FLOWSERVE

Municipal Water Company

Southern Italy

FLOWSERVE ENERGY COST ANALYSIS FINDS SAVINGS FOR ITALIAN WATER COMPANY

STUDY OF AGING WATER SYSTEM IDENTIFIED COST-CUTTING EFFICIENCIES IN BOTH EQUIPMENT AND OPERATIONS

Challenge:

A major municipal water company faced extremely high energy costs from its pumping stations. Upon learning of available funding for energy savings, the company requested proposals for system and equipment upgrades.

Solution:

Flowserve proposed a preliminary energy cost analysis of the site's pumping stations. The report showed that installing new pumps in two stations while refurbishing pumps and improving pump management in the other three would achieve greater energy at a lower cost.

Result:

The alternative approach, now under consideration, will save the municipality up to 50% in energy costs annually with lower expenditures on capital equipment.

Challenge

For decades, a municipal water company had taken on the challenge of lifting water hundreds of meters to meet the needs of a growing population. By 2016, six pumping stations with 27 large multi-stage pumps were delivering water to 500 000 residents — and generating a staggering annual electric bill of €4.5 million. That year, the European Commission allocated funds for a water system upgrade. Several of their existing pump manufacturers submitted proposals to replace the company's entire pump infrastructure with new, higher-efficiency models.

A local Flowserve engineer suggested an alternative approach to the problem. He proposed conducting an energy cost analysis of the entire water system, evaluating the status of each pump in every pumping station, thereby identifying where the client could achieve the highest potential energy savings from the lowest possible investment.

Solution

The Flowserve approach was to evaluate the existing system, but only replace pumps if necessary. In the month-long program, two Flowserve engineers analyzed the hydraulics at each of the six pumping stations under different operating scenarios. They then conducted performance tests on the pumps, individually and in combination, using active performance monitoring and historical data. Their report on each of the six stations showed that two stations would require new pumps for greater efficiency and energy savings.

However, they determined the other four stations would not need new units. With minor upgrades or overhauls to the other pumps in addition to careful management, pump operations and sequencing, the company could double their overall cost savings with a smaller investment, delivering a major return on investment annually for years to come.

Result

The municipality did not expect that something as simple as changing the sequence in which the pumps were used would have such a large financial impact. Their final report contained the data from the Flowserve study, which showed how the annual savings could potentially reduce electricity costs by more than 50%:

- €850 000 from pump modifications/upgrades
- €450 000 from pump management improvements
- €1 300 000 from new pumps

The local governing body is now using the Flowserve report to support its application for European Commission funds.

For more story details, please contact
fgasparri@flowserve.com
Francesco Gasparri
General Manager
Integrated Solutions Operations
Flowserve