BROWNSVILLE
PUBLIC UTILITIES BOARD

Your Long-Term Energy Roadmap:
The 2025 Integrated Resource Plan (IRP)

The 2025 Integrated Resource Plan (IRP) is our comprehensive long-term energy roadmap for the Brownsville Public Utilities Board (BPUB) electric system through the year 2055. Our primary goal is to provide reliable, affordable, and sustainable electricity to you, our customers, while navigating the challenges of the rapidly changing Texas energy market.

This plan outlines a balanced, data-driven strategy for ensuring long-term electric reliability and cost-effectiveness.

1. How We Built Our Plan: Listening to the Community

For the first time, we introduced a formal stakeholder engagement process to ensure transparency and integrate local priorities into our planning.

- The Community Voice: We collaborated extensively with the Public Utilities Board Community Advisory Panel (PUBCAP), the Board of Directors, City Commission, Economic Development Groups and Current BPUB Customers through six public workshops.
- Evaluation Criteria: The PUBCAP helped us look beyond just cost. We evaluated every potential strategy against seven key areas, including:

    1. Customer Cost and Impact
    2. Reliability and Resiliency (Will the lights stay on?)
    3. Environmental performance
    4. Social and Economic benefits (like local job creation)

2. Our Preferred Balanced Portfolio (Portfolio #1)

After rigorous evaluation, the BPUB Board of Directors formally adopted the PUBCAP's recommendation: Portfolio #1, the Preferred Balanced Portfolio.

This portfolio offers the lowest total risk-adjusted cost and achieves the necessary balance among affordability, reliability, and environmental goals.

- The Mix: Portfolio #1 is composed of 40% gas-fired capacity and 60% renewable energy capacity.
- The Strategy: It involves phased additions of solar, battery storage, and flexible natural gas capacity, alongside enhanced customer programs for energy management.

3. Stress Testing: Built to Handle Extreme Weather and Price Swings

Our plan was rigorously stress-tested against a wide range of future possibilities, including extreme weather and wild swings in market prices. This process confirms that the core strategy is resilient and adaptable.

Resilience to Extreme Weather (High Demand)

We specifically modeled an Extreme Weather scenario that results in materially higher peak loads in winter and summer. We also modeled a Large Customer Additions scenario, anticipating rapid and substantial increases in peak demand (potentially over 100 MW) post-2030 from new industrial or data center developments.

- Finding: These high-demand scenarios accelerate the need for new resources, but the mix of technologies remains consistent with Portfolio #1.
- Protection: The scenario testing reinforced the need for flexible and reliable peaking resources. Portfolio #1 addresses this by prioritizing flexible natural gas-fired resources (like reciprocating engines or combustion turbines), which are valued for their reliability, scalability, and ability to respond quickly to peak demands.

Resilience to Diverse Market Price Scenarios

We modeled futures with major volatility, including extreme High and Low Natural Gas prices, and policy risks like a future National Carbon Tax.

- Price Hedging: The inclusion of Renewables (solar PV and wind) is consistently identified as essential for diversifying the portfolio and hedging against fuel price volatility.
- Local Control: BPUB owning generation assets helps mitigate exposure to wholesale market fluctuations and fuel price volatility.
- Policy Adaptability: The strategy was confirmed as effective even under escalating carbon pricing and divergent natural gas price trajectories.

4. The Core Building Blocks of Our Future System

The analysis across all possible future scenarios identified four common resource elements that form the backbone of our resilient portfolio:

1. Flexible Natural Gas-Fired Resources: These units provide reliability and the ability to respond quickly when peak power is needed.
2. Renewables (Solar PV and Wind): Continuously added to diversify the supply and reduce dependence on volatile fossil fuels.
3. Battery Storage Systems (BESS): These systems play a growing role in supporting grid reliability by complementing renewables and helping to shift power to when customers need it most.
4. Demand-Side Management (DSM): Programs like Energy Efficiency (EE) help us reduce overall energy consumption and lower peak load requirements, effectively reducing the need for new generation during stress events.

5. Managing Change: A Flexible Roadmap

The IRP provides a flexible strategic framework that allows us to adapt to regulatory, technological, and economic changes.

- The Key to Flexibility: Our strategy ensures we are ready for high-demand futures without overcommitting capital prematurely. We can advance, defer, or scale projects based on whether actual load growth is faster or slower than expected.
- Load Growth Shifts: Our load forecast confirms two major shifts: 1) Total energy sales will grow

modestly (about 0.6% annually). 2) Increased EV adoption is causing our peak demand to shift from a summer peak to a winter peak by around 2045 (or 2037, depending on the model).

5. What Happens Next? (Action Plans)

We have clear steps for implementation, divided into two phases:

Timeframe	Key Actions (Near-Term)	Key Actions (Long-Term)
2025–2030	Initiate detailed planning for the retirement of aging Silas Ray units.	Phase-in resource additions aligned with Portfolio #1 (solar, batteries, gas).
2025–2030	Issue new requests for proposals (RFPs) to procure flexible capacity and renewables.	Monitor emerging technologies like long-duration storage and hydrogen.
2025–2030	Expand customer DSM/EE programs by launching a detailed study to maximize cost-effective savings.	Integrate workforce planning to align job creation and training with future energy projects.
2025–2030	Coordinate with ERCOT to leverage planned transmission upgrades in the Lower Rio Grande Valley (LRGV).	Reassess the IRP every 3–5 years to ensure we stay current with technology and market changes.

In Summary: The Preferred Balanced Portfolio is like a diversified safety net. It includes reliable, quick-start resources (flexible gas) to catch peak demand and extreme weather events, while simultaneously investing heavily in solar and wind to protect customers from volatile fuel prices and move toward sustainability goals. This balance provides the highest degree of reliability while resulting in the lowest projected cost.