the separate Illinois Institute of Technology’s campus microgrid. <https://microgridknowledge.com/bronzeville-microgrid-cluster-lessons-comed/>.



The Company, however, has conducted a planning-level evaluation of microgrids to enhance resiliency,<sup>34</sup> and presents in HSPM Exhibit B various microgrid options for consideration, including a high-level discussion of their potential costs and benefits and the need to harden certain lines associated with the options.<sup>35</sup> Indeed, microgrids built for the purpose of enhancing resiliency are not a substitute for hardening infrastructure; in fact, incorporating the strengthening of system infrastructure into the design of such microgrids will enable them to be more effective and deliver the expected resiliency benefits for customers and New Orleans.<sup>36</sup> ENO looks forward to working with the Council and the parties to further evaluate these (and any other) microgrid options and determine what solutions should be pursued in ENO's overall resiliency strategy and how their costs should be recovered from customers. As the Council and parties consider such options, it is important to understand that the use of microgrids as a tool and a strategy to enhance resiliency is novel. Because of its novelty, deploying this technology as a resiliency tool involves inherent risk, and it will be important to evaluate the technology carefully before proceeding.

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<sup>34</sup> All costs and benefits of microgrids are planning-level estimates and subject to revision and further detailed assessment following collaboration with the Council and other stakeholders to determine what specific microgrids are best suited to enhance resiliency in New Orleans.

<sup>35</sup> For the microgrid options, the capital costs (which are not included in Table 1 or Table 2) and associated hardening are shown in 2022 dollars. The fixed and variable costs are shown as the present value for 50 years of operation. The benefits associated with the microgrids are shown as the present value for 50 years of estimated annual benefits from participation in the wholesale energy and capacity markets, and of avoided CMI and storm restoration costs.

<sup>36</sup> A microgrid serving a broader area such as a distribution feeder (in contrast to one serving a single entity such as a building) is only useful if the associated infrastructure that connects the various components of the microgrid (*e.g.*, the distributed generator(s), switching devices, and the targeted load) is strong enough to survive a storm. That is, a microgrid serving a broader area involving multiple electricity customers likely would still rely in some fashion on electric infrastructure that will be susceptible to, for example, a tree toppling over during a storm and knocking conductors to the ground.

### **III. Cost Recovery**

ENO proposes to recover its costs through a Resiliency and Storm Hardening Cost Recovery Rider (“Resiliency Rider”).<sup>37</sup> The Resiliency Rider would allow ENO to recover, on a timely basis, the cost of its resiliency investment, and would provide a stable, long-term recovery mechanism that could be used over the 10-year period of the projects.

Allowing ENO to utilize the Resiliency Rider would help support ENO’s ability to finance the resiliency projects and ensure that they can be done timely and efficiently, including taking advantage of economies of scale and a qualified workforce because the work would be ongoing and not forced to start and stop as rate changes are sought and decided. As the Council knows, in 2021 after Hurricane Ida, credit rating agencies downgraded ENO several times, and they have warned that further downgrades are possible if financial pressures are not mitigated and system resiliency is not enhanced. Credit ratings directly affect ENO’s cost of capital investment and overall customer rates. Without timely and efficient cost recovery for the projects presented herein, ENO’s financial health likely would be further compromised given the amount of the expenditures involved over an extended period.

Contemporaneous, certain cost recovery also is appropriate because as ENO completes projects, customers receive the benefits. An additional benefit of the Resiliency Rider is that, in the event ENO receives federal funds for resiliency projects, there is flexibility to offset investment and reduce the rate timely pursuant to a methodology contained therein. As previously noted, ENO continues to explore the availability of federal funds for resiliency, in particular under the IJJA. If funding is ultimately allocated for these projects, it will be necessary to establish a process for crediting the receipt of these funds to address

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<sup>37</sup> Resiliency Rider, attached hereto as Exhibit C.

documentation/Council certifications that may be required by those governmental programs. The Resiliency Rider is thus a reasonable and equitable mechanism to provide the Company with contemporaneous, certain cost recovery as it invests capital in these types of important projects. In fact, the Council previously has authorized such recovery for the Company's generation investments in Ninemile 6, Union Power Block 1, and NOSS.<sup>38</sup>

ENO has patterned the Resiliency Rider on the Purchased Power and Capacity Acquisition Cost Recovery Rider ("PPCACR Rider")<sup>39</sup> and the Securitized Storm Cost Recovery Rider ("SSCR Rider").<sup>40</sup> Like the PPCACR Rider, the Resiliency Rider is designed for ENO to recover each year the estimated revenue requirement associated with the projects closed to plant in service in previous years and expected to be closed to plant in service in the current calendar year. In the following year, ENO would true-up billed rider revenues to the actual revenue requirement associated with the plant closings; ENO would return or recover any difference between the actual revenue requirement and billed revenues plus interest.

By way of illustration, ENO has assumed that the Resiliency Rider would become effective on January 1, 2024, and that the initial rates would be based on planned plant closings in 2024. ENO envisions developing more detailed plant closing data similar to that supporting ENO's plant transfer adjustments in its Electric and Gas Formula Rate Plan Evaluation Reports. Using the planned closings, ENO would determine an estimated revenue requirement using a

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<sup>38</sup> See Resolution R-12-29 (approving offer of settlement); Resolution R-15-542 (approving Agreement in Principle); and Resolution R-19-293 (approving Agreement in Principle). Moreover, the Council has incorporated forward-looking adjustments into ENO's Electric and Gas Formula Rate Plans. Resolution R-19-457, Ordering Paragraph 25(b). With regard to the Electric Formula Rate Plan, it is worth mentioning that, while the forward-looking adjustments would provide contemporaneous, certain cost recovery for resiliency work on the electric grid, the plan's limited term would not accommodate the 10-year period of the projects.

<sup>39</sup> The PPCACR Rider allowed ENO to recover contemporaneously the revenue requirement associated with its investment in Union Power Block 1 prior to the implementation of new base rates from the 2018 Rate Case.

<sup>40</sup> The SSCR Rider currently recovers the costs associated with Hurricane Isaac storm restoration and the 2015 replenishment of ENO's storm reserve, which is now depleted.

substantially similar calculation to that employed in the PPCACR Rider. ENO would calculate a return on rate base associated with the 2024 plant closings.<sup>41</sup> Such return would be based on ENO's projected weighted average cost of capital at the end of the calendar year using the most recently approved return on equity. ENO would further calculate the applicable operating expenses – such as depreciation and amortization and taxes other than income.

ENO then would calculate the rate under the Resiliency Rider. The rate would be applied as a percentage rate adjustment to customers' base rate charges and be applicable to the same rate schedules as the adjustments under its Electric Formula Rate Plan. The estimated revenue requirement would be allocated to each rate class based on its percentage contribution to per book base revenue in the previous calendar year. Thus, the rate under the Resiliency Rider would be the same for each rate class. Moreover, using base revenue to allocate costs to be recovered through the Resiliency Rider is consistent with the allocation used in the SSCR Rider, which contains a single rate for all rate classes. The SSCR Rider recovers storm restoration and financing costs based on projected base revenue. Given that the Council has allocated storm restoration costs and related financing costs using projected base revenue, it is reasonable to use base revenue as an allocator to recover resiliency and storm hardening investments, which are intended in significant part to mitigate storm restoration costs.<sup>42</sup>

Furthermore, under the Resiliency Rider, ENO would submit the true-up calculation for calendar year 2024 in October 2025. Accounting data would be used to determine the actual

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<sup>41</sup> See Exhibit C, Attachment B thereto.

<sup>42</sup> The Resiliency Rider does not use cost allocation factors that ENO has used in previous rate cases and Electric Formula Rate Plan Evaluation Reports, *i.e.*, the Transmission Demand Allocation Factor and the Maximum Diversified Demand Allocation Factor, respectively, to allocate costs. These factors quantify a rate class's usage of ENO's transmission and distribution systems so that ENO can allocate the investment costs driven by that usage. Usage of ENO's transmission and distribution systems, however, is not driving the projects herein. Rather, the purpose of the projects is to have facilities that are less susceptible to major storm damage or that can be more efficiently, expeditiously, and economically restored after a major storm. As a result, all New Orleans customers and businesses would be expected to resume their normal affairs sooner and at lower cost.

revenue requirement for the 2024 plant closings and the billed Resiliency Rider revenues for calendar year 2024. ENO would return to or recover from customers the difference over the subsequent calendar year, 2026. The true-up calculation would also allow ENO to incorporate into the Resiliency Rider rate any federal funds received by ENO for resiliency work. ENO would use any federal funds received each year as offsets to plant closings to lower the actual revenue requirement in the true-up calculation.

As discussed herein, resiliency and storm hardening are critical, but they come at a cost. And the costs of the projects are significant, with the transmission and distribution projects totaling approximately \$1.3 billion, and with the microgrids, depending on the options, potentially reaching over \$200 million. Maintaining affordable energy rates for ENO's customers is critical and must be part of the consideration regarding setting the appropriate pace of resiliency investment. ENO has performed a high-level analysis to estimate the rate impacts of the distribution and transmission hardening projects in HSPM Exhibit A. Table 2, below, shows the projected rate impact on all customers over the 10-year period of the projects in terms of the projected cumulative revenue requirement, and on the typical residential customer using 1,000 kWh per month.

**Table 2**

<b>Projected Rate Impact Years 2023 through 2032</b>			
<b>Year</b>	<b>Projected Total Cumulative Revenue Requirement (\$ in Millions)</b>	<b>Projected Residential Cumulative Revenue Requirement (\$ in Millions)</b>	<b>Projected Monthly Residential Bill Impact (\$/month)</b>
<b>2023</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0.00</b>
<b>2024</b>	<b>\$1</b>	<b>\$1</b>	<b>\$0.26</b>
<b>2025</b>	<b>\$5</b>	<b>\$2</b>	<b>\$1.03</b>
<b>2026</b>	<b>\$10</b>	<b>\$5</b>	<b>\$2.17</b>
<b>2027</b>	<b>\$24</b>	<b>\$12</b>	<b>\$5.38</b>
<b>2028</b>	<b>\$49</b>	<b>\$24</b>	<b>\$10.85</b>
<b>2029</b>	<b>\$73</b>	<b>\$35</b>	<b>\$16.29</b>
<b>2030</b>	<b>\$96</b>	<b>\$47</b>	<b>\$21.43</b>
<b>2031</b>	<b>\$120</b>	<b>\$58</b>	<b>\$26.70</b>
<b>2032</b>	<b>\$141</b>	<b>\$68</b>	<b>\$31.46</b>

ENO has not endeavored to reflect in these projections the myriad of factors that could affect ENO’s revenue requirement and customer bills many years into the future, such as interest rate changes, load growth, income tax rate changes, volatile fuel costs, and new technologies. Accordingly, the projections become increasingly uncertain in the later years of the 10-year period. The projections, moreover, do not include any estimated costs and benefits associated with the microgrid projects described above, given the need for further consideration and evaluation of those options, as discussed herein. As such, the projections should be considered as indicative of the order of magnitude of costs that would be realized on customer bills if the projects are deployed over 10 years. ENO is providing the projections solely to foster discussion among the Council and parties in this collaborative process.

#### **IV. Conclusion**

Considering the extreme weather events impacting the New Orleans area with increased frequency and severity, ENO appreciates that the Council opened this docket and brought the parties together in a meaningful way to discuss resiliency. ENO also appreciates the opportunity to present the projects herein and looks forward to further discussions with all stakeholders to determine the best path forward for New Orleans while maintaining affordable energy rates for customers. As a next step, ENO respectfully suggests that the Council issue a procedural schedule that provides an opportunity to review the plans of all parties and to provide feedback and suggestions for alternatives for the Council's and parties' consideration.

**CERTIFICATE OF SERVICE**

**Docket No. UD-21-03**

I hereby certify that I have served the required number of copies of the foregoing report upon all other known parties of this proceeding, by the following: electronic mail, facsimile, overnight mail, hand delivery, and/or United States Postal Service, postage prepaid.

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New Orleans, Louisiana, this 1st day of July, 2022



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Edward R. Wicker, Jr.

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

**IN RE: SYSTEM RESILIENCY AND            )**  
**STORM HARDENING                            )**           **DOCKET NO. UD-21-03**  
**)**

**EXHIBIT A**

**HIGHLY SENSITIVE  
PROTECTED MATERIAL  
FILED UNDER SEAL**

**INTENTIONALLY OMITTED**

**JULY 2022**

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

**IN RE: SYSTEM RESILIENCY AND  
STORM HARDENING**

)  
)  
)

**DOCKET NO. UD-21-03**

**EXHIBIT B**

**HIGHLY SENSITIVE  
PROTECTED MATERIAL  
FILED UNDER SEAL**

**INTENTIONALLY OMITTED**

**JULY 2022**

**ENTERGY NEW ORLEANS, LLC**  
ELECTRIC SERVICE

RIDER SCHEDULE RSHCR

Effective: January 2024 Billing  
Filed: July 1, 2022  
Supersedes: New Schedule  
Schedule Consists of: Two Pages plus  
Attachments A and B

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## RESILIENCY & STORM HARDENING PLAN COST RECOVERY RIDER

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### I. GENERAL

The purpose of the Resiliency & Storm Hardening Cost Recovery Rider ("Rider RSHCR") is to establish the Rider RSHCR Rates through which Entergy New Orleans, LLC ("ENO" or the "Company") will recover the revenue requirement associated with the Council-approved Resiliency Plan capital additions ("RSHCR Revenue Requirement"). To the extent that ENO receives government grant funding for such capital additions, such funding shall be accounted for as stated below. Capital additions associated with other transmission and distribution work shall not be eligible for recovery through this Rider RSHCR. The Rider RSHCR Rates are applied in conjunction with the currently applicable rates on file with the Council.

### II. RIDER RSHCR RATES

A. The Rider RSHCR Rates as set forth in Attachment A shall be derived by the formula ("RSHCR Rider Rate Formula") set out in Attachment B to this Rider RSHCR. The Rider RSHCR Rates shall be added to the rates set out in the monthly bills in accordance with the Company's Rate Schedules. The RSHCR Revenue Requirement will be allocated to the Rate Classes based on the previous calendar year's base revenue.

B. The initial Rider RSHCR Rates effective the first billing cycle of January 2024 shall be based on the estimated annual RSHCR Revenue Requirement for calendar year 2024 determined in Council Docket No. UD-21-03.

For each calendar year subsequent to 2024, the Company shall update the estimated annual revenue requirement. On or before each October 1 after 2024, the Company shall file a new estimated annual revenue requirement, which will be based on forecasted information for the following calendar year and which will be used beginning in the first billing cycle of the following January.

C. Beginning in 2025, on or before October 1, the Company shall file a computation to true-up the actual revenue for the previous calendar year to the billed annual RSHCR Revenue Requirement for that calendar year. The difference plus interest shall be returned to or recovered from customers through the Rider RSHCR Rates over twelve months beginning in the first billing cycle of the following January, as shown in the RSHCR Rider Rate Formula. The interest rate to be utilized is the prime bank lending rate as published in the Wall Street Journal on the last business day of each month. Any grant funding from non-utility sources that ENO receives for Resiliency Plan capital additions shall be treated as an offset to the capital additions included in the actual revenue requirement.

The Council Advisors ("Advisors") and the Company (collectively, the "Parties") shall have thirty (30) days to ensure that the true-up is correctly calculated. If any of the Parties should detect any error(s), such error(s) shall be formally communicated in writing to the other Party within the same thirty (30) days. Each such indicated dispute shall include, if available, documentation of the proposed correction. The Company shall then

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have fifteen (15) days to review any proposed corrections, to work to resolve any disputes, and to file a revised true-up reflecting all corrections upon which the Parties agree. The Company shall provide the Advisors with appropriate workpapers supporting any revisions made to the true-up initially filed.

In the event there are disputes regarding the true-up, the Parties shall work together in good faith to resolve such disputes. If the Parties are unable to resolve the disputes or reasonably believe they will be unable to resolve the disputes by the end of the forty-five (45) day period provided for above, a revised true-up reflecting all revisions to the initially filed true-up on which the Parties agree shall be used in the Rider RSHCR Rates effective the first billing cycle of the following January. Any remaining disputes shall be submitted to the Council for resolution. If the Council's final ruling on any disputes requires changes to the true-up initially used pursuant to the above provisions, within sixty (60) days after receipt of the Council's final ruling on any disputes, the Company shall file a revised true-up and shall determine the amount to be refunded or surcharged to customers, if any, together with interest based on the rate set forth in Paragraph C above. Such refund/surcharge amount shall be included in the next true-up computation.

### **III. TERM**

The Rider RSHCR shall remain in effect until the Council replaces the Rider RSHCR with a new contemporaneous cost recovery mechanism. After the completion of the Council-approved Resiliency Plan, the Rider RSHCR Rates shall remain in effect unless and until the last day of the month prior to the implementation of base rates recovering the RSHCR Revenue Requirement recovered through the rider.

Within six months after termination of the Rider RSHCR, there will be a true-up of any periods not previously subject to a true-up as provided for above. Any over- or under- refund/recovery, including interest, will be included in Attachment A, Page 2, Line 12 of the then-effective Rider Schedule FAC as a Prior Period Adjustment to the Cumulative (Over)/Under Collection Account.

**Entergy New Orleans, LLC**  
**Resiliency & Storm Hardening Cost Recovery Rider**  
**Resiliency & Storm Hardening Cost Recovery Rider Revenue Requirement Formula**  
**Rider RSHCR Rate Formula - XXXX (1) (2)**

All Rate Classes **0.0000%**

Notes:

- (1) Excludes schedules: AFC, BRAR, IRAR-E, Contract Minimums, RES Customer Charges, DTK, EAC, EECR, EVCI, FAC, GPO, MES, MISO, PPCR, PPS, R-8, R-3, RPCEA, SMS, SSCO and SSCR
  - (2) See Attachment B, Page 1, Col D
-

**Entergy New Orleans, LLC  
 Resiliency & Storm Hardening Cost Recovery Rider  
 Resiliency & Storm Hardening Cost Recovery Rider Revenue Requirement Formula  
 Rider RSHCR Rate Formula - XXXX**

	<u>Col A</u>	<u>Col B</u>	<u>Col C</u>	<u>Col D</u>
Ln No.	Rate Class (1)	Applicable Base Rate Revenue (\$) (2)	RSHCRRR (\$) (3)	Rider RSHCR Rates (4)
1	All Rate Classes	\$ -	\$ -	<b>0.0000%</b>

Notes:

- (1) Excludes schedules specifically identified on Attachment A, Page 1 of this Resiliency & Storm Hardening Cost Recovery Rider.
- (2) The billing determinants (Col B) shall be the ENO Base Rate Revenue applicable to Rider RSHCR based on the previous calendar year's base revenue per Section II.A of this Resiliency & Storm Hardening Cost Recovery Rider.
- (3) See Attachment B, Page 2, Line 17 for the RSHCRRR.
- (4) Total Resiliency & Storm Hardening Cost Recovery Rider Revenue Requirement (RSHCRRR) (Col C) divided by Applicable Base Rate Revenue (Col B).



**Entergy New Orleans, LLC**  
**Resiliency & Storm Hardening Cost Recovery Rider**  
**Resiliency & Storm Hardening Cost Recovery Rider Revenue Requirement Formula (1)**  
**For the Twelve Months ended December 31, XXXX**

Ln No.	Description	Amount	Reference
<b>Rate Base:</b>			
1	Plant in Service <sup>(2)</sup>	-	WP X
2	Accumulated Depreciation & Amortization <sup>(2)</sup>	-	WP X
3	<b>Net Utility Plant</b>	-	Line 1 + Line 2
4	Accumulated Deferred Income Taxes <sup>(3)</sup>	-	WP X
5	<b>Total Rate Base</b>	-	Line 3 + Line 4
6	Before-Tax Rate of Return on Rate Base <sup>(4)</sup>	0.00%	WP X
7	<b>Return on Rate Base</b>	-	Line 5 * Line 6
<b>Expenses:</b>			
8			
9	Operation & Maintenance Expense <sup>(6)</sup>	-	WP X
10	Depreciation & Amortization Expense <sup>(5)</sup>	-	WP X
11	Taxes Other Than Income <sup>(5)</sup>	-	WP X
12	AFUDC Equity Tax Expense <sup>(7)</sup>	-	WP X
13	<b>Total Expenses</b>	-	Line 9 + Line 10 + Line 11 + Line 12
14	Revenue Related Expense Factor <sup>(8)</sup>	-	WP X
15	<b>Total Estimated Annual Resiliency &amp; Storm Hardening Cost Recovery Rider Revenue Requirement</b>	-	(Line 7 + Line 13) * Line 14
16	True-up of Resiliency & Storm Hardening Cost Recovery Rider Revenue Requirement	-	Att B Pg 3, L24
17	<b>Total Annual Resiliency &amp; Storm Hardening Cost Recovery Rider Revenue Requirement (RSHCRRR)</b>	<b>\$ -</b>	Line 15 + Line 16

Notes:

- (1) Pursuant to Section II.B of this Resiliency & Storm Hardening Cost Recovery Rider
- (2) Estimated Plant in Service and Accumulated Depreciation & Amortization balances at December 31 of the upcoming calendar year based on end of period. This amount also includes conductor handling costs, which the Council has authorized ENO to capitalize pursuant to Resolution R-2X-YYY.
- (3) The amount is adjusted for the normalization limit per Regulation Section 1-167(l)-1(h)(6).
- (4) The estimated Before Tax Rate of Return is based on the projected weighted average cost of capital using the most recently approved return on equity at December 31 of the current calendar year.
- (5) Estimated Depreciation & Amortization Expense and Other Tax Expense for the upcoming calendar year.
- (6) Operation & Maintenance Expense is associated with microgrids.
- (7) This amount reflects the grossed-up federal and state income tax expense resulting from the recovery of book depreciation expense attributable to previous accruals of equity AFUDC, which is not deductible and is not included in tax depreciation expense. Recovery of this amount is consistent with Council ratemaking practice.
- (8) Revenue Related Expense Factor =  $1 / (1 - \text{Bad Debt Rate} - \text{Revenue Related Tax Rate})$ . The ENO Bad Debt Rate and the Revenue Related Tax rate shall be developed consistent with the methodology used for calculating it in the most recent ENO rate filing and shall use the most recently available calendar year data at the time of filing.

**Entergy New Orleans, LLC**  
**Resiliency & Storm Hardening Cost Recovery Rider**  
**Resiliency & Storm Hardening Cost Recovery Rider Revenue Requirement Formula**  
**True-up of Resiliency & Storm Hardening Cost Recovery Revenue Requirement (1)**  
**For the Period ended December 31, XXXX**

Ln No.	Description	Amount	Reference
<b><u>Rate Base:</u></b>			
1	Plant in Service <sup>(2)</sup>	-	WP X
2	Accumulated Depreciation & Amortization <sup>(2)</sup>	-	WP X
3	<b>Net Utility Plant</b>	-	Line 1 + Line 2
4	Accumulated Deferred Income Taxes <sup>(2)</sup>	-	WP X
5	<b>Total Rate Base</b>	-	Line 3 + Line 4
6	Before-Tax Rate of Return on Rate Base <sup>(3)</sup>	0.00%	WP X
7	<b>Return on Rate Base</b>	-	Line 5 * Line 6
<b><u>Expenses:</u></b>			
9	Operation & Maintenance Expense <sup>(4)</sup>		WP X
10	Depreciation & Amortization Expense <sup>(4)</sup>	-	WP X
11	Taxes Other Than Income <sup>(4)</sup>	-	WP X
12	AFUDC Equity Tax Expense <sup>(5)</sup>	-	WP X
13	<b>Total Expenses</b>	-	Line 9 + Line 10 + Line 11 + Line 12
14	Revenue Related Expense Factor	-	Att B, Pg 2, L12 PY Filing
15	<b>Resiliency &amp; Storm Hardening Cost Recovery Rider Revenue Requirement</b>	<b>\$ -</b>	(Line 7 + Line 13) * Line 14
16	<b>Per Book Resiliency &amp; Storm Hardening Cost Recovery Rider Revenue</b>	<b>\$ -</b>	WP X
17	<b>Difference in Annual Rider RSHCR Revenue Requirement and Rider RSHCR Revenue</b>	-	Line 15 - Line 16
<b><u>Interest:</u></b>			
19	Annual Prior Year True-up of Resiliency & Storm Hardening Cost Recovery Rider Revenue Requirement <sup>(6)</sup>	-	Att B Pg 3, L24 PY Filing
20	Prior Period Adjustments	-	
21	Total True-Up Adjustment Before Interest	-	Line 17 + Line 19 + Line 20
22	Interest Rate <sup>(7)</sup>	0.00%	
23	<b>Interest on Average Balance</b>	-	(Line 21/2) * Line 22
24	<b>Total True-Up of RSHCRRR with Interest</b>	<b>\$ -</b>	Line 17 + Line 23

Notes:

- (1) Pursuant to Section II.C of this Resiliency & Storm Hardening Cost Recovery Rider
- (2) Actual Plant in Service, Accumulated Depreciation & Amortization, and Accumulated Deferred Income Taxes balances at December 31 of the previous calendar year based on end of period. To the extent that ENO receives government funding for such capital additions, such funding shall be treated as an offset to the revenue requirement including interest calculated from the date that the funds were received.
- (3) The Before Tax Rate of Return is based on the actual capital costs at December 31 of the previous calendar year.
- (4) Actual Operation & Maintenance Expense, Depreciation & Amortization Expense, and Other Tax Expense for the previous calendar years balances as of December 31.
- (5) This amount reflects the grossed-up federal and state income tax expense resulting from the recovery of book depreciation expense attributable to previous accruals of equity AFUDC, which is not deductible and is not included in tax depreciation expense. Recovery of this amount is consistent with Council ratemaking practice.
- (6) Prior Period True-up of Resiliency & Storm Hardening Cost Recovery Rider Revenue Requirement (RSHCRRR) reflected on line 24 of Attachment B, Page 3 in the previous years Resiliency & Storm Hardening Cost Recovery Rider filed October XXXX.
- (7) Prime Rate on the last business day of the operations recovery period as stated in the Wall Street Journal was X.XX%.