

## Maintenance Optimization Modeling

### Background

Operators in the power generation, oil & gas and petrochemical markets face continuous pressure to maximize the availability of their cost-intensive capital equipment while minimizing the associated operating costs. For those seeking an optimal balance between operability and cost, our Stone & Webster (S&W) Maintenance Optimization Modeling provides a simple but comprehensive solution that is based on probabilistic and statistical analysis of your most important plant assets.

### Experience

Given the scope of investment required in many of our projects, S&W frequently deploys probabilistic applications and model development as a core business. In fact, we employ more than 60 probabilistic risk practitioners in our global work force today. S&W has invested in the establishment and use of the industry frameworks necessary for the efficient implementation of probabilistic modeling.

Because of our extensive experience with the scope and complexity of nuclear power generation modeling, S&W engineers are able to use those long-proven sector tools to simplify and customize our solutions. S&W possesses expertise in the power generation and energy sectors – including asset management of heavy capital equipment such as heat exchangers, heavy piping and generators. Based on that expertise, S&W can offer a proven comprehensive solution that includes probabilistic modeling and statistical analysis of mechanical or electrical assets, piping, storage, transmission distribution, human factors, and supervisory control and data acquisition (SCADA) instrumentation.

S&W has enjoyed recent success in training and implementing probabilistic modeling on natural gas assets. The modeling included a strategic solution that reviewed components, data, and human factors. Any standard asset inventory can be typically modeled within a few weeks.



*Whether you're in the power generation, oil & gas, or petrochemical industry, our Stone & Webster Maintenance Optimization Modeling solution can help you maximize equipment availability while minimizing plant capital costs.*

### Services

#### FMEA Services

A system process failure modes and effects analysis (FMEA) is used to identify potential “pinch points” or vulnerabilities within industrial applications and from this propose statistical analyses that facilitate system maintenance.

#### Modeling Services

The S&W Maintenance Optimization Modelling team can develop a probabilistic modeling solution for your facilities operations process. The context of the model will be dependent on the data inputs available and utilized. The intent of this model is to develop a system asset management program to enhance the performance and cost effectiveness of the maintenance of your facility operations.

This effort will produce a mathematical model of the desired process and associated components in order to define process reliability and estimated system downtime. This information will be used to identify and justify optimal maintenance intervals.

## Consequence Analysis Services

This innovative tool is used to generate a heat map that shows the criticality of the system at different points based on the probability of failure and the consequence. This assessment maps consequences to give more insight to modeling and therefore decision making.

## Additional Support Services

Supporting products of interest include but are not limited to:

- Consultation and Training to a probabilistic modeling program (including Computer Based Training)
- Streamlined data collection system for any identified data collection program



*Stone & Webster can optimize the maintenance intervals for some of your most critical plant assets including mechanical or electrical equipment, piping systems, transmission distribution, and supervisory control and data acquisition (SCADA) instrumentation.*