



# Steam Turbine Maintenance & Inspection Services



*Power Equipment Maintenance*

**A BHI Energy Company**

Over 30 Years Serving  
the Power Industry

# COMPANY OVERVIEW

Power Equipment Maintenance, Inc. (PEM) brings more than 14 years of experience providing specialty maintenance services to the nuclear, fossil, hydroelectric and wind sectors of the power industry. As an independent service provider, PEM leverages this experience from all segments of the power generation industry to provide cost-effective solutions to utilities, original equipment manufacturers (OEMs), third party providers and independent power producers (IPPs).

- Leading provider of steam turbine/generator turnkey outage services and technical labor augmentation
- Workforce of over 600 trained & skilled craft and technical personnel
- Uniquely positioned to address industry-wide concerns of finding trained & qualified personnel to support maintenance activities in remote locations
- Highly mobile workforce with the ability to respond to “emergent” maintenance needs nationwide
- Proven performance supporting large power generating equipment projects ranging from mechanical drive turbines to 1400 MW turbine generators
- Experienced in steam turbine maintenance, repair & overhaul services

## PEM Service Offerings

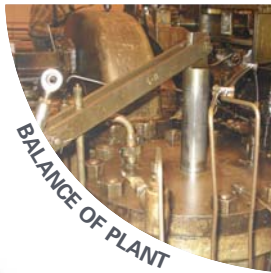
TURNKEY TURBINE  
GENERATOR MAINTENANCE



FIELD ENGINEERING



BALANCE OF PLANT



TECHNICAL & CRAFT  
LABOR AUGMENTATION

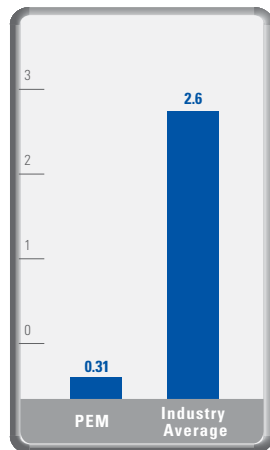


# SAFETY & QUALITY ASSURANCE

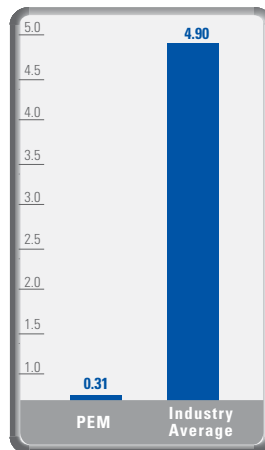
**SAFETY FIRST.** PEM's primary core value is the safety of our employees, customers and the communities in which we work. Safety is at the center of every job we perform and emphasized at all levels of the organization. We believe our exceptional safety performance drives customer loyalty and is one of the most important criteria by which customers select their service providers.

**PEM'S SAFETY RECORD CONSISTENTLY OUTPERFORMS INDUSTRY AVERAGES**  
and is a reflection of our attitudes, practices and overall commitment to safety.

**2009 DAYS AWAY-RESTRICTED  
TRANSFER CASE RATE (DART)**



**2009 TOTAL OSHA RECORDABLE  
INCIDENT RATE (RIR)**



**EXPERIENCE MODIFICATION RATE (EMR)**



PEM is operating under its historical best EMR

PEM's DART and RIR far exceed industry safety standards

## TRAINING & QUALIFICATION PROGRAM

PEM's training and qualification program provides tangible benefits to our customers and employees. Our on-the-job training (OJT) is designed to augment the existing skill sets of both current and new technicians. PEM's OJT documentation is a key differentiator that provides a tool for tracking and advancing employee qualifications and matching skill sets for all projects.

### *Training & Qualification Program Client Benefits:*

- Pre-qualified technicians can be immediately productive
- Cross-trained technicians increase flexibility, resulting in smaller work crews & reduced manpower expense
- Training programs strengthen the skill sets of our current employee base
- Training programs develop a pipeline of new steam technicians from other mechanical industries
- Project management certification program leads to more effective outage planning & execution
- OJT documentation ensures employee skills exceed assignment requirements

# Turnkey Turbine Outage Services

## INTEGRATED SERVICES

### Maintenance

### Repair

### Overhaul

### Project Management

- Overall Project Responsibility
- Planning & Work Scope Development
- Scheduling – P3, P6, SureTrak & Microsoft Project
- Manpower Requirement Development
- Outage Budget Monitoring
- Subcontractor Oversight
- Schedule Adherence
- Quality
- Safety

### Technical Direction

- Pre-outage Planning
- Work Scope Development
- Staffing Levels & Target Work Hours Development
- Review Previous Outage Reports-TILs, AIBs, OMMs, etc.
- Inspection Guideline & Data Sheet Preparation
- Spare Parts Review
- Define & Direct Craft Activities
- Problem Solving & Troubleshooting
- Run/Repair/Replace Recommendations

## OVERVIEW

PEM's team of experienced, trained and knowledgeable professionals offers a comprehensive package of maintenance, repair and overhaul services.

### *Typical turnkey outage services include:*

- Project Management
- Technical Direction
- Planning & Scheduling
- Craft Labor
- Subcontractor Management
- Turbine Tooling Modules
- Rental Equipment
- Consumables
- Component Repairs

## Project Highlights

### DUKE ENERGY

*Allen, Belews Creek, Buck, Gallagher & Marshall Steam Stations*

PEM provides turnkey outage services including project management, technical support, craft labor & necessary third party suppliers and subcontractors as specified by each client site. PEM supports the turbine/generator, turbine valve and auxiliary system inspection and repair of 200-1200 MW units under a system-wide maintenance agreement.

### TAMPA ELECTRIC COMPANY (TECO) & TECO GUATEMALA

*Big Bend, Bayside & San Jose Steam Stations*

PEM provides turnkey outage services including schedule development, project management, technical support, subcontractor management, shop repairs and comprehensive staff augmentation for 100-600 MW units under a system-wide maintenance agreement.

### PROGRESS ENERGY

*Sutton Steam Station*

PEM supported a major inspection for a mechanical drive turbine (BFPT) under a system-wide turbine maintenance agreement. PEM provided turnkey outage services including technical directors, craft supervision, turbine technicians, operators, riggers & labor support.

*Lee Steam Station*

PEM provided turnkey outage services including the valve open, clean and close and high velocity oil flush. PEM managed third party subcontractors and completed the outage with zero safety incidents, on schedule and within budget.

### AMERICAN ELECTRIC POWER (AEP)

*Picway Steam Station*

PEM provided a turnkey turbine outage including project management, technical direction, supervision and craft labor in support of a challenging valve outage on a vintage 100 MW Westinghouse steam turbine. The outage was completed ahead of schedule and under budget.



# Technical & Craft Labor Augmentation

## OVERVIEW

PEM, with its parent company Bartlett, has become a leading provider of managed staff augmentation services for the power generation industry. PEM's services are backed by:

- Over 30 years of power industry experience
- On-demand workforce with "around the clock" work capability
- Workforce returnee rate to utility customers > 80%
- Workforce deployed at over 150 national & international project locations
- Database of 50,000 technical, mechanical & professional employees
- Workforce returnee rate to PEM > 90%

## Project Highlights

### DUKE ENERGY

*Catawba, McGuire & Oconee Nuclear Stations*

PEM provides Duke Energy with project management, technical and craft labor under a system-wide maintenance agreement.

### PROGRESS ENERGY

*Lee, Sutton, Mayo, Roxboro, Ashville, HB Robinson-Unit 1 & Weatherspoon Steam Stations Brunswick, Shearon Harris & HB Robinson-Unit 2 Nuclear Stations*

PEM provides Progress Energy's nuclear and fossil stations with craft supervision, turbine technicians, operators, riggers & labor support under a system-wide agreement.

### ENERGY OPERATIONS

*Arkansas Nuclear One, River Bend & Waterford Nuclear Stations*

Since 1998 PEM has provided Entergy with management oversight, technical directors, technical support, craft supervision, turbine technicians, operators and riggers under a system-wide contract.

### AMERICAN ELECTRIC POWER (AEP)

*Glen Lyn, Sporn, Conesville & Kanawha Steam Stations*

PEM provides AEP with technical direction to supervise and oversee turbine generator maintenance outages. Assignments included lead technical director as well as supplemental direction to utility maintenance organization.

### ALSTOM

*Callaway & Fort Calhoun Nuclear Stations*

PEM provided craft labor and supervision that performed the retrofit installations of two LP turbines at the Fort Calhoun Nuclear Station. PEM also responded to an emergent repair job with craft labor and supervision supporting warranty work on the high pressure (HP) rotor installed during a retro-fit project. For this emergent work and again one year later in support of a planned maintenance outage, PEM performed the removal, inspection, repair and reassembly of the HP rotor under the direction of ALSTOM's engineering staff.

## INTEGRATED SERVICES:

### Project Management

### Supervision

### Technical Support

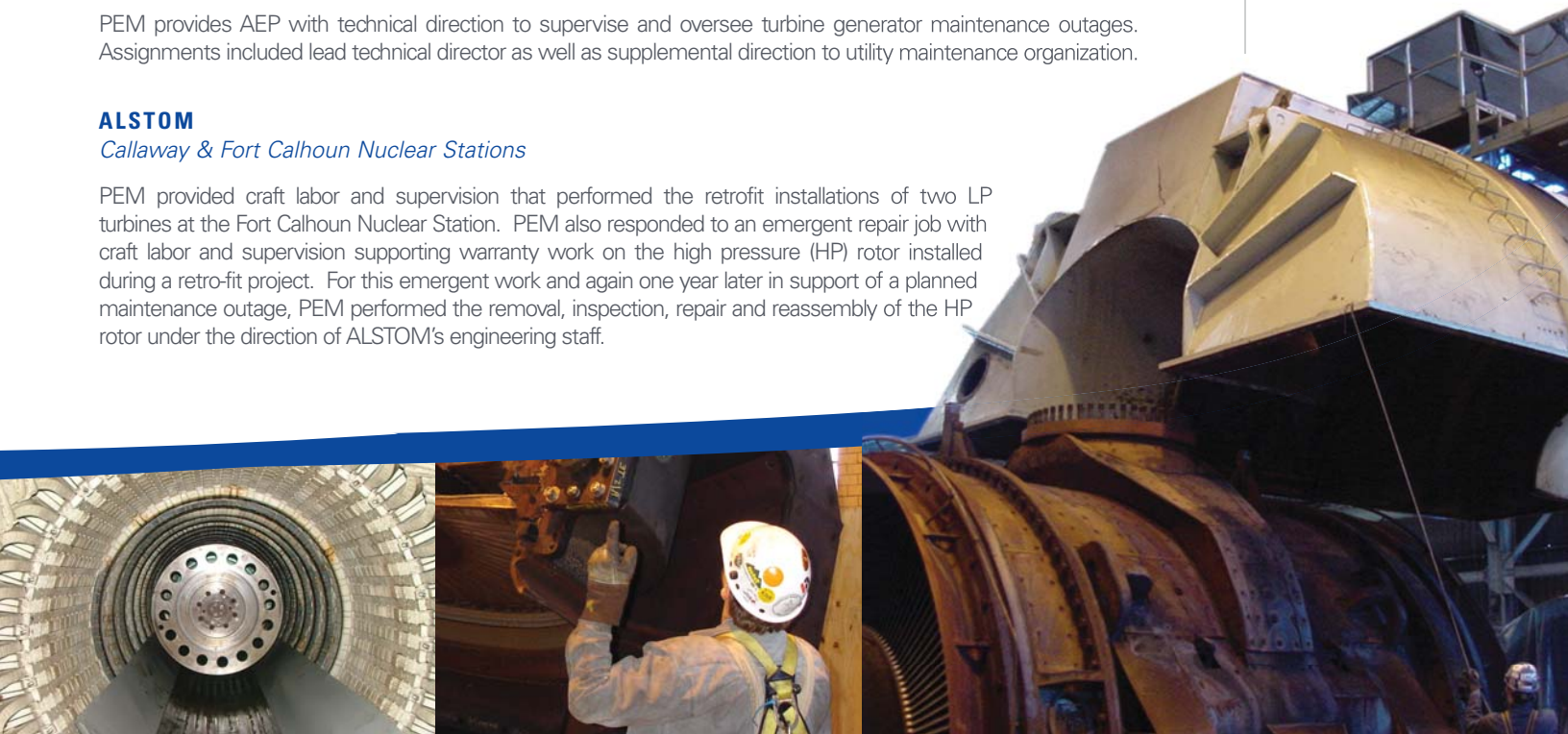
### Training

### Engineering

- Mechanical
- Civil
- Electrical
- Test

### Craft

- Turbine Technicians
- Millwrights
- Welders
- Crane Operators
- Reactor Coolant Pump/ Motor Technicians
- Pipefitters
- Electricians
- Riggers
- Valve Technicians
- Nuclear Refueling Technicians



# Turbine Service Alliances

## OVERVIEW

Our customer-focused business model is backed by 14 years of building longstanding partnerships with our customers. Several of these partnerships have developed into alliances where customers have come to rely on PEM for their consistent responsiveness, performance and dependable way of conducting business. Ensuring mutual goals are met leads to a successful project outcome and strengthened relationship between PEM and our client.

**“PEM has been successful through alignment of mutual contractor and customer goals in performance-incentivized contracts that encourage and reward positive results.”**

**- Keith Ravan, President**

### *Key alliance benefits include:*

- Reduced Cost; costs of selling/bidding process are eliminated resulting in significant cost savings
- Continuity of workforce between projects; >80% returnee rate
- System-wide pricing, established in advance & with option for open-book financials
- Lessons learned from each project are applied to the next project, resulting in continuous improvement
- Saved Time – time spent selecting and qualifying vendors is saved
- Simplified & Standardized processes for outage estimating, planning & execution
- Volume discounts are available, further rewarding alliance customers
- Priority Staffing for Alliance customers, guaranteeing of available qualified personnel when needed

## Alliance Highlights

### TAMPA ELECTRIC

Since 1999 PEM has provided turbine services to Tampa Electric and is currently working under a system-wide agreement that identifies PEM as the primary vendor responsible for providing these services to all steam units within the system. Since inception, all domestic projects have been successfully staffed by quality personnel and consistently executed with positive results. All emergency outage service needs have been met with responses within 6 hours and necessary staff onsite within 24 hours of a request.

### PROGRESS ENERGY

Since 2001 PEM has supported Progress Energy's nuclear and fossil sites under a system-wide agreement. In addition to meeting customer expectations for quality, safety and staffing performance on all outages, strong inter-business relationships have developed, making both alliance partners more productive and efficient in planning and executing turbine projects.

### DUKE ENERGY

Since 2004 PEM has held a system-wide turbine generator alliance contract for Duke's fossil and nuclear sites, supporting the turbine/generator, turbine valves and auxiliary system inspections and repairs. Several large, simultaneous and complex steam turbine generator outages have been completed under this alliance agreement. Projects completed involved combinations of project management, technical direction, supervision, craft labor, service shop repairs, vibration analysis, generator specialists, on-site machining and coordination of numerous other subcontractors necessary to complete these large projects.



# The PEM Difference

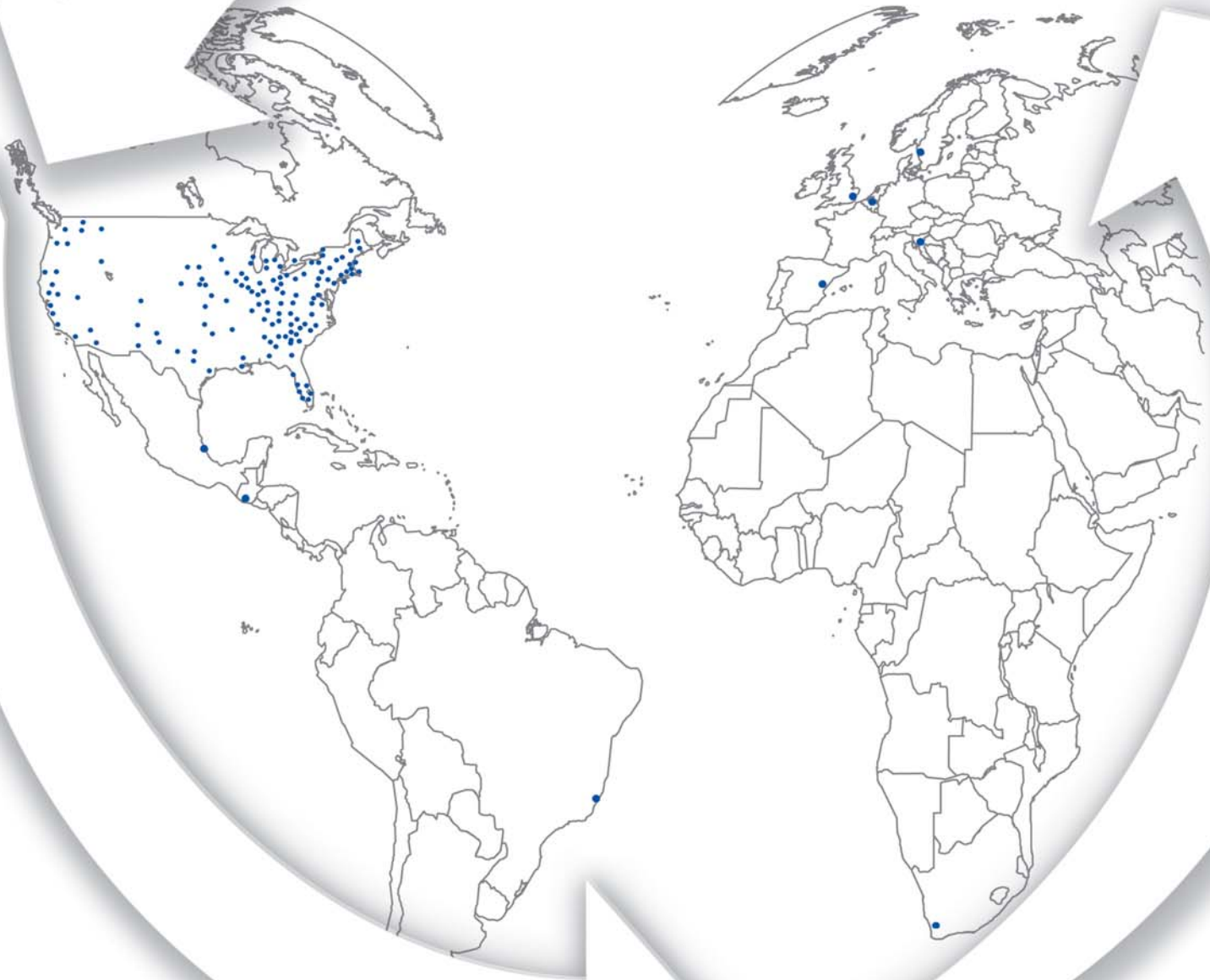
**PEM STANDS APART FROM ITS COMPETITION BY CREATING VALUABLE SOLUTIONS THAT EXCEED OUR CLIENTS' EXPECTATIONS.**

## WHY PEM?

- PEM's outstanding safety record consistently outperforms industry averages & those of its competition, with an EMR of 0.80, RIR of 0.31 and DART of 0.31
- PEM provides quality services at a competitive cost
- PEM offers cost-savings through contract consolidation, volume discounts, automating paperwork and other innovative offerings
- PEM uses a highly developed & advanced project controls & accounting system
- PEM offers best-in-class billing with an average billing cycle of ~4 days
- PEM retains top-talent employees by offering competitive wages, benefits & nationwide work opportunities across multiple power generation markets
- Through its affiliate companies, PEM can offer adjacent services such as engineering and technical management augmentation, nuclear health physics services and advanced scaffold design, material & management programs
- PEM is backed by its parent company with the financial stability & credibility of \$370M in revenues and consistent year over year growth
- PEM's management team is composed of turbine industry professionals, allowing for keen understanding of the work, our customers and technical issues



## BHI PROJECT LOCATIONS



### Corporate Office Locations:

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Piedmont, SC 29673

18809 West Catawba Ave; Suite 202  
Cornelius, NC 28031

### Contact:

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864.375.9030



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[www.peminc.net](http://www.peminc.net)