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BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS

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Project to Develop the Texas Backup Power	)	Project No. 57236
Package Program	)	

MAINSPRING ENERGY, INC. COMMENTS IN RESPONSE TO COMMISSION STAFF'S MARCH 6 MEMORANDUM QUESTIONS ON THE TEXAS BACKUP POWER PACKAGE PROGRAM RESEARCH ENTITY FINAL REPORT

I. Introduction

Mainspring Energy, Inc. ("Mainspring") appreciates the opportunity to submit comments to the Public Utility Commission ("Commission") in response to the questions posed in the Staff's Memo dated March 6, 2025.[1] Mainspring participated in the Commission workshop held in-person on March 20, 2025, and these written responses reinforce our verbal input provided at that time.

Our February 14, 2025 comments focused on addressing the cost concerns raised in Patrick Engineering, Inc.'s Final Report ("the Report")[2] on the Texas Backup Power Package Program ("TBPP"). In this round of comments, Mainspring offers input on maximizing the benefits of TBPP. A central recommendation is to allow microgrids to operate in parallel with the grid (economic operation), rather than limiting them to emergency-only operation. Our analysis indicates that economic operation could deliver 4x the value of emergency-only use. The Commission is tasked with balancing the needs of grid-scale generation and customers. Enabling parallel operation achieves this balance.

Additionally, we urge the Commission to carefully consider the design of incentives. While the statute caps grants at $500/kW, it allows flexibility in how and when those grants are awarded including repeated awards up to this maximum level to the same project. We suggest issuing grants in phases, for example at commercial operation and after each year of successful performance. Furthermore, projects that deliver superior savings and reliability should be awarded a higher portion of the maximum incentive.

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[1] Commission Memorandum. Available: https://interchange.puc.texas.gov/Documents/57236_33_1476475.PDF

[2] Patrick Engineering, Inc. Final Report. Available: https://interchange.puc.texas.gov/search/documents/?controlNumber=57236&itemNumber=11

As a manufacturer of innovative linear generators—which operate without a spark or flame and produce near-zero NOx emissions—Mainspring believes our technology meets the eligibility requirements under TBPP. Although the Report included our technology, it incorrectly labeled it as a "Genset." We remain concerned that linear generators were not evaluated consistently alongside traditional internal combustion technologies.

II. About Mainspring

Mainspring is a U.S.-headquartered manufacturer of dispatchable, fuel-flexible, and scalable linear generators. Mainspring was founded in 2010 and its first commercial units were deployed in 2020. The company has customers across the country, including commercial and industrial facilities, data centers, utilities, and independent power producers.

Mainspring customers and potential customers include Critical Facilities described in SB2627[3], the enabling legislation for the Texas Backup Power Package Program. One of our existing customers recently placed an order for more than 30 additional units to be sited at multiple locations throughout Texas to provide economic benefits and resilience.

Mainspring is a leader in converting fuel to electricity through its linear generator technology that is highly efficient and low emissions. The linear generator delivers unmatched flexibility for the grid transition, including the ability to switch between various gaseous fuels, including natural gas, propane, biogas and hydrogen. The linear generator uses a low-temperature reaction without a spark or flame, which results in near-zero emissions of nitrogen oxides. This is vital for permitting generation near load where it is needed most. In addition, it is an alternative to longer-lived transmission and gigawatt-scale generation capacity build outs. The linear generator can also quickly track and firm renewables with its full dispatchability, and its modular design allows for scalability similar to battery energy storage, but does not face the same energy duration limitations.

Mainspring Linear Generators have been deployed on the distribution and sub-transmission systems across the country. Mainspring Linear Generators are fully dispatchable and scalable from 250 kW to 100+MW power blocks. Mainspring customers include Fortune 500 companies such as Lineage Logistics, Prologis, and Kroger, as well as utilities such as AEP, Florida Power and Light, and others. Mainspring Linear Generators, in configuration with 100% green fuels stored on-site, can provide cost-effective, long duration energy storage for seasonal reliability needs.

Finally, Mainspring is proud to announce a $174 million investment to establish a manufacturing facility in the Pittsburgh, Pennsylvania area. This facility will produce approximately 1,000 linear generators annually. Mainspring aims to deploy this US- technology in Texas to enhance grid reliability and support economic development across various sectors, including those seeing growing load in data centers and manufacturing.

[3] Facilities that "support community health, safety and well-being"

III. Responses to Commission Staff Questions

1. Cost Offsets

A. How can the specifications be refined to prioritize cost savings, effectiveness, and affordability for TBPPs without compromising backup power and resilience goals?

To prioritize cost-effectiveness and resilience, Mainspring urges the Commission to permit flexible, custom-designed TBPP projects. Critically, do not restrict microgrid operation solely to grid outages. Enabling grid-parallel operation is central to unlocking economic value.

For example, a single 250 kW Mainspring linear generator can save approximately $36,000 annually for customers on indexed wholesale power rates. Scaled to 1 MW, this equates to $144,000 annually. These savings far exceed the estimated Value of Lost Load (VOLL) of $35,000/MWh.[4] To emphasize, economic operation is more consistent and in this case, yields at least 4x more value annually than emergency-only operation.

While critics argue that allowing parallel operation could undermine grid-scale development, this misinterprets the law and overstates the risks to grid-scale resources. SB 2627 prohibits TBPP owners from selling to the grid but does not restrict on-site usage. Denying economic optimization would contradict the program's purpose and likely hinder its success.

Operational flexibility also improves reliability. Generators that operate regularly are more likely to perform during emergencies. In contrast, emergency-only units have higher failure rates due to infrequent use. Reliability is enhanced by economic operation.

B. How can the features of a TBPP provide added value for a critical facility compared to purchasing and installing a generator set? How can this value be quantified relative to the cost of additional TBPP features?

Compared to traditional gensets, TBPP-compliant systems such as Mainspring's offer greater reliability, cleaner emissions, and economic benefits. While higher in CAPEX, these units offer lower OPEX and significantly longer runtimes. Emissions-compliant units also qualify for extended use permits.

Above, Mainspring offered one simple approach to quantify the relative value of a grid-parallel generator, relative to an emergency-only generator, assuming both perform during an

[4] ERCOT. Available at: https://ftp.puc.texas.gov/public/puct-info/agency/resources/pubs/news/2024/PUCT_Adopts_Reliability_Standard_for_the_ERCOT_Market.pdf

emergency. Several publicly available resources speak to the reliability and air quality benefits of gas generators relative to diesel generators.[5]

In particular, the reliability benefits of a grid-parallel generator are meaningful and add value. If a grid-parallel generator is already operating when the grid is available it is highly unlikely to suddenly experience a malfunction when the grid goes down. On the other hand, an emergency-only generator could be sitting idle for weeks or months and when called upon may not start. The starter battery could be dead. The automatic transfer switch could be faulty.

Customers have a range of tolerances for reliability, which is another reason that the Commission should allow flexibility in TBPP by enabling custom designs. Solely relying on prescriptive specifications will exclude customers. Customization allows a broader array of customer needs to be met. Mainspring's experience with battery and solar-integrated systems underscores that one-size-fits-all rarely applies.[6]

C. How can contracts for alternative ownership models and financing mechanisms be structured to comply with statutory requirements? If these models and mechanisms are considered, what metrics could effectively measure value, performance, and compliance for the TBPP program?

Alternative ownership models are permitted. Regardless of ownership, the Commission should adopt performance-based metrics tied to generator availability, uptime, and economic savings.

2. Flexibility and Applicability of Technical Specifications

A. How can specifications include performance-based factors for design, installation, or operation without overly burdening a critical facility in installing or maintaining a TBPP?

We recommend a dual approach: prescriptive packages and custom options.

Performance-based metrics should include:

- Design: Emission thresholds (<2.5ppm NOx), fuel flexibility, modeled savings, runtime capacity.

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[5] Among these are Ericson, Sean and Dan Olis. 2019. *A Comparison of Fuel Choice for Backup Generators*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A50-72509. Available https://www.nrel.gov/docs/fy19osti/72509.pdf and Grizard, Erin. 2019. *Diesel Generators are not the Answer to Today's Energy Blackouts*. Bloom Energy. Available https://www.bloomenergy.com/blog/diesel-generators-are-not-the-answer-to-todays-energy-blackouts/

[6] For example, see Prologis Mobility case study for linear generators coupled with BESS. Available at https://cdn.sanity.io/files/m8z36hin/production/57fd50e31bd00b303f8b4dec5aaee97c7d996072.pdf and Lineage Logistics case study for linear generators coupled with solar. Available at https://cdn.sanity.io/files/m8z36hin/production/999b4b50f1ef665396dc6494df6185a16c99e674.pdf

- Installation: Agreed timelines for commercial operation.
- Operation: Generator uptime, run hours, cold-weather readiness, and fuel storage.

Incentives should be tied to commercial operation and ongoing performance. A multi-year grant structure (e.g., 5-year payments) reflects successful models like California's Self-Generation Incentive Program (SGIP).

B. Should the specifications vary based on the size, type of critical facility, or other criteria? If so, how and for what reasons? How can the specifications be refined to encourage participation from or integration with existing backup facilities?

Custom projects allow for greater inclusivity across facility types. Prescriptive packages may work for smaller sites, but flexibility is essential to accommodate varied operational and infrastructure needs.

C. Considering that access to natural gas or propane may be limited in different geographic areas of the state, how, if at all, can specifications be expanded to include alternative technologies and fuels?

Mainspring recommends clarifying that TBPP-eligible fuels include natural gas, biogas, RNG, propane, and hydrogen. Linear generators capable of switching fuels without hardware changes offer future-proof reliability and emissions benefits. Incentive tiers should reflect technology costs and benefits.

3. Supply Chain & Deployment

A. Considering vendors that may utilize alternative fuel sources or other components that can meet the performance criteria, how could the Commission consider adapting the specifications to increase the number of vendors eligible to participate in the program and support other business models?

Allowing performance-based eligibility opens the program to advanced technologies and business models. Custom packages help vendors tailor solutions and increase participation.

B. How might other business models enable TBPP deployment by reducing the potential limitations or constraints that a critical facility may face when installing or maintaining a TBPP? What would the implications be if a critical facility exits the program?

Lease and shared-ownership models can expand participation. Mainspring recommends setting a minimum operational term (e.g., five years) to balance flexibility with accountability.

C. How can vendors, including those with alternative business models, address supply chain disruptions to ensure timely deployment and adequate preparedness for emergencies?

Mainspring is booking 2025 deliveries and does not anticipate major delays. Our investment in a U.S. facility further mitigates long-term risk. The Commission should allow customer-vendor delivery schedules and avoid punitive deployment deadlines.

IV. Conclusion: Mainspring's Linear Generator, A Key Reliability Solution

Mainspring's linear generator is a key technology for supporting grid reliability:

- **Scalability:** Modular units deploy quickly, scale to load.
- **Operational Flexibility:** Dispatchable, responsive, and economic.
- **Fuel Flexibility:** Ready for hydrogen and renewable fuels.
- **Environmental Performance:** Near-zero NOx, low CO2.
- **Emergency Resilience:** On-site fuel storage ensures uptime.

We urge the Commission to adopt forward-looking TBPP policies that enable flexible participation, performance-based incentives, and economic operation. These steps are essential to meeting Texas's reliability needs and supporting innovation.

Sincerely,

/s/Brian Kauffman
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Mainspring Energy, Inc.
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April 3 2025

Attachment: Executive Summary

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Executive Summary

Mainspring anticipates participating as a technology provider and vendor for TBPP microgrids. We offer the following summarized recommendations:

- Allow "Custom", as well as "Prescriptive" TBPP microgrids
- Support economic use of TBPP microgrids. We performed analysis that indicates 4x the customer benefits from economic use compared to emergency-only use
- Adopt performance criteria for design, installation, and operation that can be used for Custom and Prescriptive solutions
- Enable the maximum grant ($500/kW) to be available multiple times to a single site on an annual basis
- Please see nine pages of additional recommendations in recent February 14 comments