

Arizona Public Service (APS) Palo Verde Nuclear Generating Station

*Special
Recognition
Award PM
Optimization*

Program Highlights

The preventive maintenance (PM) program at the Palo Verde Nuclear Generating Station utilizes a value-based reliability model for strategy determination. Understanding the value that reliability can add to or take away from a company's bottom line is essential in value-based maintenance strategy implementation and use.

Palo Verde determines a failure probability for a component based on the current PM strategy for the component within its operating context. The cost to maintain the reliability of a component is compared to the cost of the consequence of failure for each component. Using a sophisticated mathematical optimization calculation derives the most efficient PM strategy to maintain the required amount of reliability. PM strategy change effectiveness is measured using business intelligence software, and the strategies are adjusted and fine-tuned based on actual maintenance cost results.

This process has been used at Palo Verde—the nation's largest power producer—for the past six years. The results have been outstanding. Palo Verde has decreased overall maintenance labor costs to maintain the power block while sustaining continued high levels of nuclear safety. In fact, the results have been so impressive that the entire U.S. nuclear energy fleet is planning to move to the use of this analysis model.

