

Featured Project

LAVWMA Export Pump Station

Livermore, California

ArcSine Engineering designed electrical and control systems for a critical wastewater pumping station in Livermore, California. While not ArcSine's largest backup power project, this 2,400-hp station design is a good example of ArcSine's structured approach to backup power systems.

Outage criteria were established based on pumping requirements, including total downtime allowed and minimum short-term reduced pumping capacity. Utility outage records were obtained, and interviews were conducted with utility technical personnel on the availability and cost of dual feeds, and the true redundancy of dual feeds. The experience of ArcSine personnel with transmission lines and substation equipment was critical to gaining the cooperation of the utility and evaluating the utility-provided information.

The resulting optimal configuration consisted of dual half-rated utility feeds, split busing for flexibility and isolation, a manual transfer switch and power terminal box to accommodate a portable 1,750kW generator, and a smaller onsite generator and fuel system for interim loads.

ArcSine's approach resulted in an avoided cost of approximately \$1 million, and also reduced ongoing operation and maintenance requirements which would have resulted from an onsite permanent engine-generator.

ArcSine designed controls which optimize quantity and timing of pumping to minimize overall energy costs. The system tracks electric rate periods, electric demand charges, available storage, pumping configurations, and other conditions. Savings are estimated in excess of \$50,000 per year.

ArcSine's design approach resulted in avoided capital cost of \$1 million and annual savings of approximately \$500,000.

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