

# POWER PROFILE

**Customer:** Hull Municipal Lighting Plant

**Location:**

Town of Hull, Mass.

**Customer Business Issue:**

Resiliency from grid outages

**Solution:**

XQ2000 Power Modules (6)

**Cat® Dealer:**

Milton Cat Power Systems



*In recent years, a combination of strong storms and aging transmission lines has led to 13 power failures.*

**POWER NEED**

Located on a peninsula on the south shore of Greater Boston, the Town of Hull is subject to fierce winter weather. Sometimes, New England winter storms can bring heavy snow, strong winds, and freezing rain, knocking out heat, power, and communications.

A prime example was a record-setting blizzard in February 1978 that dropped 27 inches of snow on Boston. Howling winds created a record high tide 10.4 feet above normal. Coastal residents who hadn't abandoned their homes after an evacuation order kept rescuers busy in rowboats and amphibious "duck boats." The number of people who sought refuge in shelters swelled into the thousands, with at least 2,000 in Hull at the Memorial Middle and Damon Elementary schools.

"Weather can hit us hard here," says Panos Tokadjian, operations manager for the Hull Municipal Lighting Plant. "We have flooding whenever storms arrive during high tides. Whatever you can expect from the severe weather that occurs in New England coastal areas, we see it."

In recent years, a combination of strong storms and aging transmission lines that traverse wooded terrain and wetlands has led to numerous power outages in the seaside town of 11,000 residents.

In 2020, Hull experienced six power outages, including one in early October that lasted for 25 hours. The outages were caused by the transmission lines that run between Weymouth and Hull. The bare copper transmission lines were originally installed in 1935, and little has been done to keep them up to date.

As of 2021, the town experienced 13 power failures resulting in a total of 160 hours of no electricity, including almost 62 hours in 2020.

"The utility was not maintaining the transmission lines to the standards that they should be," Tokadjian says. "So every time we had a storm, a tree would come down on the wires and take out the circuits. Whatever was in the way was taken out by the falling trees and limbs."

**SOLUTION**

Following the day-long power outage in October 2020, the Town of Hull acted to protect itself, renting five Cat® XQ2000 power modules that produce a combined 10 MW of power.

Audra Wilson, a rental power manager for Milton Cat Power Systems, said this was the first time anyone could remember when five generators were temporarily set up. While many towns have rented one or two, no one had rented five at once to power a whole town. The generators had to be programmed to work in unison.

"For portable power, it's a lot," Wilson said.

With open land scarce, the town was permitted to place the gensets on a section of the Nantasket Beach parking lot. Skilled haulers delivered the gensets and transformers, and technicians from Milton Cat Power Systems along with Hull Municipal Lighting Plant staff connected them to utility poles and had the units ready to run by December 1.

Dating back to 2020, the fast turnaround on renting such a prodigious amount of power was made possible by Caterpillar's Sourcewell contract. Sourcewell combines the buying power of more than 50,000 governmental, educational, and nonprofit organizations. The cooperative purchasing program manages the solicitation requirements and provides members with easy access to an established network of awarded contracts.

Tokadjian was familiar with Milton Cat, as the Lighting Plant had rented generator sets from the Cat dealer in 2017 and 2018 for peak shaving. A Milton Cat rental representative told him that the town could save time and bypass putting the project out to bid by utilizing Caterpillar's Sourcewell awarded contract.

"Without Caterpillar's Sourcewell contract, it was going to be a three-month process just to award the bid," Tokadjian said. "And by the time whoever was awarded the bid might have told us they didn't have any generators available. This was at the beginning of the winter season, and we needed something fast, and Milton Cat came through for us."

Adds Wilson: "Caterpillar's Sourcewell contract absolutely helped us get this rental over the goal line."

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Each rental power module is equipped with Cat Remote Asset Monitoring (RAM), which provides prompt notifications to both Tokadjian and his Cat dealer if a problem develops that needs to be addressed.

"If there's an issue, somebody from Milton Cat is usually here within a day at the most to address it," he says. "My Milton Cat reps are phenomenal. They do a great job of responding to everything I need. They make sure that all the equipment is delivered on time and in run-ready condition."

### RESULTS

During the past four years, starting on December 1 and ending March 31, the Lighting Plant has procured the Cat rental power modules and had them installed in the same beachfront location. This past winter, the Lighting Plant added a sixth genset to the mix to ensure that the town's peak load is met. In the event of a utility outage, the gensets are started manually with a toggle switch.

"There's not much to maintain," Tokadjian says. "We start them up every couple of weeks just to make sure all of the units stand up to the bus. By now, we have this down to a science. It's been four years in a row, and we're doing the same thing. The Light Board votes every summer to bring the gensets for the following year, and they will do so again this July."

Since the Hull Municipal Lighting Plant started using seasonal rental power in 2020, it has only experienced two outages that totaled three hours in December 2022. The town's utility provider, National Grid, has eliminated dead trees and trimmed branches along the transmission line right of way. This action appears to have substantially reduced the frequent number of outages.

"It is what it is—it's an insurance policy in case we lose power again," Tokadjian says. "During the winter months, there's potential for a lot of negative outcomes that can impact our residents and businesses during an extended power outage.

"We have taken the necessary steps to protect the town by having these Cat rental generators standing by, always ready to run."



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