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PROJECT NO. 57236

PROJECT TO DEVELOP	§	**BEFORE THE**
THE TEXAS BACKUP POWER	§	**PUBLIC UTILITY COMMISSION**
PACKAGE PROGRAM	§	**OF TEXAS**

ENCHANTED ROCK'S COMMENTS IN RESPONSE TO COMMISSION STAFF'S QUESTIONS ON THE TEXAS BACKUP POWER PACKAGE PROGRAM RESEARCH ENTITY FINAL REPORT

Enchanted Rock, LLC. ("Enchanted Rock") appreciates the opportunity to provide comments in response to the questions included in the Public Utility Commission ("Commission") Staff's January 23, 2025, memo, as well as Alison Silverstein's memo, regarding Patrick Engineering, Inc.'s Final Report on the Texas Backup Power Package Program ("TBPP"). Enchanted Rock is a Houston-based microgrid developer, owner, and operator with over 350 dual-purpose microgrids throughout Texas.

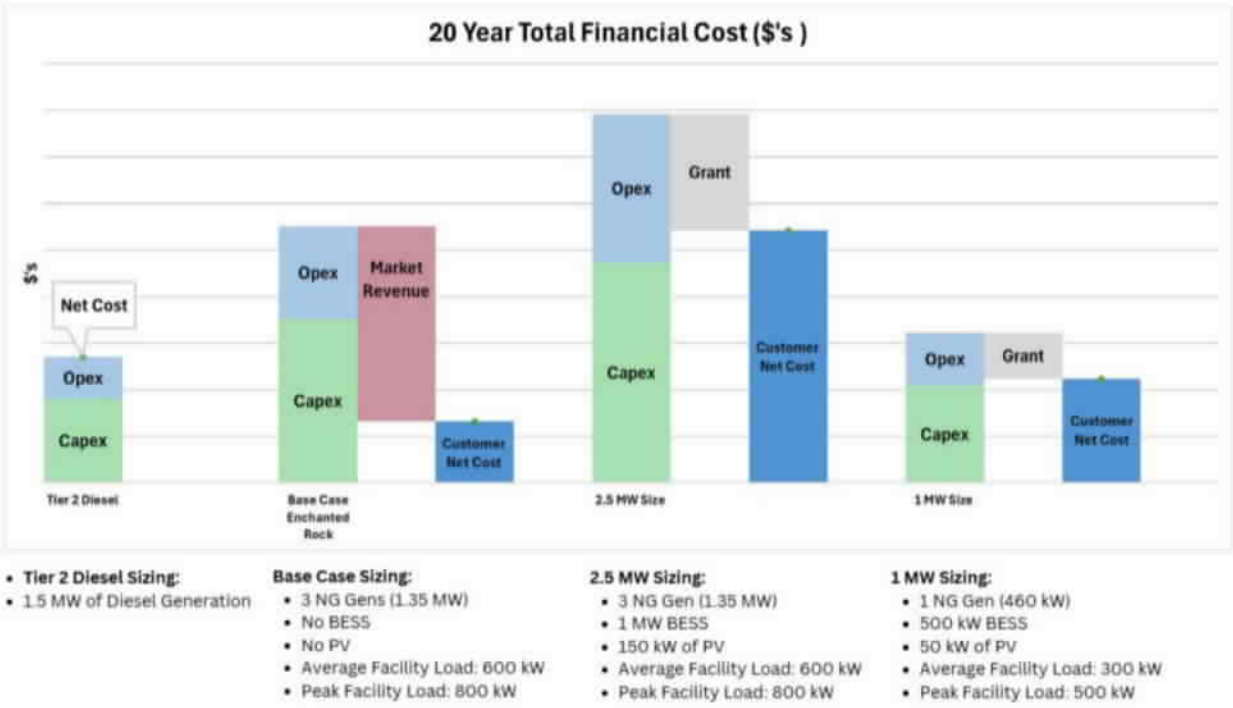
COMMISSION QUESTIONS

1. **The Final Report outlines specifications for TBPPs of various sizes to serve critical facilities.**
   - **A.** ***How, if at all, could these specifications affect the ability of critical facilities to apply for, install, or utilize TBPPs?***

Enchanted Rock supports Grid Resilience in Texas ("GRIT") response comments filed in Project 57236 with respect to the need for flexibility in package sizing and technology mix and for the ability to monetize the assets through behind-the-meter services.

In support of GRIT's comments, Enchanted Rock is providing the following charts to illustrate the financial breakdown of various system sizing and monetization options for the BPP program over a 20-year period using representative technology options that are available on the market. The Capex (capital expenditure) bar represents the upfront cost of the system, which includes the application of the Investment Tax Credit (ITC) for solar and other eligible components. The Opex (operational expenditure) bar reflects the ongoing costs to maintain and operate the system over its lifespan. The Market Revenue demonstrates the revenues generated from displacing site load through a combination of generators, photovoltaic (PV) systems, and

battery energy storage systems (BESS), effectively lowering the customer contribution. (To be clear, Market Revenue in this case does not include any disqualifying revenues from participating in the ERCOT market as energy or ancillary services.) The Grant section represents the BPP grants of $500/kW, which further reduces the Capex and makes the solutions more affordable for the customer.

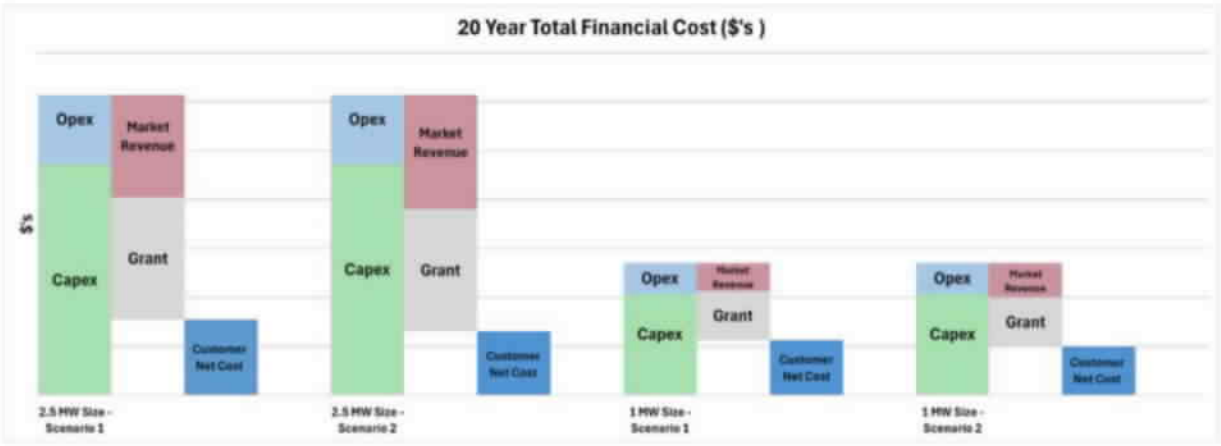


The graph above highlights the stark differences in customer net costs between a traditional Tier 2 diesel setup, Enchanted Rock's standard model, and two different sizing configurations under the BPP program parameters. While Enchanted Rock's base case leverages market revenue to significantly offset costs, the BPP scenarios result in much higher customer contributions, even with grant funding. Notably, reducing the number of generators from three to one in the smaller BPP configuration, and thereby reducing inherent resiliency of redundant equipment, still fails to bring customer net costs down to a level that is competitive with Enchanted Rock's base case. If one were to use Patrick Engineering's numbers, it is easily deduced that, even at the very low end of the cost spectrum for proposed TBPP configurations, $1,200/kW less the $500/kW incentive results in a $700/kW TBPP, which is still more expensive than procuring a Tier 2 diesel backup generator readily available in the market for $500-600/kW. This underscores the economic challenge posed by the current BPP design requirements,

particularly in the absence of revenue-generating opportunities to offset costs. Ultimately, the program, as proposed by Patrick Engineering's report, will have little to no traction in the market as critical facilities will have no economic incentive to depart from the status quo.

B. ***How, if at all, should the outlined specifications for TBPP packages be modified to ensure that the packages can serve most critical facilities in Texas?***

A key strategy for achieving cost reductions for customers who take advantage of the grant will be monetization of systems for services beyond backup power operations.



2.5 MW Scenario 1 Sizing:
- 3 NG Gens (1.35 MW)
- 1 MW BESS
- 150 kW of PV
- Average Facility Load: 600 kW
- Peak Facility Load: 800 kW

Able to monetize only NG Gens.

2.5 MW Scenario 2 Sizing:
- 3 NG Gens (1.35 MW)
- 1 MW BESS
- 150 kW of PV
- Average Facility Load: 600 kW
- Peak Facility Load: 800 kW

Able to monetize whole package.

1 MW Scenario 1 Sizing:
- 1 NG Gen (450 kW)
- 500 kW BESS
- 50 kW of PV
- Average Facility Load: 300 kW
- Peak Facility Load: 500 kW

Able to monetize only NG Gens.

1 MW Scenario 2 Sizing:
- 1 NG Gen (450 kW)
- 500 kW BESS
- 50 kW of PV
- Average Facility Load: 300 kW
- Peak Facility Load: 500 kW

Able to monetize whole package.

The above graph demonstrates the significant impact of monetization on improving project economics under the BPP program. Monetizing the natural gas generators alone helps significantly reduce customer net costs, improving the overall viability of the projects. However, monetizing the full package – including natural gas generators, BESS, and solar PV – further lowers costs for customers, highlighting the critical value of enabling revenue generation from all system components. The grant funding plays a key role in offsetting upfront costs, but its impact alone is insufficient to make the packages competitive with traditional backup solutions unless all components can contribute to revenue generation. These findings emphasize the need for program flexibility to maximize the economic viability of these systems for customers.

The Commission should clarify that the prohibition on Backup Power Packages being used for the "sale of energy or ancillary services" is specifically related to Energy & Ancillary Services as defined in the ERCOT protocols. Services that TBPPs can provide outside the ERCOT markets are crucial for the economics of the program to be workable for developers and customers alike.

2. <u>The Final Report provides a list of potential vendors for the TBPP program.</u>

A. *What factors, if any, could affect the ability of such vendors to assist with the sale, installation, operation, and ongoing maintenance of TBPPs?*

The approach outlined in the report fails to ensure that vendors will have the capability, incentive, or accountability to deploy and maintain TBPPs effectively. Rather than relying on rigid, pre-determined package configurations as the qualifying criteria, the Commission should focus on pre-approving qualified vendors with a proven track record in microgrid deployment and long-term operations.

The greatest risk in continuing down the current path of package certification is that vendors without operational experience or engineering expertise may assemble various components for the package and take upfront grant funding, but fail to maintain and operate the projects consistent with critical facility needs and Commission expectations, leaving critical facilities stranded without reliable backup power[1]. If the goal of the TBPP program is to ensure critical facilities have long-term, dependable backup power, then vendor qualification and accountability should be the top priority.

B. *How should the TBPP program be designed to maximize the ability of vendors to assist with the sale, installation, operation, and ongoing maintenance of TBPPs?*

The Commission can maximize vendor ability to assist by providing flexibility in ownership and contracting structures for the TBPPs. In addition to critical facility-owned models, third-party ownership models--where microgrid operators retain responsibility for

[1] A recent high-profile boil water event in Richmond, VA, for example, showed that having backup power alone was not sufficient to protect critical municipal facilities. Operational and engineering expertise and follow-through is required to ensure protection. < https://www.wtvr.com/news/local-news/richmond-water-investigation-jan-7-2025>

system operation and performance--would attract credible vendors who specialize in delivering electrical resiliency as a service. Many critical facilities do not have the expertise or capital to own and maintain backup power systems themselves, making this model important for widespread adoption. By allowing flexible ownership and financing arrangements, the TBPP program can ensure that facilities receive resilient, well-maintained backup power solutions.

3. **In Sections 2-4 and 2-5, the Final Report outlines design requirements and assumptions; technology specifications; operating sequences; and installation requirements.**

   A. ***How, if at all, could the specifications described in these sections affect implementation of the TBPP program?***

The design requirements outlined in Sections 2-4 and 2-5 introduce significant feasibility and cost challenges that will hinder TBPP implementation. The requirement that TBPPs must integrate natural gas or propane generators, solar PV, and BESS, introduces major complexity in system design and control integration, as aligning different technologies across multiple vendors will increase delays and project costs. For a program already constrained by high costs, every allowable revenue-generating opportunity should be explored and incorporated to help offset expenses.

Enchanted Rock also supports Alison Silverstein Consulting's comments regarding the switchover time requirement. The assumption that TBPPs must achieve zero-second switchover is unnecessary for many critical facilities and drastically inflates program costs. Most critical facilities function with 5-10 second transfer delays.

   B. ***How, if at all, should the specifications be modified to ensure effective implementation of the TBPP program?***

To ensure the successful implementation of the TBPP program, the Commission must revise the overly rigid design specifications to allow for greater flexibility in system configuration and cost-effective deployment strategies.

The switchover time requirement should be modified to allow for a brief delay, reducing unnecessary battery storage costs and making TBPPs more accessible to a broader range of

critical facilities. Most facilities already operate with short transfer delays, and there is no justification for requiring zero-second switchover when it significantly increases costs without providing meaningful reliability benefits.

4. **How should the TBPP be designed to mitigate or remedy any other factors that could negatively affect program implementation or participation, while ensuring compliance with statutory requirements? Please limit this response to factors not previously mentioned in responses to questions one through three above.**

According to comments submitted by Alison Silverstein Consulting, the report's assumptions should be modified to specify that the TBPP should be sized to serve only critical facility critical loads rather than full load. We believe that this should be an *option* when sizing a solution for a critical facility, but not a requirement. In Enchanted Rock's experience working with hospitals and other essential services, facilities opt for full facility backup because segmenting loads creates operational risks and cost inefficiencies. Hospitals, for example, commonly rely on equipment not traditionally classified as "critical," that are still essential for patient treatment. The bundling of "critical" and less critical loads for critical facilities creates scale that helps project economics, as demonstrated in Patrick Engineering's report. As evidenced by the report, smaller backup systems have higher per-kW costs, making it more economical for facilities to install a right-sized full facility backup rather than an undersized system that forces them to isolate loads. Allowing TBPPs to be sized based on full facility needs and enabling participation in BTM services will make the program financially viable for participants while still meeting resiliency goals.

Furthermore, the program should allow eligible critical facilities larger than 2.5MW to apply for the incentive, as the $500/kW incentive will have relatively larger impact on project economics for $1,200/kW systems than for $5,000/kW systems.

Ultimately, the Commission should oversee funding allocation, establish performance-based criteria, and ensure accountability, rather than continue down the path of engineering solutions on behalf of the market. A market-driven approach – where facilities and vendors tailor solutions to real-world needs – will better achieve the statute's goal of widespread resiliency deployment.

ALISON SILVERSTEIN QUESTIONS

1. **Will the proposed technical specifications proposed yield TBPPs that work effectively to meet Texas critical facilities' resilience goals? Are there any elements in the proposed technical specifications that should be corrected or improved?**

Patrick Engineering's proposed technical specifications for TBPPs are overly restrictive, impractical, and fail to align with the real-world needs of critical facilities. Enchanted Rock sees major flaws in the Final Report's assumptions and design recommendations.

For example, the zero-second switchover requirement significantly inflates costs by necessitating oversized battery storage. As noted in comments from Alison Silverstein Consulting, most critical facilities do not require Uninterruptible Power Supply (UPS) systems and are designed to tolerate brief transfer delays. The assumption that all facilities need instantaneous switchover ignores how these systems are actually designed and operated today and creates an unnecessary financial burden that will limit TBPP adoption. The island-mode-only restriction further reduces the program's effectiveness by prohibiting participation in BTM services. Enchanted Rock has successfully deployed microgrids that enhance resiliency while leveraging these revenue streams to reduce costs for customers while providing much needed grid support. Under Patrick Engineering's current framework, the $500/kW grant cap is insufficient, making TBPPs financially inaccessible to critical facilities that already have trouble financing lower cost, traditional backup power solutions. If the Commission, instead, designs the program to prioritize flexibility, eliminate unnecessary restrictions, and allow facilities to deploy solutions that align with their operational and financial realities, the $500/kW incentive should be more than sufficient to spur on significant adoption of TBPPs by critical facilities.

2. **Does the recommendation that the TBPP packages be sized for 10kW, 25kW, 100kW, 500kW and 1,000kW (Patrick Engineering final report, p. 15) work for what we know of the Texas critical facility population? Is there any reason to modify this set of package sizes? If so, what alternate package sizes do you recommend and why?**

Patrick Engineering's recommendation to limit TBPP packages to 10kW, 25kW, 100kW, 500kW, and 1,000kW fails to reflect the real-world needs of critical facilities and vendor product

offerings. Enchanted Rock has extensive experience deploying resilient backup power systems with a modular 450kW engine for grocery stores, gas stations, hospitals, nursing homes, water treatment plants, and other critical infrastructure of various sizes and needs. While we agree that multiple TBPP sizes will be needed to serve customers across the range of facility sizes, it is unnecessary to predetermine sizes that will be used.

In a flexible, vendor-driven approach, the Commission only needs to ensure there are a sufficient range of solution options available to reach all critical facilities. Vendors can then work directly with facilities to right-size their backup power solutions. For example, some facilities may value inherent redundancy in their solution design and prefer to deploy a set of smaller generators instead of a single large generator to meet their needs. This level of flexibility is required to ensure TBPPs are deployed efficiently and can effectively serve the broad needs of the over 30,000 facilities identified in Patrick Engineering's initial report.

3. **Do the cost estimates in the final report (final report pp. 29-31) appear valid? Why or why not? If your organization were planning to offer TBPP packages in volume based on these specifications, what would you estimate as the integrated TBPP package and installation costs for the various TBPP package sizes?**

Costs for TBPPs, particularly given the report's prescribed BESS and PV sizing requirements, will likely exceed cost estimates. In fact, the report itself acknowledges that "the TBPP program grant cap would be insufficient to substantially fund the TBPPs." Please refer to the above response to PUC Question 1 for Enchanted Rock's more detailed cost estimates.

4. **Are there any ways to modify the proposed TBPP technical specifications (for instance, with respect to the role of and sizing balance between package energy components) to reduce the cost or improve the effectiveness of the TBPPs without compromising the TBPP critical facility goals and statutory requirements? How would these changes affect the cost and performance of the resulting backup power packages?**

To improve TBPP cost-effectiveness, facilities should be allowed to optimize the balance between generation and storage rather than adhering to predefined sizing ratios. Additionally,

removing unnecessary design constraints would reduce costs without compromising resilience. Finally, the Commission must allow for revenue-generating pathways to make TBPPs financially competitive.

CONCLUSION

Enchanted Rock appreciates the opportunity to submit these responses to Commission Staff's questions for comment on the Texas Backup Power Package Program Final Report. As the Commission continues to move forward with Project No. 57236 and related efforts, Enchanted Rock is committed to supporting the effort to ensure improved grid reliability, resiliency, and stability.

Respectfully submitted,

/s/ Joel Yu
Joel Yu
SVP of Policy and External Affairs
Enchanted Rock, LLC.
jyu@enchantedrock.com

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THE TEXAS BACKUP POWER	§	**PUBLIC UTILITY COMMISSION**
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EXECUTIVE SUMMARY OF ENCHANTED ROCK'S COMMENTS IN RESPONSE TO COMMISSION STAFF'S QUESTIONS ON THE TEXAS BACKUP POWER PACKAGE PROGRAM RESEARCH ENTITY FINAL REPORT

- A key strategy for achieving cost reductions for customers who take advantage of the grant will be monetization of systems for services beyond backup power operations.
- The Commission should clarify that the prohibition on Backup Power Packages being used for the "sale of energy or ancillary services" is specifically related to Energy & Ancillary Services as defined in the ERCOT protocols. Services that TBPPs can provide outside the ERCOT markets are crucial for the economics of the program to be workable for developers and customers alike.
- To ensure the successful implementation of the TBPP program, the Commission must revise the overly rigid design specifications to allow for greater flexibility in system configuration and cost-effective deployment strategies.
- The Commission should focus on pre-approving qualified vendors with a proven track record in microgrid deployment and long-term operations.
- The Commission can maximize vendor ability to assist by providing flexibility in ownership and contracting structures for the TBPPs.
- The switchover time requirement should be modified to allow for a brief delay, making TBPPs more accessible to a broader range of critical facilities.
- The program should allow eligible critical facilities larger than 2.5MW to apply for the incentive.