“Primex has been instrumental in assisting PPMS with performance and reliability improvements in our FGD processes, at a number of our previous and current assets. Their expertise and communication skills are an outstanding asset to our team in this tough market.”

– Rick Grubb, Director of Project Management, Power Plant Management Services LLC.

“Primex has an outstanding reputation in the industry and they came through for us at Springerville”

– Mark Mansfield, Vice President of Energy Resources, Tucson Electric Power Corp.

“Their professionalism and communication skills are unmatched.”

– Corby Valentine, Operations Manager Baldwin Energy Complex
Performance Assurance

Energy Industry Challenges

What is Performance Assurance?

What Can it Do for You Now?

What Will it Look Like in the Near Future?
Energy Industry Challenges

Uncertain Asset Utilization
- Commodity Pricing
- Political & Regulatory
- Economic & Technical
- Weather

Expertise Exodus
- Downsizing
- Retirements & Migration
- Experience Gap
Energy Industry Challenges – Highly Uncertain Asset Utilization
Energy Industry Challenges – Uncertain Asset Utilization

PROJECTED ELECTRICITY GENERATION: COAL VS. GAS
SOURCE: EIA ANNUAL ENERGY OUTLOOK 2017

PERCENT CHANGE FROM 2016

- GAS PRICE
- GAS GENERATION
- COAL GENERATION

+20%
-30%
NYMEX FUTURES 1d CONFIDENCE INTERVAL

Energy Industry Challenges – Highly Uncertain Asset Utilization

PROJECTED ELECTRICITY GENERATION: COAL VS. GAS

- **GAS PRICE**
- **GAS GENERATION**
- **COAL GENERATION**

Source: EIA Annual Energy Outlook 2017

**PERCENT CHANGE FROM 2016**

- **VERY LITTLE PREDICTABILITY**

**NYMEX FUTURES 1d CONFIDENCE INTERVAL**

- +20%
- -30%

**2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022**
Energy Industry Challenges

Uncertain Asset Utilization
- Commodity Pricing
- Political & Regulatory
- Economic & Technical
- Weather

Expertise Exodus
- Downsizing
- Retirements & Migration
- Experience Gap
Energy companies are losing their asset experts—89 percent of them expect to lose experienced personnel due to retirement in the next five years, and 35 percent will see more than 25 percent of their asset experts disappear. These companies—including those in power and oil & gas—are scrambling to fill these gaps. One option to replace these retiring asset experts is to hire new, less experienced employees, but this often isn’t enough to effectively manage increasingly complex assets systems.”

Industry Challenges

**Industry**
Nat Gas + Renewables + Environmental Regulations + Greater Efficiency

**Coal-Fired Fleet**
Reduced Capacity x Reduced Price = Reduced Revenue
Cycling, Low and Transient Loads

**Facility**
Personnel Turnover & Attrition
Technical Issues due to low/transient Load

**Consequences**
Safety  Reliability  Efficiency
What is Performance Assurance?
What is Performance Assurance?

- **WEEKLY**
  - Interpret Data to Assess Critical System Parameters
  - Provide “first layer” diagnosis & troubleshooting

- **MONTHLY**
  - Report & Interpret Key Performance Indicators
  - Identify Safety/Reliability/Efficiency Opportunities
  - Recommend & Facilitate Actions

- **QUARTERLY**
  - Facilitate Onsite Team Meeting
  - Brainstorm & Discuss New Opportunities
  - Update Strategy & Action Plan
What can Performance Assurance Do for You?

OPERATIONS

MAINTENANCE

PROCESS

PERFORMANCE ASSURANCE

2012

2017

2018

[Graphical representation of performance assurance activities from 2012 to 2018]
What can Performance Assurance Do for You?

operations

maintenance

process

Performance Assurance

2012

2017

2020

Expert Knowledge

Expert Facilitation

Secure

Flexible & Scalable
What can Performance Assurance Do for You?

Early warning of potential safety and reliability issues

Reduce operating cost, increase asset value

Achieve & Sustain Optimum Performance

Increase and retain personnel knowledge, awareness & engagement
Performance Assurance – New Features Coming Soon

WEEKLY
MONTHLY
QUARTERLY
SCRUBBER

2017
Performance Assurance – New Features Coming Soon

Real-time Data Access

Interpret Data → Identify Opportunity

Facilitate Action → Recommend Action

Results

Weekly

Monthly

Quarterly

Scrubber

Boiler

2018
Performance Assurance – New Features Coming Soon

Real-time Data Access

INTERPRET DATA

IDENTIFY OPPORTUNITY

RESULTS

FACILITATE ACTION

RECOMMEND ACTION

HOURLY

DAILY

WEEKLY

MONTHLY

QUARTERLY

SCRUBBER

BOILER

2018-2019
Performance Assurance – New Features Coming Soon

Real-time Data Access

INTERPRET DATA -> IDENTIFY OPPORTUNITY

FACILITATE ACTION -> RECOMMEND ACTION

RESULTS

HOURLY
DAILY
WEEKLY
MONTHLY
QUARTERLY

SCRUBBER

BOILER

NGCC

2019-2020
Our Services

Performance Assurance
Performance Optimization
Performance Evaluation
Analytical Services
Training & Education

Our Clients

OPPD
Omaha Public Power District

Xcel Energy

PSEG

Dynegy

Dominion

MidAmerican Energy Holdings Company

SunCoke Energy

Covanta Energy

NAES

TEP
Tucson Electric Power
Performance Assurance

Energy Industry Challenges

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