

# GOLD STANDARD

## Cat® genset a slam dunk for proton therapy center

**A**s the first facility of its kind to offer proton therapy in the state of Tennessee, the Provision Center for Proton Therapy provides some of the most advanced cancer treatment in the world.

With the capacity to treat up to 1,000 patients each year, the new 90,000-square foot facility at the Dowell Springs healthcare campus in Knoxville includes three rooms with the latest proton therapy treatment equipment.

Joe Hamby was one of the first three patients to undergo the non-invasive treatment.

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### Customer Profile

#### **Provision Center for Proton Therapy**

**LOCATION:** Knoxville, Tenn.

**APPLICATION:** Standby power

**CAT® EQUIPMENT:** C15 diesel generator set



"I researched it and knew I wanted proton therapy," said Hamby, who is from Knoxville. "I initially planned on going to another proton center 500 miles away until I learned there was one right in my backyard. It's a blessing to have an advanced cancer treatment center right here in our community."

A proton delivery system featuring a 220-ton cyclotron has its own backup power.

"If the cyclotron goes offline, it can take 10 minutes to get it back up," says Bill Hansen, vice president of strategic and business development. "The greater issue is that the loss of power interrupts patient treatment. We have patients who are being treated in a room, and the doors weigh 50,000 pounds apiece, so if we lose power, that's a big deal. It takes nearly half an hour to get patients back into treatment mode."

#### Facility backup power

The majority of the facility relies on backup power provided by a Cat®



**"Stowers and Caterpillar have excellent reputations here in the market, both for equipment and for service, so that was kind of a slam dunk when it came to our choice of a generator set."**

**Pete Carpenter**  
Project manager  
Provision Center for Proton Therapy

C15 diesel generator set that rests on a concrete pad outside the building. The 500 kW genset is connected to a 120-gallon fuel tank. Plans call for a second 250 kW Cat genset to be installed this summer to provide backup power to a research and development wing.

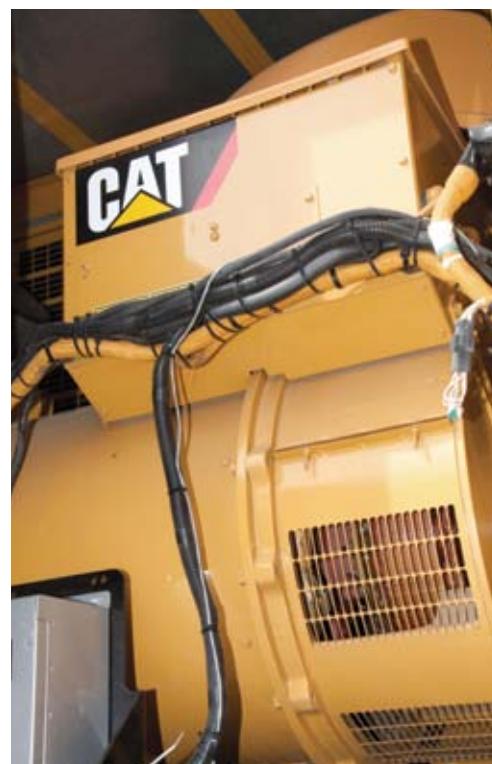
Since it was installed last summer, the C15 generator has been called into service twice during power outages—one for 10 minutes and the other for 2.5 hours. Each time, the generator started within seconds, and performed seamlessly.

The generator is tested weekly, running for 10 minutes. Technicians

from Stowers Power Systems perform quarterly preventive maintenance, and conduct annual load testing.

"Stowers and Caterpillar have excellent reputations here in the market, both for equipment and for service, so that was kind of a slam dunk when it came to our choice of a generator set," says Provision Center project manager Pete Carpenter.

"When it comes to generator sets, Cat equipment is the gold standard," Carpenter says. "And our C15 has provided everything that we wanted for our standby power system." ■



A Cat® C15 genset provides standby power to all life safety systems if a utility outage occurs.



# PROTON THERAPY

#### The leading edge of cancer treatment

As one of only 14 facilities of its kind in the country, the Provision Center for Proton Therapy in Knoxville, Tenn. is on the forefront of cancer treatment—delivering less radiation to the patient's healthy tissue, and with minimal side effects compared to traditional chemotherapy.

The new facility started treating patients on January 20. In just under a month, a man with prostate cancer received 20 treatments lasting 60 seconds each.

"These guys come in, take the treatment, then go play golf or go back to work," says Bill Hansen, vice president of strategic and business development. "There are almost zero side effects with proton therapy."

Proton therapy is the most advanced form of radiotherapy in the world, using a single beam of high-energy protons to treat various forms of cancer, such as prostate, brain, lung and breast cancers. Different from conventional radiation therapy—in which photon beam energy dissipates as it passes through the body—proton beams can be fine-tuned to deliver maximum energy in a controlled range within millimeters of the cancerous tumor.

The power of protons is that higher doses of radiation can be used to control and manage cancer, while significantly reducing damage to healthy tissue and vital organs.

The number of treatments ranges from 20 to 40 sessions depending on the stage of the cancer. Low- to intermediate-risk patients receive 20 treatments over a four-week period. About 20 minutes are devoted to properly aligning the patient before the treatment begins.

During the early days of proton therapy, equipment used to treat patients was developed by the physics department in a small number of academic institutions. When a more commercial version of the equipment was introduced in 2000, interest in proton therapy started to increase.

While interest continued to grow, proton therapy was virtually nonexistent and only available in two or three locations around the world. The capital costs were a major hurdle in building a proton center. Just a few years ago, proton centers could cost \$150 million and take three to five years to construct. Today that cost has dropped significantly with the advent of one- and two-room treatment centers and more advanced technology.

Gordon Webster, a proton therapy patient from Kingston, Tenn., echoed the sentiments of many other patients.

"You leave proton therapy like an evangelist," said Webster. "You want to go tell people all about it."