Case Study

SOUTH WINDSOR POOLS

ABB VFDs SUCCEED WHERE OTHER METHODS FAIL

Flow Tech® HVAC Products Systems Design Service
Superior standards. Sustainable solutions.

THE CHALLENGE — REDUCING ENERGY CONSUMED BY TOWN POOLS

South Windsor's aquatics center houses three outdoor swimming pools, a children's pool, a lap pool and the main pool. The pools are open from June through August, and, on average, are used by 600 to 800 visitors per day during the hottest months. Together the pools filter over a million gallons of water a day— the town's largest operating expense.

Plant supervisor, Tim Friend, sought ways to reduce power usage when the pools were closed, while maintaining water purity. To save energy, Friend and his team tried implementing several strategies with limited success. First they shut down the pumps each night, but that made it difficult to maintain water quality. In an attempt to achieve the proper flow rate they throttled the valves, but the pumps drove up the amps on the single-speed motor back-flushing the equipment.

THE SOLUTION — INSTALLING ABB VARIABLE FREQUENCY DRIVES

Friend knew there had to be a better way. He called Brian Robinson from Flow Tech, Inc. (FT) who had helped him on previous projects. Friend was already familiar with ABB Variable Frequency Drives (VFD) from past work with FT. After analyzing the situation together, Friend and Robinson determined ABB VFDs could provide a major power savings.

The VFDs reduced the motor speed, but allowed the system to run with the valves completely open and achieve the full flow rate needed to run filtration systems. FT provided bypass panels for the pumps so the pool engineers could bypass the VFDs if the need ever arose. Pump speeds were set using on-board time clocks that initiated pre-set speeds for the VFDs. Pumps were programmed to run at 90% when the pool was open and at 60% for 12 hours each night.

THE RESULTS — SAVINGS OF 65,000 KWHs AND $7,000 ANNUALLY

The addition of the VFDs saved 65,000 KWHs and $7,000. Not only did the system pay for itself in two seasons, but there was also less noise from the pumps. "Now we can actually stand in the pump house and hear each other talk," says Friend. The drives eliminated the need for hard starts and stops. For repairs and maintenance, engineers ramp the motors down, shut them off, perform their tasks, then ramp the speed up again, all without the high-demand and across-the-line surges from hard stops and starts.

ABB

"Flow Tech of South Windsor [has] come to the rescue many times to help keep the town's various water pollution control facility pumps running. More recently, [FT has] assisted town personnel with installing new pump drives at the VMP pool to help reduce electrical costs."

Tim Friend, Town of South Windsor Dept. of Public Works

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