



Power Generation

LARGE OREGON DATA CENTER CHOOSES ROLLS-ROYCE POWER GENERATION

Who Infomart Data Centers
What Fourteen 2,000 and 2,250 kW MTU Series 4000 DS diesel generator sets with customized enclosures
Where Hillsboro, Oregon, USA

Silicon Valley, the world's beloved tech corridor, is no longer the only coveted ground for tech entrepreneurs, engineers and giants of industry. Cities across America like Boston, Phoenix and Salt Lake City offer the low housing costs, favorable business incentives and access to talent required to support an emerging tech environment. As alternative silicon cities crop up throughout the country, a cluster of high-tech companies have chosen Portland, Oregon, dubbed the "Silicon Forest," as the home for their data colocation centers.

Approximately 600 miles north of California, Oregon emerged as a prime locale for tech companies in the 1980s. Today, the state's absence of sales tax, low energy costs and moderate construction costs help position Oregon as a viable outpost for tech giants and their data centers, including Amazon, Apple, Facebook and Google.

Oregon is home to one of the most dense fiber networks in the Pacific Northwest and offers the best seismic profile of any of the West Coast states, making it an ideal location for data networking and telecommunications. However, central to Oregon's efforts to

attract data centers is the Enterprise Zone program, which provides local property tax exemptions for a maximum of five years on new facilities and equipment within qualifying zones, as well as special incentives for investments in qualifying rural facilities or in electronic commerce operations. The state currently has 66 enterprise zones, but Hillsboro, a suburb of Portland, outpaces all others in terms of investment attraction, property tax abatement and new jobs.

Location, location, colocation

Infomart Data Centers, a rapidly growing builder, operator and owner of carrier-neutral, wholesale data centers, opened its 345,000 square-foot data center in Hillsboro in 2011. They have attracted leading Internet companies, including LinkedIn, which recently consolidated its U.S. data center operations by leasing 8 MW of scalable data space from Infomart. This is the first LinkedIn data center designed to operate at a scale of 100,000-plus servers. The project, previously called Project Altair, will establish a standard for the data center of the future.

The Series 4000 generator set is designed for optimal fuel consumption, exceptional reliability and high power density.

“We have always thought of Hillsboro, Oregon as a destination market for IT operations,” said John Sheputis, president of Infomart Data Centers. “Infomart recognizes the area’s growing technology prowess and is happy to support our customers’ local IT departments and extended contractor base.”

Cloudy with no chance of rain

Infomart began in 2006 with the goal of ensuring constant connectivity for vital web- and cloud-based service providers around the country. Today, the company is an award-winning industry leader recognized for its commitment to maintaining reliability and responsible, best-in-class management and operations with locations in Silicon Valley, Portland, Dallas and Ashburn, Virginia.

After Infomart Portland’s 2011 inception, the company began working with Pacific Power Group, an authorized MTU distributor, to help achieve low subtransient reactance (<12%) and 100 percent uptime in the event of a power outage. Together, Pacific Power Group and Infomart collaborated to engineer a system and peripheral equipment with custom specifications for the Portland facility’s standby power needs.

“Power system priorities for Infomart Portland were low fuel consumption, low subtransient reactance, 85 percent load factor and flexibility for future growth. The MTUs checked every box and then some,” said Sheputis.

The three-phased project included the delivery of 14 MTU Series 4000 DS generator set units delivering 2 and 2.25 megawatts of power with onboard paralleling capabilities, custom enclosures and sub-base fuel tanks and a 100 percent rated circuit breaker with ground fault indicator. The MTU Series 4000 generator set is designed for optimal fuel consumption, exceptional reliability and high power density. Currently, all 14 units are installed on site and fully commissioned delivering exceptional performance.

A sound-attenuated enclosure reduces engine noise to 60 decibels—well below the industry average of 105 decibels.





Each Series 4000 DS generator set unit delivers up to 2.25 megawatts of power, with onboard paralleling capabilities.

“We have experienced a handful of power outages by the utility at Infomart Portland. Each and every time, the MTU systems have operated flawlessly,” said Doug Shotwell, solutions architect at Infomart Data Centers. “All seven systems started within 10 seconds of power loss and operated through the duration of the outage without incident.”

The facility sits just 25 feet off the nearest property line, making sound attenuation critical. The generator sets are contained in custom enclosures rated for 60 decibels of sound (dBA). A typical generator set emits up to 105 dBA— about the loudness of a gas-powered lawnmower at three feet. With these custom enclosures, the generator sets operate at noise levels similar to an air-conditioning unit at a distance of 100 feet.

“We’ve had current and potential customers tour the facility and often hear a comment saying that the MTU generators are much quieter than they originally expected,” said Shotwell.

Infomart Portland sources hydroelectricity from the federal Bonneville Power Administration (BPA) to achieve a 96 percent reduction in carbon dioxide emissions when compared to the national utility average. The data center, which is Uptime Tier 3 compliant and provides 99 percent efficiency of uninterrupted power supply, is expected to save over 48 million kilowatt hours and reduce carbon emission by 43 million pounds over the next decade.

During summer 2016, Infomart Portland completed a 100,000 square-foot expansion, making it the largest data center in Oregon and one of the largest facilities on the West Coast. As Infomart Portland continues to grow, Pacific Power Group will continue to support their standby power needs every step of the way with preventive maintenance and scalability for the critical information hub.

“Infomart has relied on the Pacific Power Group team’s expertise for industry intelligence and background. We can also count on Pacific Power Group to resolve technical issues—big or small—during every phase of a project,” said Shotwell.

Rolls-Royce provides world-class power solutions and complete lifecycle support under our product and solution brand MTU. Through digitalization and electrification, we strive to develop drive and power generation solutions that are even cleaner and smarter and thus provide answers to the challenges posed by the rapidly growing societal demands for energy and mobility. We deliver and service comprehensive, powerful and reliable systems, based on both gas and diesel engines, as well as electrified hybrid systems. These clean and technologically advanced solutions serve our customers in the marine and infrastructure sectors worldwide.