



- 966 MW
- Two FM PC2.2 Engines

Providing Back Up Power that South Carolina Electric & Gas Company Can Depend On

Virgil C. Summer Nuclear Generating Station, SC

Profile

Power System: 12-Cylinder engines
Model FM PC2.2
Fuel Type: Diesel
Power Output: 966 megawatts

Background

The Virgil C. Summer Nuclear Generating Station near Jenkinsville, South Carolina provides 966 megawatts of power for the SCE&G grid. For emergency back-up power, the plant chose two FM PC 2.2 12-cylinder engines. "That decision was made before I was born," laughed Brian Manley, Diesel System Engineer at the plant. "The engines were installed in 1978 and I was born in 1981."

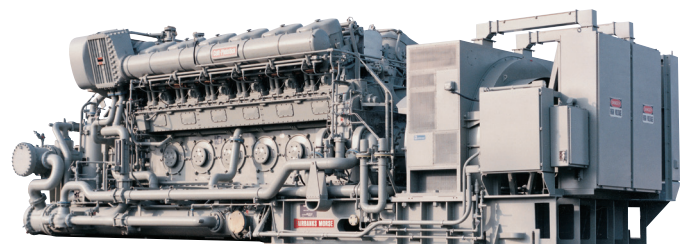
The Fairbanks Morse engines provide vital back-up power in the event the plant would lose the grid. "These engines are crucial," says Manley. "If we lose power, they ramp up and run the vital equipment needed to safely shut down the plant."

The crew at V.C. Summer tests the engines every month by running them for an hour at full-rated load. Every six months they test start-up time. "It is required that the engines start up in 10 seconds or less," Manley says. "The two Fairbanks Morse engines ramp up to rated voltage and frequency in about 7 seconds." The crew also tests the engines every 18 months by running them continuously for 24 hours, and

for two hours every 18 months at 110 percent load.

Manley says the performance of the two engines is outstanding, with both engines having better than 98 percent reliability. "If you push the start button, they're going to start up 98 percent of the time. But it's probably higher than that," says Manley. "We only count certain starts; we don't count every start so that number is higher than 98 percent reliability."

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Scheduled Maintenance and OEM Parts Ensures Reliability

The crew maintains the engines in a “like new” condition. Besides normal maintenance, they essentially tear down the engines every two years. “The Fairbanks Morse Owners Group provides maintenance guidelines and we do all our maintenance based on those recommendations. We do inspections and checks; we make sure all the clearances are right. We also pull and replace two cylinders, along with the cylinder liners and O-rings.” Manley says that even though they are tearing them down, the engines are always in good shape. “Like I said, we replace the O-rings on the cylinder liners and they always look like new.” Unlike Fairbanks Morse engines that run a lot of hours to power U.S. Navy vessels, Manley sees engine wear that results from fast start-ups. “We beat the slop out of them on every start. At a nuclear plant, we need the power and we need it now. The engines go from sitting still to full rated speed and full rated load and from there they load up to full rated power in a minute and a half. Because of that, we see a lot of cylinder liner wear or bore polishing since we don’t give the engines time to warm up before we punch the gas.”



Manley says when parts are needed to keep the two 30-year old PC 2.2 diesel engines in top shape, he buys directly from Fairbanks Morse—especially when it comes to critical safety-related parts. “We can’t just call up a machine shop and have a part made,” he says. “The part has to have the pedigree in order to go into our plant.”

Overall, Manley says the two Fairbanks Morse FM PC 2.2 engines at V.C. Summer are a good choice for emergency back-up power. “They’re a good choice for a safety related, nuclear industry application; very reliable.”

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A Legendary History of Reliability

Fairbanks Morse, based in Beloit, Wisconsin, has provided engines and engine technology to the locomotive, power generation, marine, and nuclear industries since its founding in 1885. In 1893, Fairbanks Morse was the first company to market a gasoline engine successfully in the United States. Today, Fairbanks Morse continues to provide trustworthy power throughout the nuclear power industry as the maker of the most reliable engines available for critical emergency back-up power generation.

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