

Waukesha Engine Case History Series

VHP Enginator® units keep Brookfield Zoo residents in good health



Subject:
Brookfield Zoo, Brookfield, Illinois

Facility Profile:
Operated by the Chicago Zoological Society, Brookfield Zoo, in suburban Chicago, receives 2 million visitors a year to its extensive exhibits and educational facilities.

Installation Requirements:
The Zoo's electrical power had previously been provided entirely by the local utility, Commonwealth Edison Co. The Zoo relies on sophisticated electronic life-support systems that control the environment of creatures ranging from massive Pacific Walrus to fragile Moon Jellies. Growth in both the volume and complexity of these systems made the Zoo vulnerable to unanticipated service interruptions as well as escalating utility costs. Zoo administration approached Nicor Gas Co. for ideas to reduce the total utility costs, while providing facilitywide emergency power backup.

Waukesha Equipment:
Nicor Solutions, an affiliate of Nicor Gas, worked with Charles Equipment, the distributor in the Chicago area for Waukesha Engine Division to supply a system based on two Waukesha VHP7100GL Enginator® units and one 1,600 kW diesel emergency generator. The Waukesha lean-burn units are rated 1,115 kW at 4,160 VAC, with remote radiator cooling. The generator controls and station switchgear were furnished by Zenith Controls. A new, 6,000-square-foot power plant was built to house the cogeneration system, with space for a future third Waukesha Enginator® unit.

Why Waukesha:
According to Nicor Solutions, Waukesha offered the most cost-effective genset package, and gave Nicor a long-term commitment with a 10-year maintenance contract. Nicor also points to the superior natural gas engine service technicians at Charles Equipment.

Peak Shaving History:
During the utility's peak demand period, the Waukesha Enginator® units parallel with the utility from 9 a.m. to 6 p.m., Monday through Friday. During the peak summer months, they operate until 10 p.m.

Unique Characteristics:
Should the Zoo experience a utility power failure while the Enginator® units are operating in parallel with the utility, the Zenith switchgear will operate the proper breakers and transfer switches to keep the Enginator® units on the Zoo's power grid, while isolating the utility from the grid. The two Waukesha Enginator® units will take two-thirds of the Zoo's maximum load. This is accomplished with a tie breaker, which isolates a third of the Zoo's grid during an outage. If a utility outage occurs when the Enginator® units are not on-line, the Waukesha units will automatically start, parallel with each other, and then a tie breaker will close, allowing them to pick up the two-thirds portion of the Zoo's grid. The diesel is used as backup.

Cost Effectiveness:
By operating in parallel with the utility during peak demand hours, the Brookfield Zoo expects to generate a positive cash flow in excess of \$700,000 over the next decade. The Zoo signed a 10-year guaranteed savings contract with Nicor Solutions. In addition, Nicor elected to purchase the Waukesha five-year extended warranty and a 10-year maintenance contract from Charles Equipment.

For more information on this Waukesha Enginator® Installation, or Waukesha's cogeneration capabilities, contact Waukesha Engine Division, A Dresser Company, 1000 West St. Paul Ave., Waukesha, WI 53188-4989, (414) 547-3311, Fax: (414) 549-2795. (Overhead and Moon Jelly photographs courtesy Chicago Zoological Society/Brookfield Zoo.)



Waukesha Enginator® units power the cogen system that operates life-support systems for creatures like this Moon Jelly.



At the heart of the Brookfield Zoo's cogeneration plant are two Waukesha VHP7100GL Enginator® units.



Jim Brown, Charles Equipment Co., monitors the generator controls in the Zoo's cogeneration plant.



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“Protecting our animals is a top priority. Having our own power generation system powered by Waukesha gives us the flexibility and control to meet that need.”

Ralph Piland, Manager of Operations
Brookfield Zoo



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<http://www.waukeshaengine.com>

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