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Brain L. Guillot
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June 6, 2018

Via Hand Delivery

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

Re: Application of Entergy New Orleans, Inc. for Approval to Deploy Advanced Metering Infrastructure, and Request for Cost Recovery and Related Relief; Resolution and Order Directing Entergy New Orleans, LLC to Accelerate Implementation of its Advanced Metering Initiative; CNO Docket NO.: UD-16-04

Dear Ms. Johnson:

Please find enclosed for your further handling an original and three copies of the Public Version of Entergy New Orleans, LLC's ("ENO") Report Pursuant to Council's Resolution R-18-99 Requesting to Investigate the Feasibility of Accelerating the Deployment of Advanced Meters in the above-referenced docket. Please file an original and two copies into the record in the above referenced matter, and return a date stamped copy to our courier.

In connection with the Company's filing, certain exhibits contain information considered by ENO to be proprietary and confidential. Public disclosure of certain of this information may expose ENO and its customers to an unreasonable risk of harm. Therefore, in light of the commercially sensitive nature of such information, these exhibits bear the designation "Highly Sensitive Protected Materials" or words of similar import. The confidential information and documents included with the Report may be reviewed by appropriate representatives of the Council and its Advisors pursuant to the provisions of the Official Protective Order adopted in Council Resolution R-07-432 relative to the disclosure of Highly Sensitive Protected Materials. As such, these confidential materials shall be exempt from public disclosure, subject to the provisions of Council Resolution R-07-432.

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JUN 08 2018
BY: 

Ms. Lora W. Johnson, CMC, LMMC

June 6, 2018

Page 2 of 2

Should you have any questions regarding the above matter, please do not hesitate to contact me. Thank you for your assistance with this matter.

Sincerely,



Brian L. Guillot

Enclosure

cc: Official Service List UD-16-04 (*via electronic mail*)

BEFORE THE
COUNCIL OF THE CITY OF NEW ORLEANS

IN RE: APPLICATION OF ENTERGY)
NEW ORLEANS, INC. FOR APPROVAL) DOCKET NO. UD-16-04
TO DEPLOY ADVANCED METERING)
INFRASTRUCTURE, AND REQUEST)
FOR COST RECOVERY AND RELATED)
RELIEF)

REPORT REGARDING THE COUNCIL’S REQUEST
TO INVESTIGATE THE FEASIBILITY OF ACCELERATING
THE DEPLOYMENT OF ADVANCED METERS

NOW BEFORE THE COUNCIL OF THE CITY OF NEW ORLEANS, (the “Council”), through the undersigned counsel, comes Entergy New Orleans, LLC (“ENO” or the “Company”), who respectfully submits this Report in response to Resolution R-18-99.

At the outset, the Company applauds this Council’s approval of its Application to deploy Advanced Meter Infrastructure (“AMI”), filed October 18, 2016, where it found that ENO’s proposed AMI deployment is prudent and in the public interest.¹ ENO further applauds this Council’s excitement and desire to implement AMI in the City of New Orleans as quickly as possible, provided that cost efficiencies and/or the quality of the deployment are not significantly affected.² In response to Resolution R-18-99, ENO has diligently worked with its vendors and has determined that a one-year acceleration that will not affect the quality of the deployment is feasible for an estimated \$4.4 million increase in capital, provided that Council approval is received by June 29, 2018 in order to give vendors enough notice to accommodate this significant change to their deployment plans. In addition, the Company has worked with its

¹ See Resolution R-18-37, February 8, 2018.

² See Resolution R-18-99, April 5, 2018.

vendors to significantly shorten the lag-time associated with providing data to customers, which is discussed more fully below.

I. A One-Year Acceleration of ENO's AMI Deployment is Feasible and the Project would still produce Net Benefits.

As the Company detailed in its AMI Application, the deployment of AMI includes significantly more than just replacing existing meters with advanced meters, which itself is a time-consuming undertaking. It is first necessary to build the IT systems, which involves the development of detailed AMI requirements, the deployment of software and hardware, and the integration of new and upgraded AMI systems with existing Company applications estimated to involve approximately 150 interfaces between 15-20 different IT systems.³ Once the IT infrastructure is installed, the systems must be integrated and tested, and employees must be trained to confirm that AMI operates as expected and achieves its functional objectives.⁴ The next step is building the communications systems that allow the IT systems to communicate with the advanced meters.⁵ That step involves the installation of an estimated 70 access points and 370 repeaters, followed by testing communications from those points to the head-end system.⁶ The final step is replacing customers' existing meters with new advanced meters.⁷

That final step is expected to begin in the first quarter of 2019,⁸ which is approximately six months from the date of this Report. For ENO, its updated estimate is currently that 97,000 gas and electric meters will be replaced in 2019, 120,000 meters in 2020, and finally 98,000

³ See Direct Testimony of Rodney W. Griffith, at 10.

⁴ *Id.*

⁵ *Id.*

⁶ *Id.* at 11.

⁷ *Id.*

⁸ *Id.* at 10.

meters in 2021. As discussed more fully in the Company's Application and supporting testimony, the Company believes that this timeframe provides a reasonable balance between timely meter installation and efficient, cost-effective supply chain and installation crew management, and quality control.⁹ The originally proposed deployment schedule was primarily the result of benchmarking with 23 other utilities, which identified three key factors with potential to impact deployment timelines: number of meters, square footage of territory, and number of installers.¹⁰ The benchmarking resulted in an optimum deployment timeline of three to four years. Shorter deployment timelines demonstrated a disproportionate increase in labor resources for inventory management, installation and oversight, and had the potential to place strains on resources and quality control. Thus, a three-year deployment schedule was developed to balance these considerations.

For these reasons, the Council found in Resolution R-18-37 that the timeline for ENO's proposed deployment is prudent and reasonable. Given the excitement around ENO's AMI deployment, however, it is also reasonable for the Council to explore the feasibility of accelerating the current deployment schedule. After a considerable effort in a relatively short time-frame, ENO's vendors have recently informed the Company that it is indeed feasible to accelerate the deployment schedule by one year. Accordingly, instead of final deployment being completed in 2021 under the current schedule, under the accelerated schedule, all meters, electric and gas, would be installed in ENO's service territory by the end of 2020. The vendors have assured ENO that this acceleration can be done without sacrificing quality control.

To do this, however, the vendors will lose certain economies of scale that resulted from a deployment schedule that was heavily linked and coordinated with the deployment of AMI in

⁹ *Id.* at 11.

¹⁰ *See* UD-16-04: Company's HPSM Response to Advisors 1-29.

other Entergy Operating Company jurisdictions, which will result in an increase in the investment needed for ENO’s deployment. The accelerated estimate includes incremental spending for items such as increased labor, warehouse space, security, equipment, vehicles, tools, insurance and risk premiums, startup and shutdown costs, increased back-office support, and increased risks, *etc.*¹¹ The price also includes incremental internal Entergy costs (*i.e.*, incremental taxes, contingency, contract oversight, *etc.*). Together, an estimated \$4.4 million increase in capital is necessary to accelerate the deployment schedule in ENO’s service territory.¹²

In its AMI Application, the Company provided its cost/benefit analysis, which clearly demonstrates that the project will produce net benefits to customers. In the Direct Testimony of Company witness Jay A. Lewis, the Company provided the following table:

**Table 2:
Summary of Electric Cost/Benefit Analysis**

| | | Nominal (\$M) | PV (\$M, 2016) |
|---|--|--------------------------|---------------------------|
| | Quantified Operational Benefits | | |
| 1 | Routine Meter Reading | \$45 | \$19 |
| 2 | Meter Services | \$47 | \$20 |
| 3 | Reduced Customer Receivables Write-offs | \$3 | \$1 |
| 4 | Total Quantified Operational Benefits | \$95 | \$40 |
| | Quantified Other Benefits | | |
| 5 | Consumption Reduction | \$104 | \$42 |
| 6 | Peak Capacity Reduction | \$35 | \$14 |
| 7 | Unaccounted For Energy Reduction | \$38 | \$15 |
| 8 | Meter Reading Equipment | \$2 | \$1 |

¹¹ See Proposals of Honeywell and Itron, attached hereto as Exhibit 1.

¹² See HSPM Spreadsheet, attached as Exhibit 2. Please note that these as in the original AMI filing, all costs provided herein are estimates and the Company held underlying assumptions used in its original cost estimate constant (*i.e.*, assumed tax rate, loader rate, contingency rate, *etc.*).

| | | | |
|----|--|-------|-------|
| 9 | Total Quantified Other Benefits | \$178 | \$72 |
| 10 | Total AMI Quantified Benefits | \$273 | \$112 |

| | AMI lifetime costs to customers¹³ | Nominal (\$M) | PV (\$M, 2016) |
|----|---|----------------------|-----------------------|
| 11 | Depreciation & Amortization | \$74 | \$34 |
| 12 | Return on Rate Base | \$49 | \$28 |
| 13 | AMI O&M Costs | \$32 | \$14 |
| 14 | Property Tax | \$18 | \$9 |
| 15 | Total AMI Costs | \$173 | \$85 |

| | | | |
|----|------------------------|---------------------|--------------------|
| 16 | Net AMI Benefit | <u>\$101</u> | <u>\$27</u> |
|----|------------------------|---------------------|--------------------|

Accordingly, as Table 2 demonstrates, the project is expected to produce \$101 million in benefits on a nominal basis, and \$27 million on a present value basis. The Council’s Advisors, after certain adjustments, also found ENO’s AMI deployment will produce net benefits.¹⁴ Specifically, the Advisors found that ENO’s electric AMI deployment will produce a net benefit of approximately \$85 million nominal, and \$16 million net present value.¹⁵ Accordingly, regardless of which net benefit analysis is used, the Company’s or the Advisors’, it is directionally apparent that an incremental \$4.4 million in capital costs resulting from a one-year acceleration will not significantly diminish these net benefits, meaning that the project would still be expected to produce substantial net benefits to customers even if acceleration is approved.¹⁶

¹³ Please note that this chart was taken from ENO’s original testimony and includes the amortization of the Regulatory Asset for 2017 and 2018 customer education and O&M expenses, which was not approved by the Council and will not be a cost paid by ENO customers.

¹⁴ See Direct Testimony of Advisor witness Victor M. Prep, at 22.

¹⁵ *Id.*

¹⁶ Because ENO’s vendors needed a substantial amount of time to update their cost estimates and AMI deployment design, the Company could not update its revenue requirement models in time for this filing. The Company is in the process of updating these models, and will provide the results to the Council’s Advisors and parties to UD-16-04 as soon as possible.

It is extremely important to note, however, that in order to accelerate the deployment schedule, ENO's vendors need a decision to go forward by June 29, 2018.¹⁷ As this Council is aware, the vendors had plans in place related to AMI deployment for a considerable amount of time and a one-year acceleration represents a substantial change to those deployment plans. The vendors have informed ENO that decisions and commitments on their end need to be made in very short order for capital expenditures such as vehicles, warehousing, labor, supervision, *etc.* Moreover, the vendors are presently making capital expenditures and agreements for supply chain capacities and need a firm commitment regarding their scope of work from ENO and this Council. Accordingly, if the Council is inclined to accelerate ENO's AMI deployment, ENO is requesting Council approval before June 29, 2018 in order to meet the deadline provided by the vendors.

Moreover, if the Council approves the acceleration, the Company will need assurances that the incremental amount will either be recoverable in ENO's electric and gas rates resulting from the 2018 Rate Case, or for its incremental revenue requirement related to costs incurred subsequent to those included in the 2018 Rate Case, through a cost recovery mechanism that provides timely recovery.

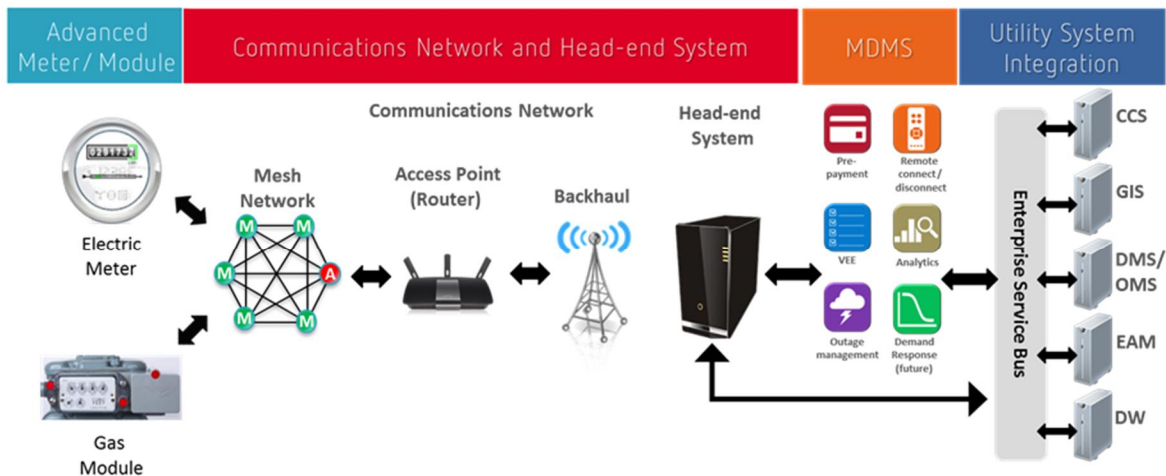
II. The Lag-time Associated with Data Availability for Customers has been Significantly Reduced at No Additional Cost.

Council Resolution R-18-99 required ENO to explore "how and at what cost ENO may make AMI meter data most useful to the Council's Smart Cities initiative on an open standards-based platform, including making real-time or near-real-time meter data available, consistent with best

¹⁷ See Proposals of Honeywell and Itron, attached hereto as Exhibit 1.

Smart Cities industry practices.”¹⁸ While the Company can continue to study AMI in connection to the Council’s Smart Cities initiative, a more extensive investigation and collaborative effort will be required to determine how AMI can be most useful to that initiative. Moreover, while providing real-time or near-real-time data is too costly and rarely employed by U.S. utilities (*i.e.*, the Company could only find one U.S. utility with near-real-time data access), the Company has worked with its vendors to significantly reduce the lag-time associated with its current AMI deployment at no additional cost to customers, which is consistent with the underlying request in Resolution R-18-99.

First, understanding data availability starts with a basic understanding of the AMI process, the data end points (*i.e.*, electric or gas advanced meters) and the frequency the endpoints transmit the data to the head-end for processing.



A data end-point, in this case, is an advanced electric meter, which measures, records, and transmits the register reading and time-differentiated energy usage information, as well as other information like power outage, power restoration, voltage, and meter alarms to the Company through a network interface card (“NIC”).

¹⁸ See Resolution R-18-99, at 5.

The data is communicated vis-à-vis the communications network, which for purposes of ENO’s AMI deployment, consists of the NIC, a “mesh” communications network, a backhaul communications network, and the head-end system at the Company’s data center.¹⁹

The NIC is a modular circuit board located inside each advanced meter.²⁰ It is the component that connects the advanced meter to various networks and enables remote two-way communication between the meter and the Company in a reliable and secure manner.²¹

The mesh communications network is a wireless network made up of radio “nodes” that have the ability to communicate with each other.²² Each NIC and network component (e.g., access points and relays) is a separate node in the mesh network.²³ Meter data and messages “hop” from node-to-node until reaching a destination node, which can be a NIC, relay, or access point, depending on the direction the data is traveling.²⁴ Data is communicated between the access points and the head-end system at the data center via the backhaul network, which will be a combination of cellular service and Company-owned fiber.²⁵

The head-end system refers to the hardware and software components in the data center that reliably and securely: 1) receive information from field components, including meters; 2) transmit data to those components; and 3) route meter information to appropriate internal IT

¹⁹ See Direct Testimony of Rodney W. Griffith, at 23.

²⁰ *Id.*

²¹ *Id.*

²² *Id.* at 24.

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.*

systems, including the meter data management system (“MDMS”).²⁶ In addition, the head-end system will contain basic data validation and error checking functionality in its role of collecting and passing data, information, and commands between various utility systems (e.g., the MDMS) and field components.²⁷

In this case, residential advanced electric meters will capture and store usage information on 15 minute intervals, while commercial and industrial advanced meters will capture and store on 5 minute intervals. Then, every four hours throughout the day for electric meters, the head-end will request electric meter interval data for the last four hours of usage.

Once data is received by the head-end, it will forward the data to the MDMS. The MDMS will process the data, which is currently being designed and tested but is expected to take approximately 30 minutes to an hour to process. Once the data is processed, it will be made available to the customer experience portal (“CEP”) for the customer’s view or download. The customer will be able to view their data, with the oldest data being approximately four to five hours old.

It should be noted that this represents a significant decrease in the lag-time estimated in the Company’s AMI Application, which estimated that data would be available the following day to customers. This decrease in lag-time represents a change from how vendors bid their proposals into the AMI RFP. During the actual design of the system, however, the vendors and the Company discovered that with only a configuration change (no cost), the electric data could

²⁶ *Id.*

²⁷ *Id.*

be processed immediately and made available to the customer every 4 hours once the data is processed, which is now the design to be delivered.²⁸

Once data is available, ENO customers will have access to their usage through the customer experience portal at all times, except times of maintenance and upgrades. The customer will be able to view and download their usage data once it is obtained and processed from the electric or gas meters using a home computer, tablet, or other mobile device.

In addition to the standard 4-hour data displayed in the CEP, the Company will give its customers the ability to view their near real-time usage data through the CEP by making a request in the portal, which will initiate a request to the system and will result in the customer being allowed to view his/her near real time data vis-à-vis a computer, tablet, or other mobile device. However, given that a large number of such requests could significantly burden the system, each customer will be limited to a certain number of such requests per day, which limitation is still being determined at this time. This significant reduction in lag-time for electric usage data, coupled with the potential ability for customers to access near real-time data through the CEP (limited to a maximum number of requests per-day), accomplishes the goal of providing data provided to customers on faster intervals.

ENO has also explored the option of making the data available to the customers through in-home displays that would communicate directly with a customer's electric meter over a home area network. This option would allow the customer to view their usage on the in-home display (a device about the size of a thermostat). This option, however, is expected to create communications challenges in larger homes and multi-tenant buildings, and would lead to complications with Entergy supporting the installations on various unfamiliar devices.

²⁸ Please note that for gas, the 24-hour lag time (*i.e.*, the next morning) still applies because of a concern for the gas meter AMI module power and battery life. The gas meter module that records meter usage is battery powered, which can be negatively impacted by frequent combinations and volume of data communicated.

Making data available on a more frequent basis than every four hours as an operating standard was also explored. It was discovered that one utility in the northeast using the same communications systems as ENO is able to provide usage data on 45 minute intervals (15 minutes for data collection and 30 minutes for processing). After discussions with said utility, however, the Company learned that it would require a communication network with four times the number of communications devices than would be required for ENO's planned deployment. This additional equipment would come at a substantial cost to customers, along with additional capital costs for additional software modules and potentially hardware to handle the increased frequency of communications. Additional O&M costs will be required for the cellular backhaul between the additional access points and the head-end. All of these items would add additional costs and a detailed design would be required to determine the exact amount of the cost increase. Importantly, it should also be noted that in addition to increased costs, making such a significant change at this time (*i.e.*, to re-design the communications network and add a significant additional construction scope-of-work) would require a substantial amount of additional time to complete and is likely to significantly delay the implementation of AMI, which has already been approved by this Council and would be inconsistent with the Council's desire to accelerate AMI deployment.

III. Conclusion

In response to Resolution R-18-99, ENO has worked diligently with its vendors and has determined that a one-year acceleration that will not affect the quality of the deployment is feasible for an estimated \$4.4 million increase in capital provided that Council approval is received by June 29, 2018. In addition, in response to the Council's Resolution, the Company

worked with its vendors to significantly shorten the lag-time associated with providing data to customers.

Respectfully submitted:

BY:



Timothy S. Cragin, Bar No. 22313
Brian L. Guillot, Bar No. 31759
Alyssa Maurice-Anderson, Bar No. 28388
Harry Barton, Bar No. 29751
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Telephone: (504) 576-2603
Facsimile: (504) 576-5579

**ATTORNEYS FOR ENTERGY
NEW ORLEANS, LLC**

CERTIFICATE OF SERVICE

CNO Docket No. UD-16-04

I, the undersigned counsel, hereby certify that a copy of the above and foregoing has been served on the persons listed below by facsimile, by hand delivery, by electronic mail, or by depositing a copy of same with the United States Postal Service, postage prepaid, addressed as follows:

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New Orleans, LA 70113

New Orleans, Louisiana, this 6th day of June, 2018.



Brian L. Guillot



THE POWER OF CONNECTED

Proposal

ENO Compressed Deployment Proposal

Honeywell is pleased to offer the following proposal to compress the timeline of the Entergy New Orleans (ENO) deployment from 3 years to 2 years with a completion date for electric of 10/30/20 and gas of 12/4/20. We have reviewed this request in great detail with both our installation partner and our internal stakeholders and feel that the below inputs are necessary to complete this request.

Included in this proposal:

1. 24 Month Deployment of:
 - a. Electric: METRO 1: local offices - 01, 03, 04, 06 / METRO 2 local office – 81 (Algiers electric is in METRO 2 local office 81)
 - b. Gas: METRO 1: local offices - 01, 03, 04, 06 (Algiers gas is in METRO 1 local office 03)
2. Incremental Warehouse to support the effort. The warehouse is necessary to ensure efficiencies of deploying at a faster pace and keeping us aligned with our schedule commitments. Included in the warehouse price is:
 - a. Physical space
 - b. Utilities
 - c. Build-out
 - d. Forklift and operating costs
 - e. Startup and shutdown costs
 - f. Insurance and risk premiums
 - g. Network/IT infrastructure
 - h. Security
 - i. Staffing, equipment and tools for:
 - i. Warehouse workers
 - ii. Additional auditor
 - iii. Area Manager
3. Additional staff to meet the compressed schedule, including:
 - a. Vehicles
 - b. Tools
 - c. PPE
 - d. Data devices e.g. cell phones, tablets.
4. Increased back office support for call center and scheduling
5. Higher risk and costs for increased staff operating in ENO Metro 1 concurrently
6. Additional Field Engineer to manage the incremental warehouse and project operations

Additional Considerations

1. June 29th, 2018 is the cut off for schedule changes due to key factors below:
 - a. Decisions and commitments need to be made for capital expenditures such as vehicles, warehousing and supervision.
 - b. Capital expenditures and agreements are being made for supply chain capacities.
2. Pricing is reflective of the request made on April 9th, 2018. Any additional scope changes or considerations will impact pricing.
3. In consideration of Metro 1 now being operated on a different schedule and being measured independently; the measurement of KPIs will be now be categorized as an independent operating company.



THE POWER OF **CONNECTED**

Proposal

Pricing

| Install Price | Current | 24month | Meters | Extended | %Chg |
|---------------|---------|--------------|------------|----------------|--------|
| Res | \$12.80 | \$19.29 | 189,474.00 | \$3,654,417.07 | 33.63% |
| C&I | \$27.59 | \$38.39 | 13,919.00 | \$534,311.01 | 28.13% |
| Gas | \$22.53 | \$29.98 | 112,394.00 | \$3,369,253.94 | 24.84% |
| Services | | \$683,000.00 | | \$683,000.00 | |
| Metro 1 Total | | | | \$8,240,982.01 | |

Pricing Notes

1. Invoicing will be per the contracted approach with the new aforementioned rates applied. Warehouse price is included in the per meter rate and Services will be billed incrementally per the contract.



May 30, 2018

Mr. Brady Aldy
Entergy Services, Inc.
5th Floor
1250 Poydras Street
New Orleans, LA 70113

Dear Brady:

You requested information on any possible increase in deployment costs to Entergy should the current three year deployment plan for the New Orleans service area be accelerated by one year (e.g. a two year deployment).

Our cost to accelerate the deployment of the New Orleans AMI network (as represented by zones Metro 1 & Metro 2) will be \$144,734.00. This increase to Entergy is based upon your current meter and network node counts for these regions and assumes no additional labor or material costs associated with mounting the network equipment.

Please let us know as soon as possible if you will accelerate the New Orleans deployment.

Sincerely,

A handwritten signature in black ink that reads "Matt A. Oja".

Matt A. Oja
Vice President, Client Delivery
Networked Solutions

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

| | | |
|---|---|----------------------------|
| <i>IN RE: APPLICATION OF ENTERGY</i> |) | |
| NEW ORLEANS, INC. FOR APPROVAL |) | DOCKET NO. UD-16-04 |
| TO DEPLOY ADVANCED METERING |) | |
| INFRASTRUCTURE, AND REQUEST |) | |
| FOR COST RECOVERY AND RELATED |) | |
| RELIEF |) | |

EXHIBIT 2 (HSPM)

**PUBLIC VERSION
HIGHLY SENSITIVE PROTECTED MATERIALS
PURSUANT TO COUNCIL RESOLUTION R-07-432
HAVE BEEN REDACTED**

JUNE 2018