

ADVERTORIAL

# City of Houston Implements Largest US Microgrid Project for Water Purification Plant

An independent energy system provides greater operational reliability during grid outage periods while delivering financial and environmental benefits.

**W**ater supply, treatment, and wastewater professionals know how critical it is to maintain facility operations during natural and manmade emergencies. Nowadays, they must continue to deliver safe drinking water and protect public health while facing a greater occurrence of severe weather events, increasing power outages due to an aging electric grid, and potential cybersecurity and physical security threats.

Therefore, new contingency strategies and technologies are becoming the new normal in facility design.

The City of Houston needed to address these concerns when it started investigating a power resiliency solution for its Northeast Water Purification Plant (NEWPP) expansion, which will add 320 mgd by 2024 to the existing water plant's capacity. The project will allow the city and regional water authorities to meet projected water demands while fulfilling

requirements set by the Harris-Galveston and Fort Bend Subsidence Districts, resulting in a shift from historical groundwater usage to a predominant reliance on surface water.

## A PROVEN ENERGY SOLUTION

The city selected a managed power resiliency microgrid from Enchanted Rock, a Houston-based company that has reinvented how organizations ensure power resiliency for their operations. The

## CONSIDER INTEGRATED RESILIENCY ON CALL BENEFITS

Enchanted Rock offers Integrated Resiliency on Call, a proven solution that reduces risk, maintains sustainability, and improves return on investment. The company's turnkey service includes engineering, design, procurement, construction, installation, operations, maintenance, and dispatch of the microgrid system for the life of the service agreement. The service's benefits include the following:



**Reliable.** Enchanted Rock's microgrids run often and run loaded, providing constant conditioning and testing that leads to a higher level of availability than traditional diesel backup.



**Clean.** Enchanted Rock's microgrids use clean-burning natural gas that, compared to diesel, reduces emissions by orders of magnitude.



**Quiet and Compact.** With a sound level of < 68 dBA at 7 meters and a footprint of 8.5 x 10 feet, Enchanted Rock generators allow for multiple layout configurations and improved power density.



**Cost-Effective.** When customers aren't using backup power, Enchanted Rock aggregates the generators and sells power back to the grid to earn revenue. These frequent runs allow the company to subsidize the cost for customers substantially.



**Trouble-Free.** Enchanted Rock manages the assets and is responsible for maintaining and operating its resiliency microgrids, allowing customers to focus on their core business.



**Supports Renewables.** Enchanted Rock gensets supply the grid with a quick-start generation source during normal operating conditions that supports the integration of renewable energy sources by supplying capacity to the grid when renewable power may be low.



**Enchanted Rock's 30-MW natural gas-fired microgrid provides backup power for 100% of the City of Houston's Northeast Water Purification Plant expansion facility's finished water production requirements.**

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microgrid ensures full compliance with the Texas Commission on Environmental Quality regulatory requirements for water treatment facilities and provides greater operational reliability during maintenance and grid outage periods than traditional backup power supplies. Because the microgrid will be powered by natural gas, which is provided through a robust, underground infrastructure, the system can run indefinitely despite aboveground conditions. This feature is critical in Houston's storm-prone region.

According to Wood Mackenzie, an energy research and consultancy business, NEWPP's microgrid will be the largest supporting a water plant in the country once it has been completed in 2022. The 30-MW microgrid will provide facility backup power for 100% of NEWPP's finished water production capacity during outages. In addition, selecting a managed service allows NEWPP to receive power at a fraction of the cost of a standard backup system.

#### **THE POWER OF A MICROGRID**

According to the National Oceanic and Atmospheric Administration, there were 14 climate and weather events in 2019, generating \$1 billion or more in damage. Crisis-proofing operations before the next event, whether it's a wildfire, severe weather event, or grid failure, requires proactive business continuity planning and resilient,

mission-critical support—especially when it comes to power systems. In the past, electricity consumers have been forced to resort to diesel backup generators that are expensive and harmful to the environment. Microgrids are a more attractive, cleaner, and less-expensive alternative to address long-term outages when downtime isn't an option.

But today's microgrids are much more than just a backup power generator. They are smart assets, leveraging data analytics to automatically operate when needed without human intervention. Network operation centers continuously monitor performance, and intelligent software can mine data for operational patterns as well as respond programmatically and efficiently. More than just a collection of energy resources, a microgrid can island and operate autonomously, carrying full power load for a local facility when the power is down. Microgrids also complement the broader grid by supplementing grid capacity during times of high demand or intermittent supply.

#### **RESILIENCY AS A SERVICE**

Enchanted Rock's dual-purpose microgrids have a proven record of supplying power during the most adverse conditions. During the 2021 Winter Storm Uri in Texas, millions of utility customers lost electricity when power plants across the state were knocked offline due to record

low temperatures and amounts of snow. Enchanted Rock microgrids supplied continuous power to 143 of its customers' sites that experienced grid outages and were protected for a total of 4,984 outage hours over eight days. Beyond maintaining power and offering 24-7 support to its customers, the microgrids were able to supply capacity aid to the main power grid.

Enchanted Rock's multitiered partner program offers utility companies behind-the-scenes, full-service support. Depending on the partner program level, Enchanted Rock will support technical sales efforts as well as design, construct, operate, and maintain all microgrid operations. The company's natural gas microgrids are on average 50% less expensive than traditional diesel generators when coupled with grid support services. In addition, Enchanted Rock's natural gas microgrids provide a 99% cleaner option to traditional diesel backup generators.

Enchanted Rock's clean microgrid technology, 24-7 support services, and flexible pricing options result in fast, simple, and worry-free protection from extended grid outages. The company's highly customizable solutions, backed by skilled energy personnel, result in low-risk, predictable energy resiliency when utilities need it most. For more information about Enchanted Rock and its utility partner program, visit [www.enchantedrock.com/partner-with-us](http://www.enchantedrock.com/partner-with-us).