



Black Hills Energy Overhaul & Capital Projects - Case Study

Our Client, Black Hills Energy, is a part of the Black Hills Corporation headquartered in South Dakota. Black Hills Corporation is a customer focused, growth-oriented utility company with a tradition of exemplary service and a vision to be the energy partner of choice. Based in Rapid City, South Dakota, the company serves over 1.28 million electric and natural gas utility customers in more than 800 communities in Arkansas, Colorado, Iowa, Kansas, Montana, Nebraska, South Dakota, and Wyoming.

Background and Situation:

- Three site locations, each managing their own overhauls
 - Coal/steam units ranging from 11MW – 100MW, Gas CT units < 50MW
- Overhauls were focused primarily on duration, limited emphasis on scope or budget
- Recent growth necessitated formal Outage/Capital Process

Objectives:

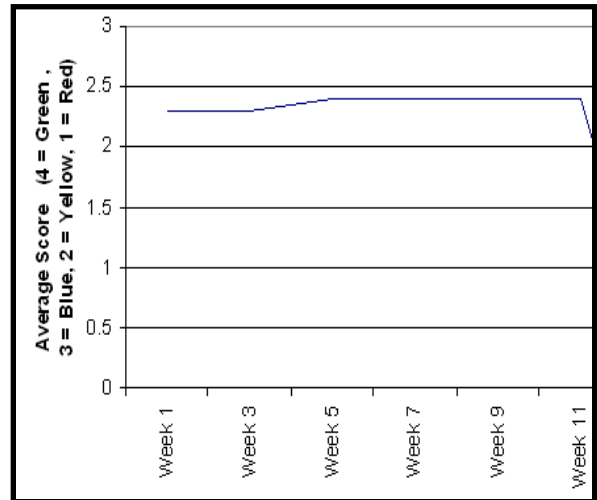
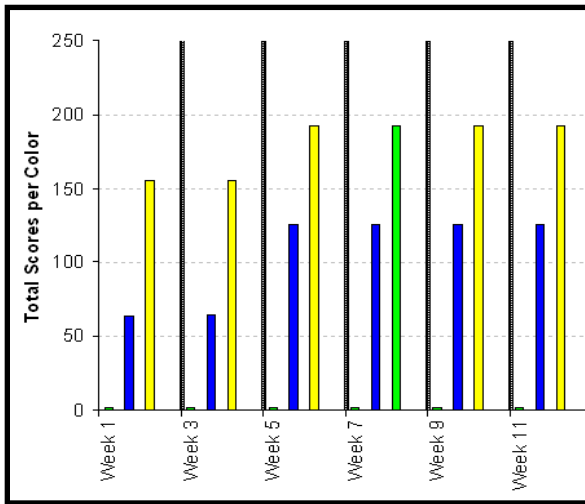
- Assess and develop project plan to improve the existing overhaul/capital management practices
- Lead action teams to establish formal documented outage/capital project management process
- Establish new organization focused on overhaul/capital project management and coach staff on the new desired processes
- Utilize new enhanced process to deliver successful spring outages

Results:

- Create and managed detailed project plan & roles/responsibilities to deliver project on schedule and under budget
- Due to proper work identification prior to the start of the BF overhaul. BHP was able to successfully complete the life extension project 2 years early with an estimated savings of \$7.4 million
- 100% of staff trained at a level appropriate for their position
- Began to formalize process for the two smaller sites utilizing new process
- Field coached & coordinated staff activities to support training and implementation for the Outage/Project Management Process



AME	Position	Location	Outage Organization Structure	Work Planning Responsibility	2.4 Work Scheduling	EAMS Backlog management	Resource Pool Labor availability	EAMS Download	Weekly/daily schedule	Daily Coordination meetings	Ops/Mtrc Commitment	Contractor Commitment	2.5 Outage Work Execution and Acceptance	Outage kick off meeting	Outage Site Safety Review	(Standard) Job Package Utilization	Outage Job Site/Equipment Prep (Pre Work)	WPM/Job Site Follow-up	WPM Feedback Form	Contractor / Vendor Feedback Form	Work History Data Collection	Deviation Reporting (Scope, Cost, Schedule Ch)	2.6 Outage Work Documentation & Analysis
Seth Miller	Director Power Gen	NS																					
	Engineer	NS/New Const																					
	Engineer	NS																					
	Engineer	NS/Sup																					
	Engineer	NS/Osage																					
	Engineer	NS																					
	Eng / Sched	NS																					



Osage Outage Results

199 Identified Task

25 Days Scheduled

Duration

Outage Complete 25 days
100%

Scope

198 completed 99.5%

\$537,000 Budgeted

Budget

\$613,219 Actual
14% Over budget