



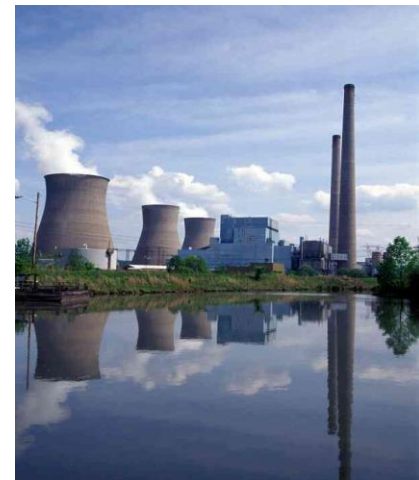
## **How AEP is Approaching the Information Management Crisis by Leveraging OSISOFT's Suite of Tools**

**Bill Sigmon**

**Sr. Vice President**

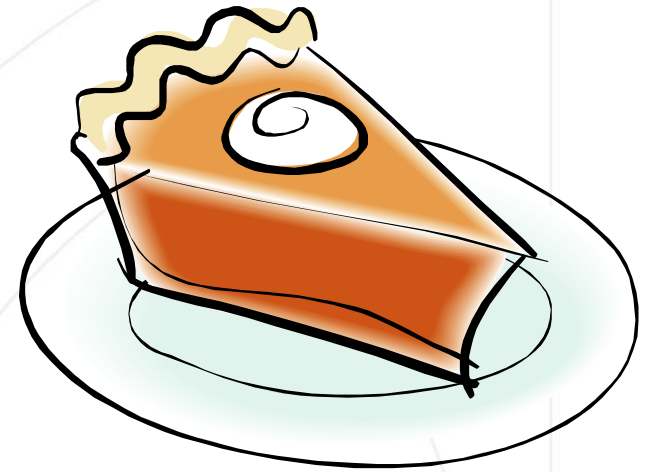
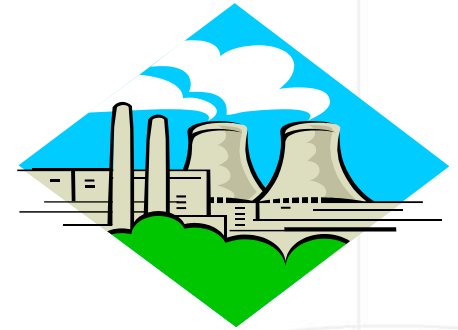
**Fossil and Hydro Generation**

**American Electric Power**



# Agenda

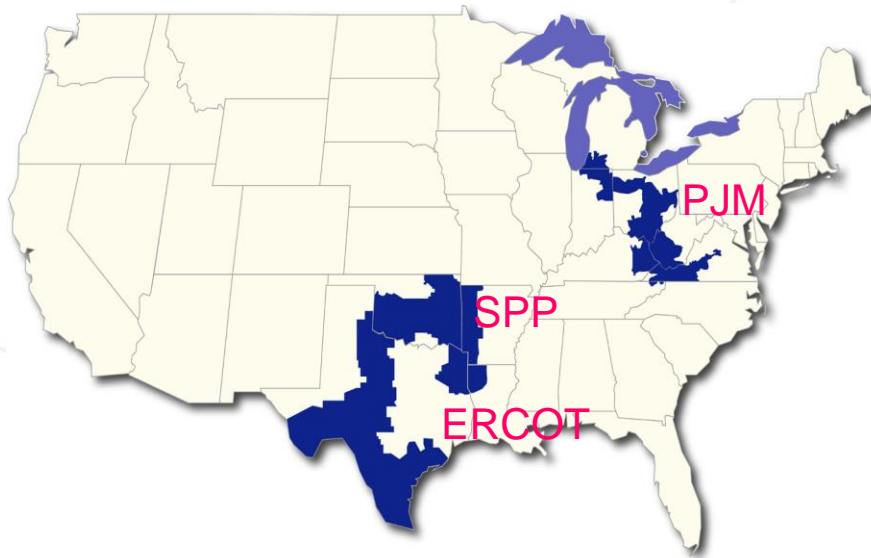
- Who is American Electric Power
- AEP's Generation Fleet
- Our Future Challenges
  - Brick and Mortar Issues
  - The Really Tough Challenges
- PI and All You Can Eat



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# AEP – Who We Are



■ AEP Service Territory

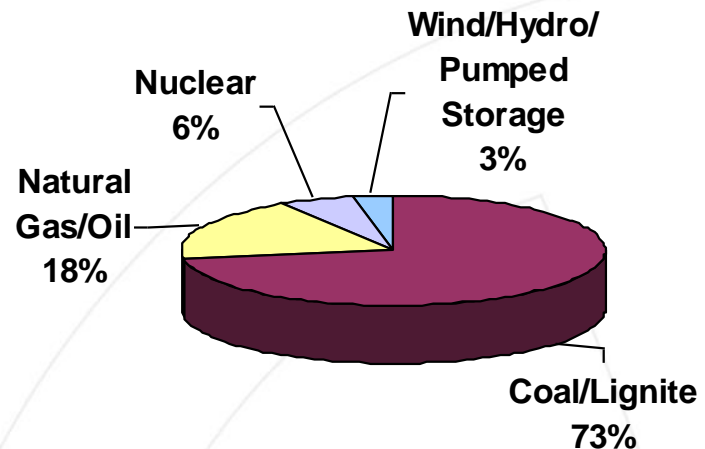
- One of the largest U.S. electricity generators ( ~ 36,000 MWs) with a significant cost advantage in many of our market areas
- Largest consumer of coal in the Western Hemisphere
- A leading consumer of natural gas
- Major wind power developer (#3 in U.S. in 2005)
- 39,000 miles of transmission
- 186,000 miles of distribution
- Coal transportation
  - 7,000 railcars
  - 2,230 barges and 53 towboats
- 5 million customers

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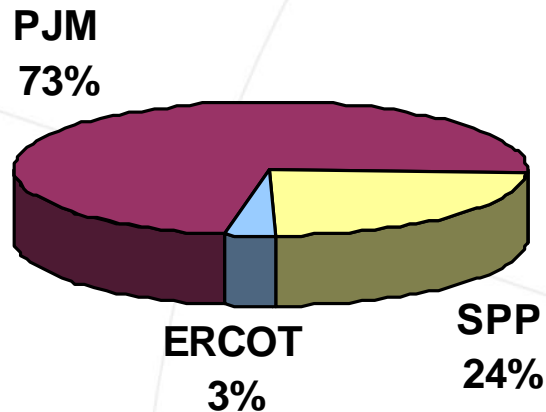


# AEP Generation By Fuel Source & Region

Fuel Source



Regional Presence



**Domestic Generation Capacity**

**~ 36,000 MWs**

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# Our Brick and Mortar Challenges

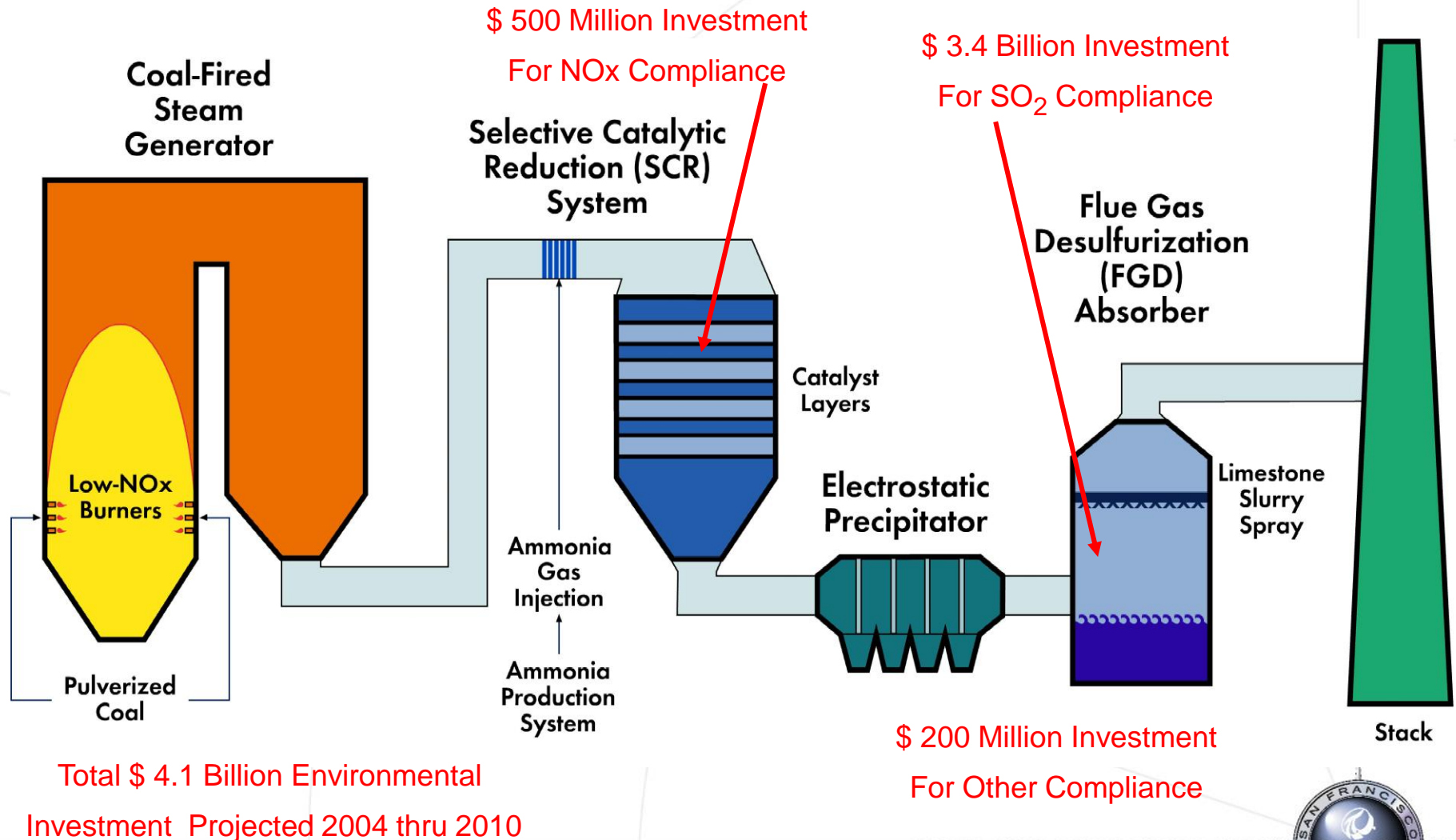
- Environmental Issues
  - SO<sub>x</sub> compliance
  - NO<sub>x</sub> compliance
  - Mercury compliance
  - CO<sub>2</sub> issues
- Generation Fleet Capacity
  - Retirements & Replacement
  - Commercial-scale Integrated Gasification Combined Cycle power plant (IGCC).

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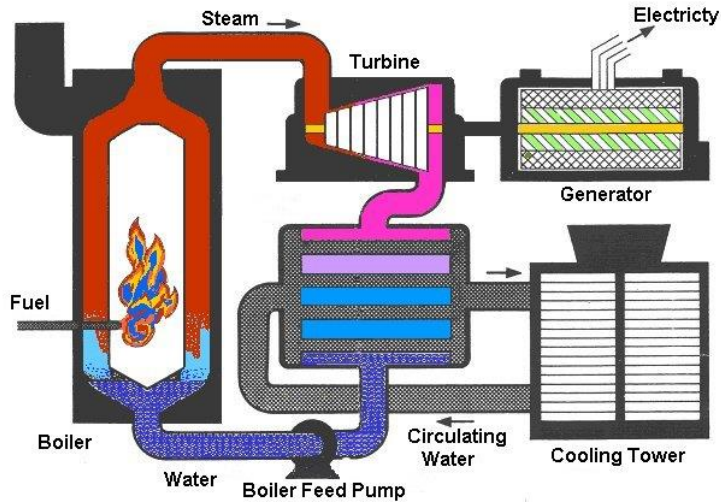
# The Chemical Plant Attached to a Power Plant



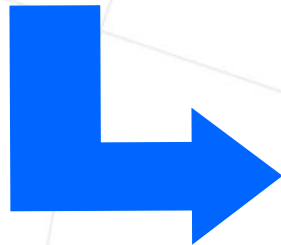
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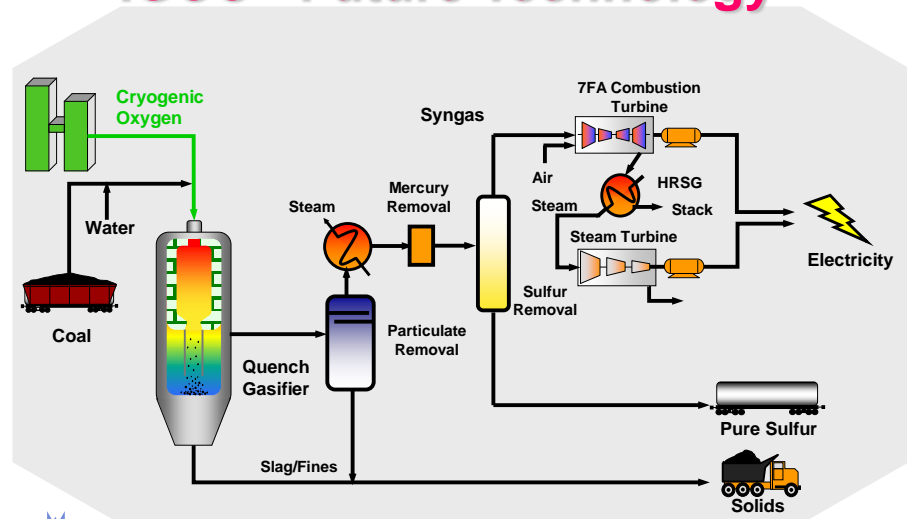
# Future IGCC Power Plant



Current Technology



## IGCC - Future Technology



102110 - GUSCE-011-23-02

~ \$ 1 Billion Dollar Investment

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# Information Management Challenges

- Aging Workforce
- Improve Information Management
- How Do We Use Information to Make Us
  - More Productive ?
  - Retain / Expand Knowledge and Experience ?
  - More Cost Effective ?
  - More Responsive to Market Needs ?

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# Information Management Crisis

- Information Optimization
  - For Daily operations
  - For Management reporting
  - For New RTO market flexibility
  - To Improve our bottom line \$\$
- Information Process Improvements
  - How Do You Deliver More Effective Information
    - Just In Time ?
    - To the Right Person ?
- Use OSI (PI) Products to Centralize Efforts

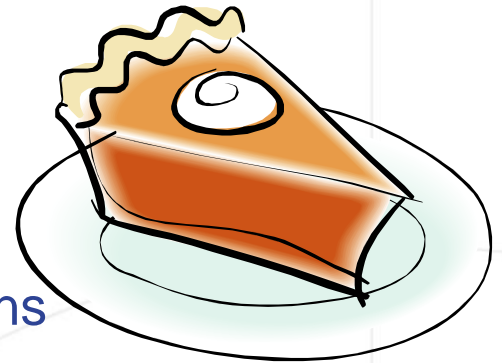
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# “All You Can Eat PI” Agreement

- What Is It ?

- Access to a large suite of OSIsoft products
- Unlimited use of desktop user interface applications
- ~ **43 site locations with unlimited PI tags** (Every power plant and major office)



- Why We Did It ?

- Eliminates age old question – **How Do You Justify PI ?**
- Took 12 years to build a PI foundation across the generation fleet.
- Puts focus on Information Process Improvement, not software purchasing. Eliminates the budget issue.

- Would We Do It Again ?

- Benefits in areas not originally expected!
- Creative Solutions Take Time.

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# Current Initiatives

- Base Data Foundation

- PI server at every power plant with links to Corporate.
- PI used for Trending, Displays, and Financial Monitoring.

- Pilot Projects

- Utilization of other **OSIsoft** products for enhanced data processing and presentation.
  - PI Batch and Batch Templates
  - **Wiredcity** pilot of IT Monitor
- **Transpara Corp.** pilot for PI in a Handheld PDA



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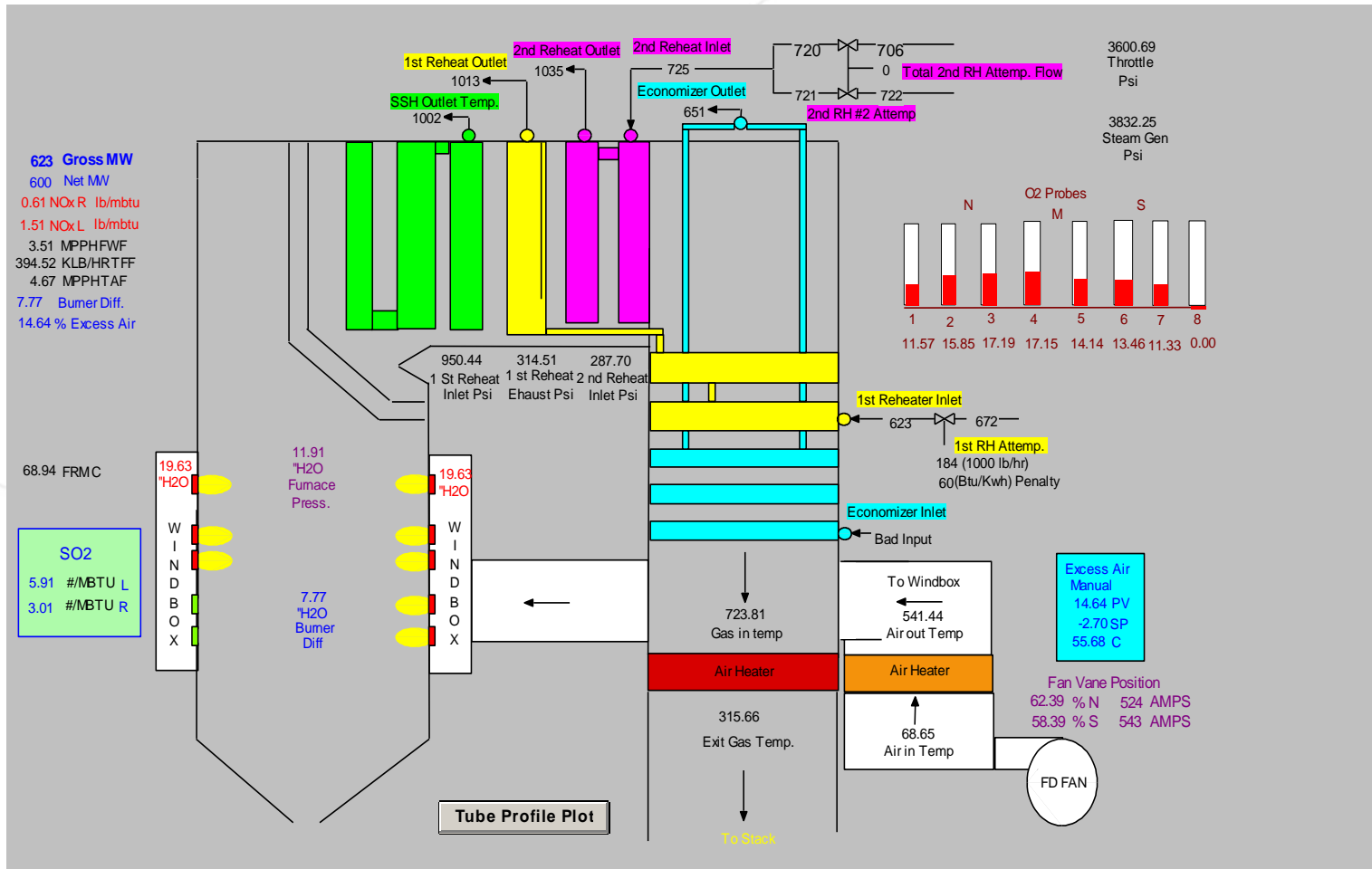
# PI Helps Control Production Costs

Controllable Cost	Units	Actual	Target	Design	Deviation from Target (Btu/Kwh)		Cost (\$/Shift)	Total (\$/Shift)
Main Steam Pressu	PSIG	1,985	2,000	2,000	-50	150	\$6.48	\$-0
Main Steam Temperatu	F	976	962	1,050	-50	150	\$-32.04	\$-2
1st RH Steam Temperatu	F	976	948	1,050	-50	150	\$-59.76	\$-3
1st Reheat Attemperat	lb/hr	1,079	0	0	-50	150	\$1.86	\$0
Excess Ai	%	21.4	19.8	14.0	-50	150	\$20.86	\$-1
Exit Gas Temperatu	F	359.4	329.7	305	-50	150	\$150.12	\$17
Steam Coil Air Heaters	klb/hr							
Condensate	in. of HG	1.13	0.92	0.77	-50	150	\$64.98	\$8
HP Feedwater Heate	Btu/Kwh	5.2	0	0	-50	150	\$8.61	\$1
LP Feedwater Heaters	Btu/Kwh							
Auxiliary Power	Mw	14.33	16.08	15.41	-50	150	\$-186.90	\$-13
Total Operator Controllable C					-50	150	\$-25.79	\$6

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# PI Brings Diverse Data to One Graphical View

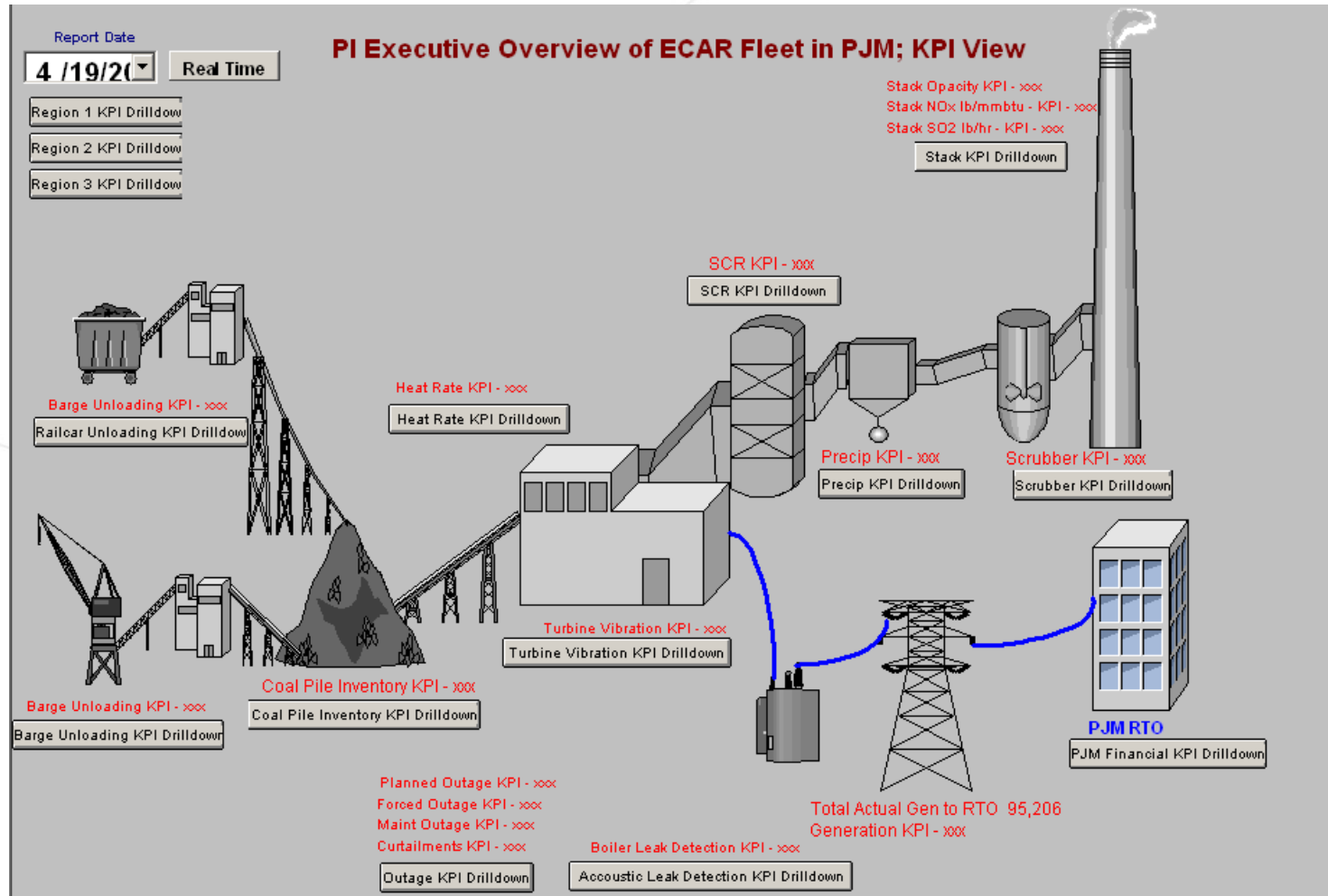


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# PI Can Provide Management The Big Picture

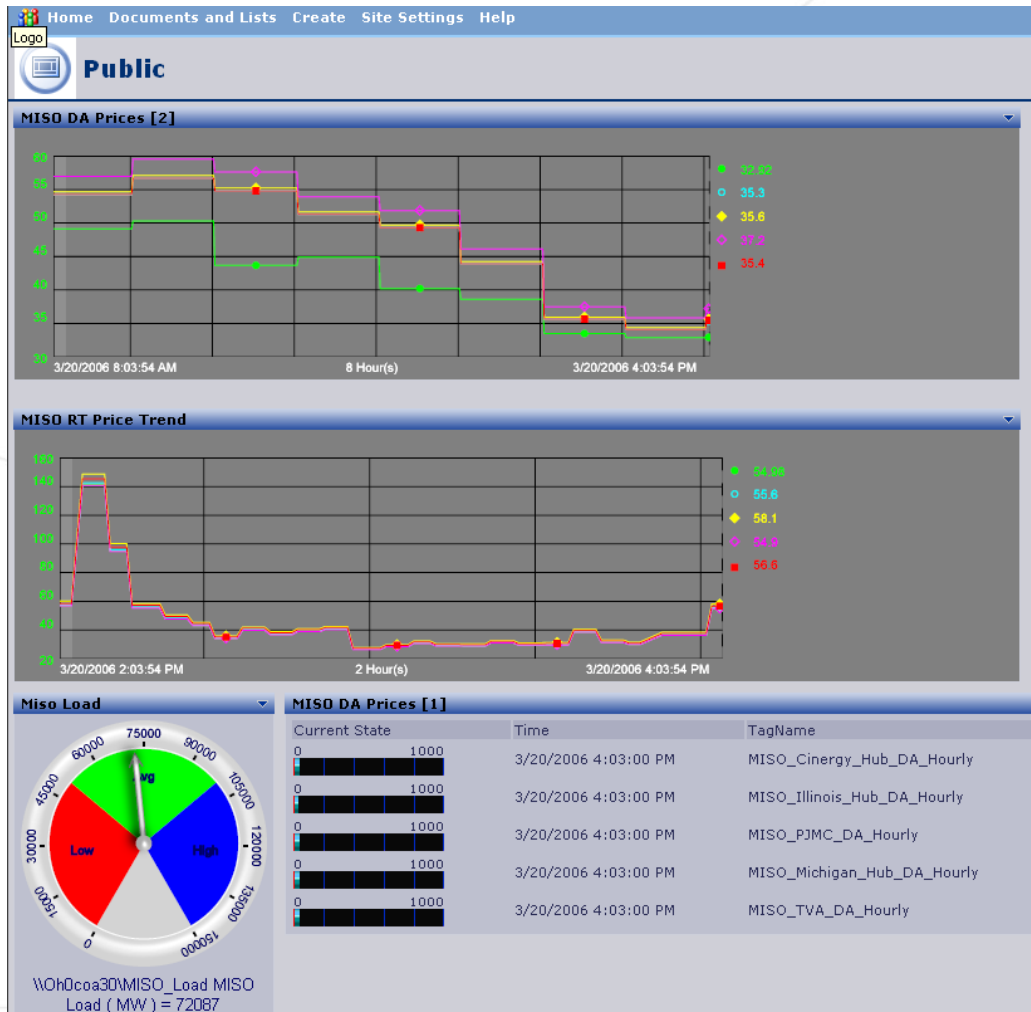


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# Sharepoint Potentials

Can you produce effective data presentations that provide focused critical information to the right person via the simple platform like the web?



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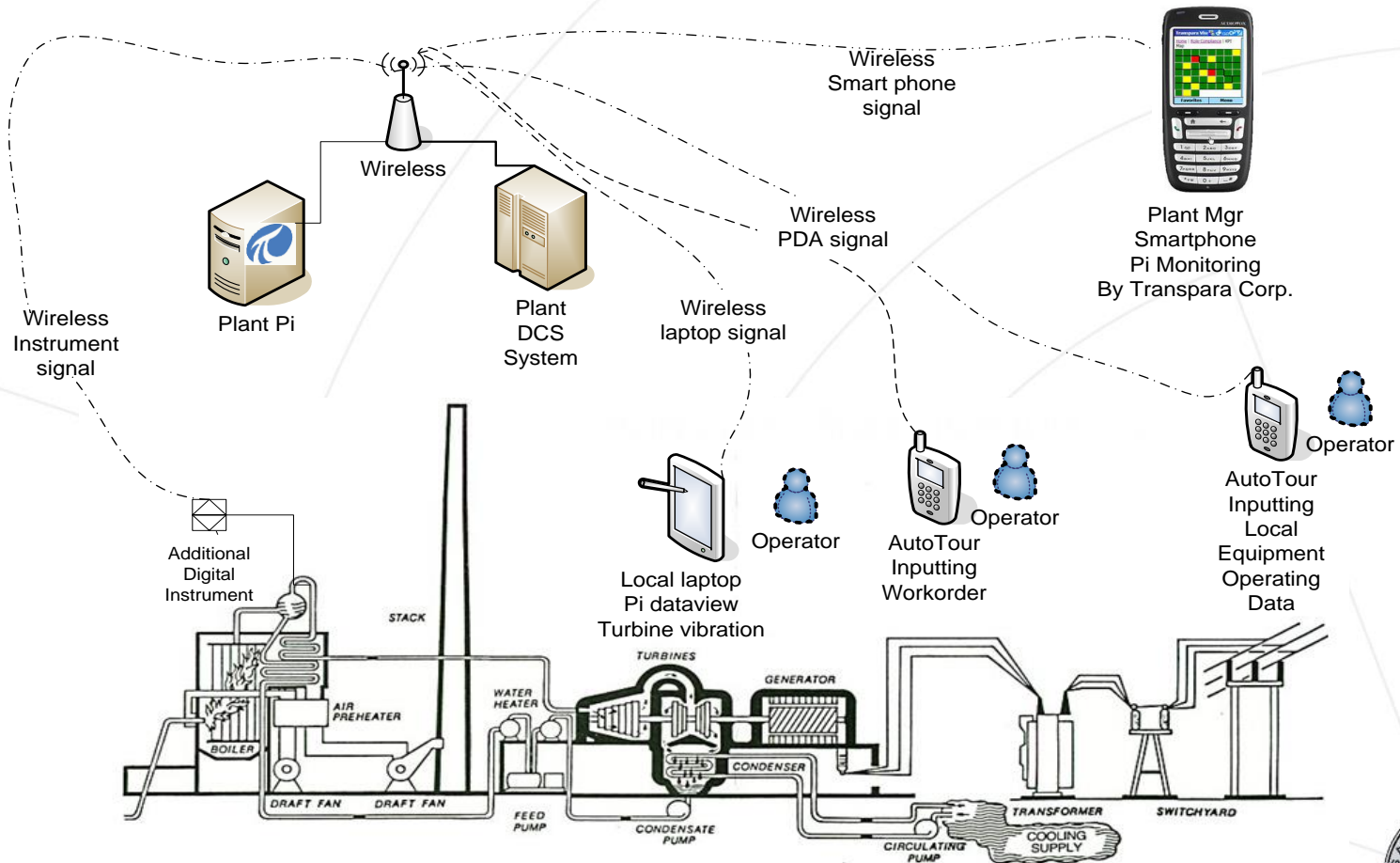
# Other Process Pilots

- Wireless technology
  - Can you put critical information in a handheld device that makes that individual more effective and more mobile?
  - Can you use wireless capabilities to enter / view critical data at remote sites in the plant including job order interfacing?
  - Can you then leverage that wireless backbone for other effective purposes?

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# Wireless Potential in a Power Plant



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# Other Process Pilots



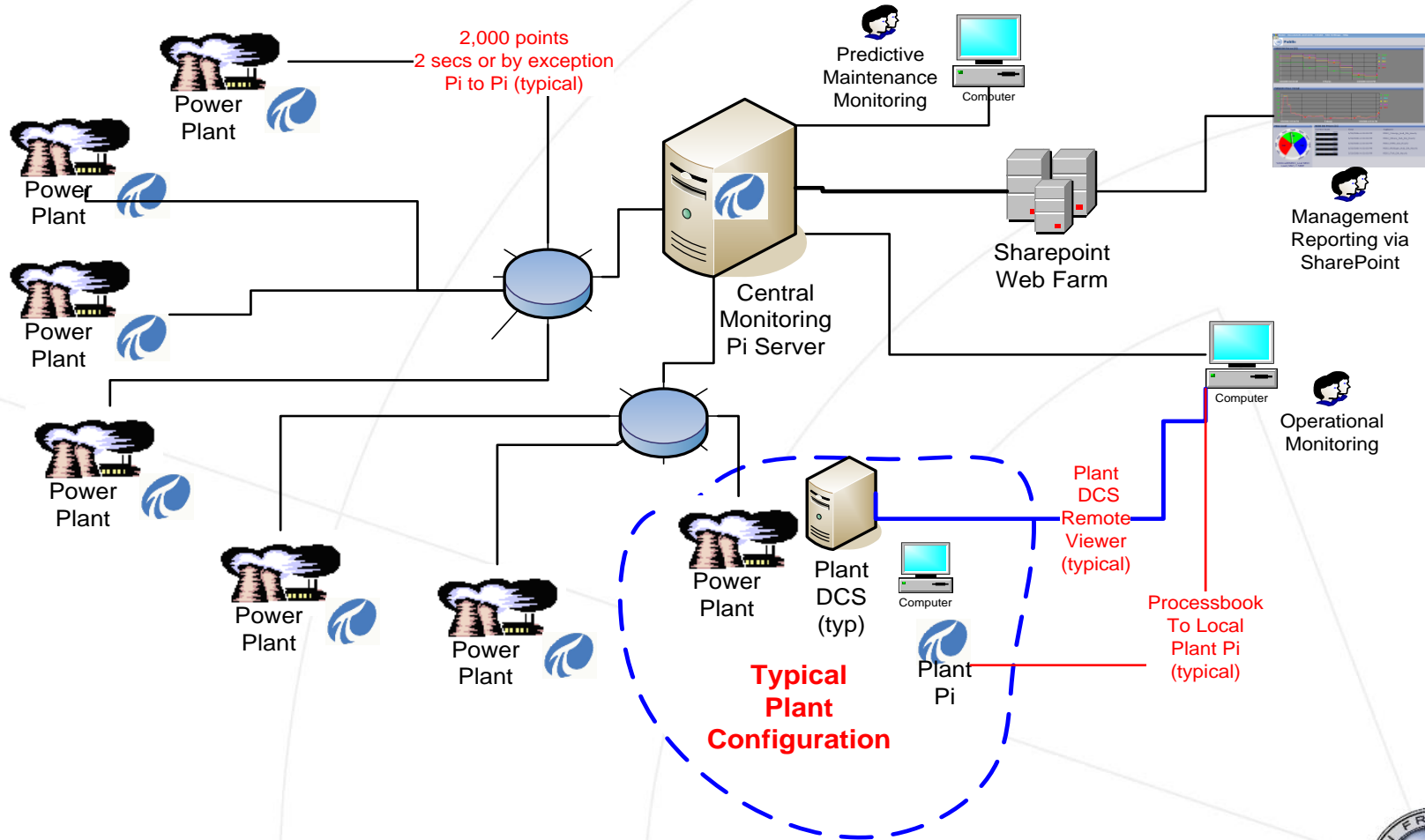
- Centralized Data Monitoring
  - Can you develop effective methods to display operational data into a centralized monitoring facility that improves operational awareness and pro-action ?
  - Can you develop the correct inter-relations to be pro-active in effectively predicting emerging maintenance issues on critical equipment ?

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# Central Monitoring Network Backbone (typical)



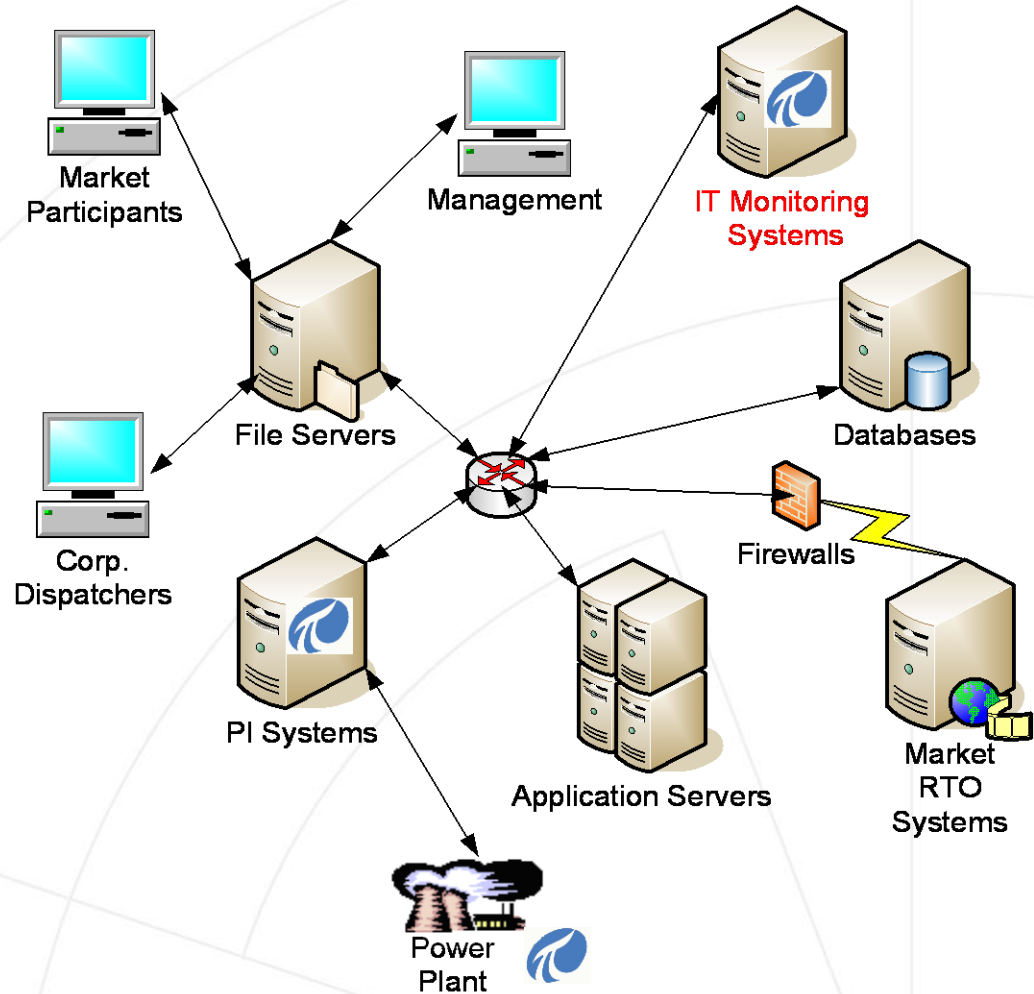
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# Other Process Pilots

- IT Monitoring Pilot

- How can you effectively monitor your IT functions around the RTO interface processes to know quickly when critical market data is not available or delivered to the RTO Markets systems when needed ?



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# Conclusion

- The Future is Upon Us !
  - We Intend to Use Information Technology to Make Us:
    - More Effective !
    - More Responsive !
    - More Flexible !
    - More Profitable !

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CONFERENCES  
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