

Hydro Turbine-Generator Package Built and Installed As Part of Conduit Energy System for Hartford, Conn.

Sorensen Systems was selected to supply the turbine control systems for the Barkhamsted Transmission Hydro project near Hartford, Connecticut including the induction generator, inlet expansion box, and the hydraulic power pack system to operate the turbine wicket gates, the turbine inlet valve and the main transmission by-pass valve.

According to John Ford, Project Manager for Sorensen Systems, construction of a qualifying Conduit Hydropower Facility was approved as part of an overall \$2.1 billion clean water improvement project for the 30 billion gallon Barkhamsted Reservoir. John said, "The conduit portion of the project would consist of a 250kW turbine replacing the existing booster pump, which is currently unused, in the Puddletown booster pump station." The estimated annual generating capacity of 1,475 megawatt-hours would be generated while the water is flowing to MDC (Metropolitan District Commission) customers from the reservoir.

Turbine-Generator

Working with its strategic partner, James Leffel & Co, the Sorensen Systems engineering project team took responsibility for the design/build of a Francis turbine-generator. Significant sub-assemblies of the system included the Inlet Expansion Box, the



Hydraulic Power Unit

To operate the turbine wicket gates, the engineering team designed a self-contained Hydraulic Power Pack System.

Stay Ring/Spiral Case, the Stainless Steel Runner, the Front and Rear Stainless Steel Covers, the Wicket Gate Mechanism, the Discharge Draft Tube, and the Marelli-Motori induction generator.

Hydraulic Power Pack

To operate the turbine wicket gates, the Sorensen Systems engineering team designed and built a Hydraulic Power Pack System, which was a complete self-contained hydraulic system to

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