The Journey from Historian to Business Intelligence

Jeff Campbell, Engineering Manager, Scrubgrass Generating

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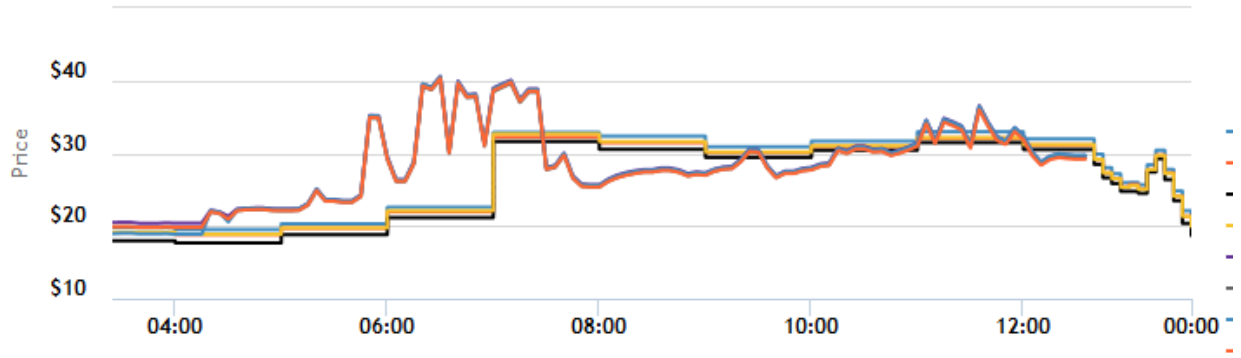
OSIsoft.

Scrubgrass Generating

- Located in Northwest PA
- Constructed in 1993
- 85 mw Fluid Bed boilers
- Designed to burn waste coal
- Sells power to PJM grid
- 35 employees

A New Business Challenge

- Plant payment structure changed from fixed payment to market based
- Power pricing changes every 5 minutes
- The plant needs to adjust load to react to pricing c



A Simple Project

- Give control room a cost management tool
  - Show real time production cost
  - Show optimal run point for price
  - Show how costs are built up (troubleshooting tool)
- Requirements
  - No daily hand entry of information
  - No “monthly average” shortcuts on cost buildup
  - Results instantaneously available to ops

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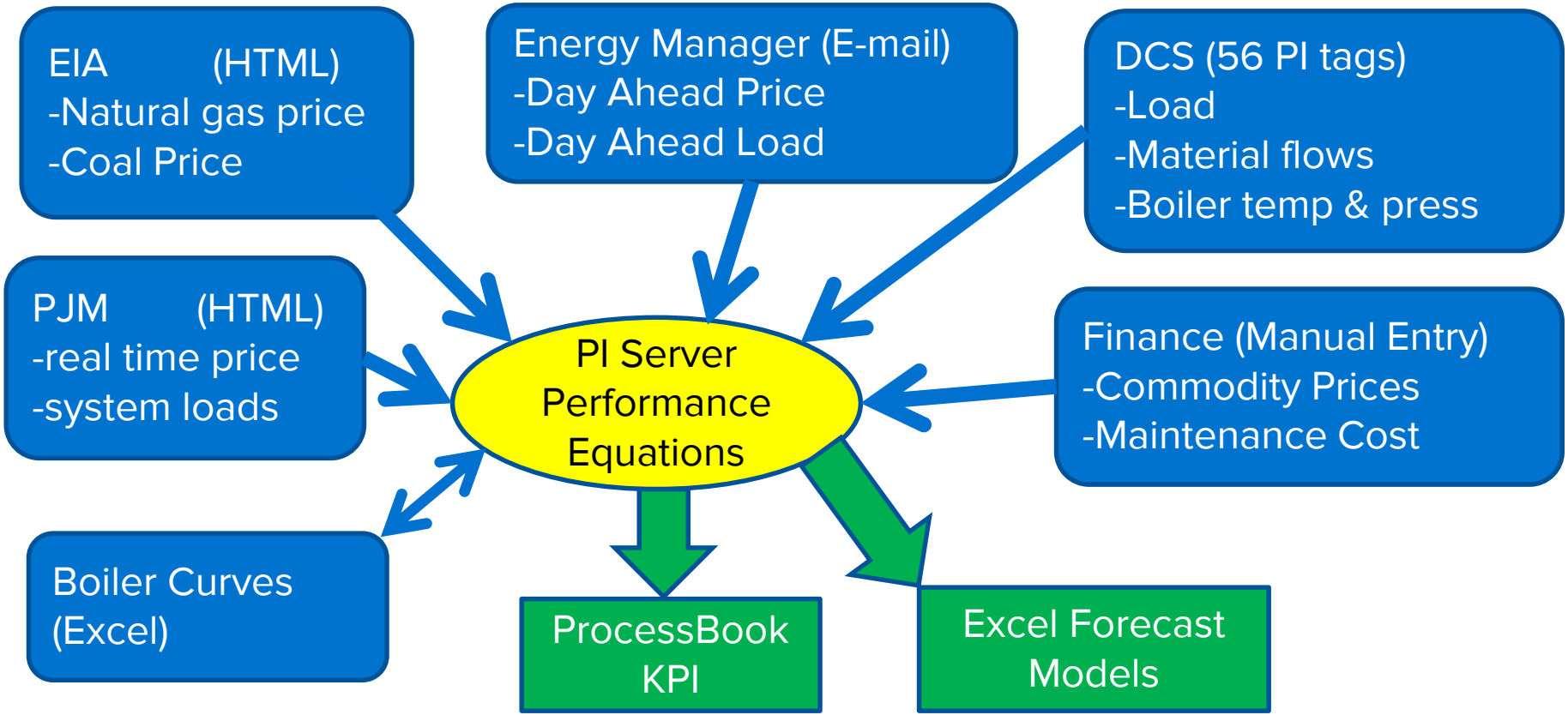
Tags Required to Calculate Real Time Price

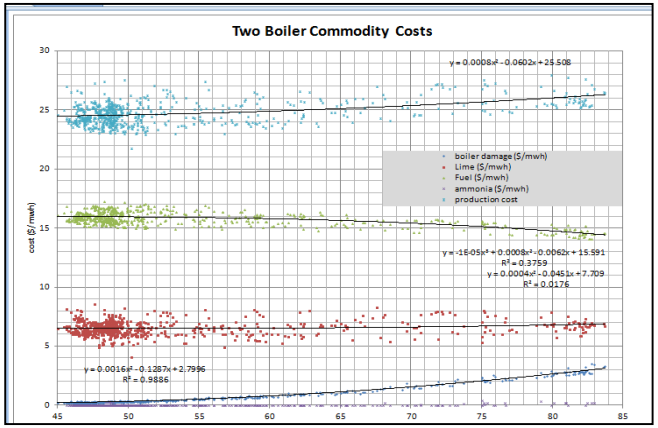


OSIsoft Components

- DCS interface - existing process tags
- HTML Interface - Gas $, PJM $, system loads
- PI Performance Equations – 63 tags configured on PI Server
  - Effective full power hour calc
  - Target and actual cost calcs
- PI DataLink – Links tags to analysis spreadsheets
- PI ProcessBook – Control room & Admin visualization
- Excel spreadsheet macros - (Developed in-house) downloads characteristic curve coefficients to PI Tags
- Visual Basic E-mail downloader (Developed in-house)

Calculation Process

- Use PI DataLink to create process data curves in Excel
- Calculate curve derivatives to create incremental cost curves
- Export incremental curves to PI Tags (automated excel macro)
- Use PI Performance Equations to calculate target and actual costs



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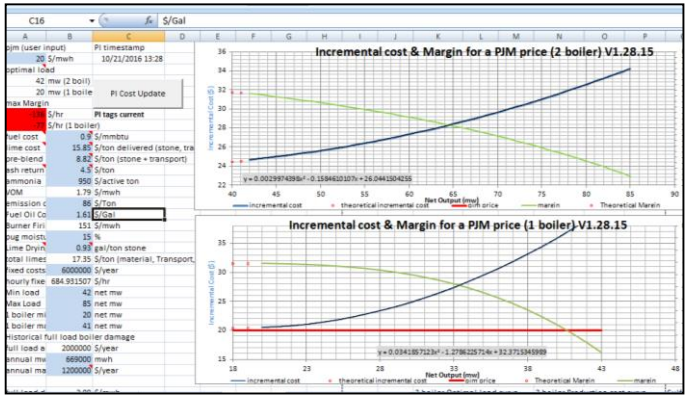
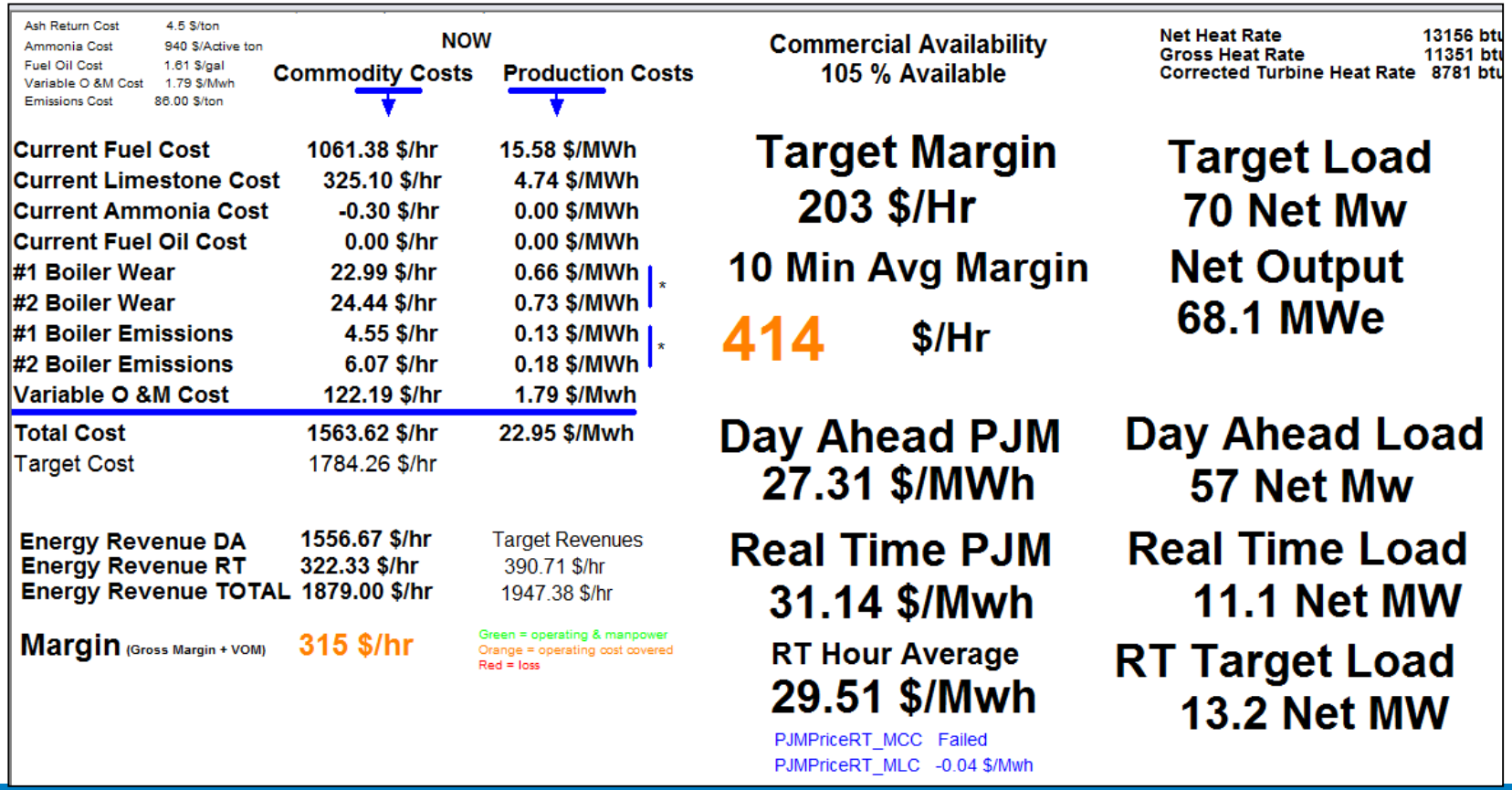
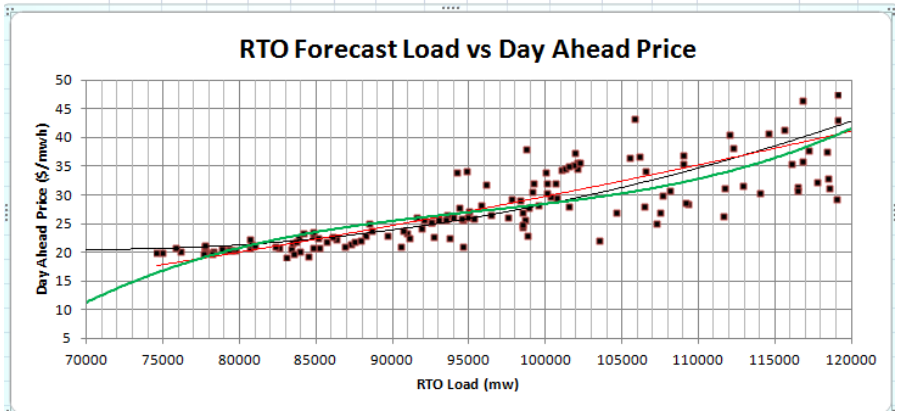


Resulting PI ProcessBook Display



Forecasting using merged data streams

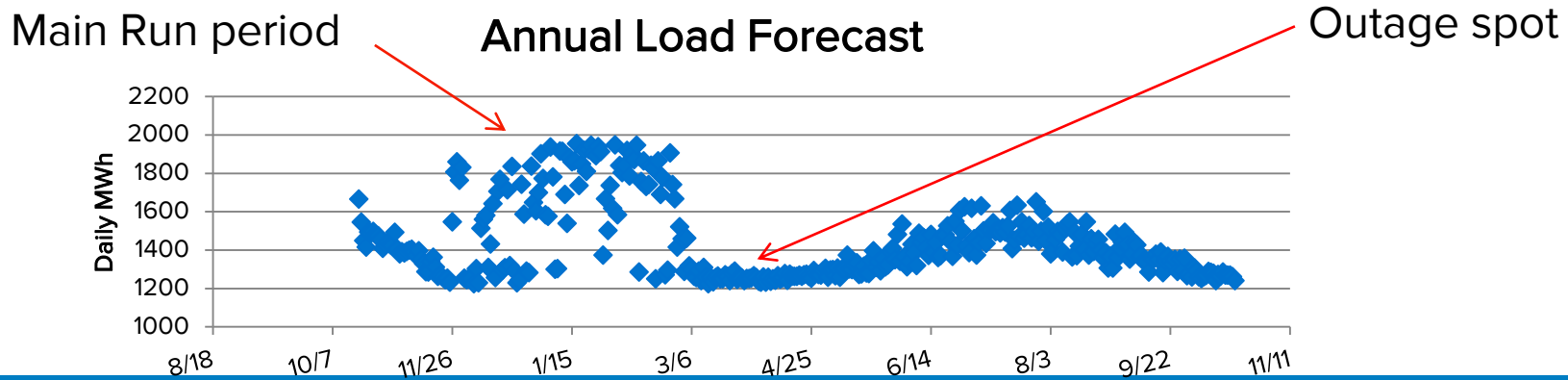
- Next week's weather looks like it will be a loss so we'll take a boiler off line.
- This 20 second check took 2 - 4 hours without the PI System



- The merged data shows pricing will be higher than expected next week… so we'll keep the boiler on line.
- That 20 second check translates into $160K additional revenue for the week

Long range forecasts

- With Gas price, system loads, and boiler curves all in the PI System, it becomes possible to perform long range operational forecasts.
- This helps with scheduling of outages, fuel, and manpower.



Conclusions

- Merging market and process data allows end users to spend time analyzing results – instead of synchronizing databases.
- The resulting merged data reveals new trends not seen on individual streams.
- Everyone in the plant now knows how much $$$ they will make, are making, and have made with no lag.
- This is a main reason Scrubgrass is still operating.

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COMPANY and GOAL

Scrubgrass Generating Plant Generates power by reclaiming abandoned coal piles.

Scrubgrass needed **Real time feedback on revenue and costs**

CHALLENGE

Calculate plant revenue and margin real time

- Finance data is separate from process data
- Finance results lag 2 months behind production
- Incompatible data formats for external market data

SOLUTION

Consolidated 6 data sources to allow real time cost calculations

- PI HTML web scraping
- PI DataLink tag upload and download
- PI ProcessBook visualization

RESULTS

Plant now has a tool to guide them to optimal run conditions

- HTML interface purchased
- In house development of cost tools (engineering department)
- Resulted in decision to continue running facility instead of mothballing

Contact Information

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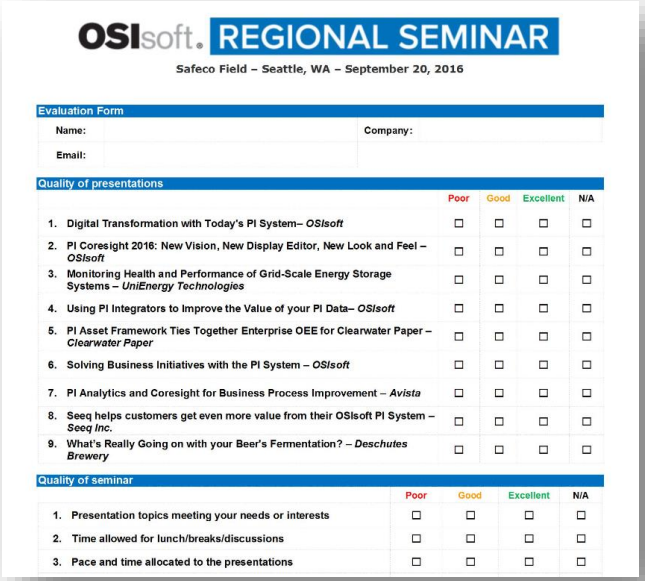
Questions

Please wait for the **microphone** before asking your questions

State your
name & company

Please don't forget to…

Complete the Survey
for this session



OSIsoft. REGIONAL SEMINAR

Safeco Field – Seattle, WA – September 20, 2016

Evaluation Form

Name:	Company:
Email:	

Quality of presentations

	Poor	Good	Excellent	N/A
1. Digital Transformation with Today's PI System– *OSIsoft*	☐	☐	☐	☐
2. PI Coresight 2016: New Vision, New Display Editor, New Look and Feel – *OSIsoft*	☐	☐	☐	☐
3. Monitoring Health and Performance of Grid-Scale Energy Storage Systems – *UniEnergy Technologies*	☐	☐	☐	☐
4. Using PI Integrators to Improve the Value of your PI Data– *OSIsoft*	☐	☐	☐	☐
5. PI Asset Framework Ties Together Enterprise OEE for Clearwater Paper – *Clearwater Paper*	☐	☐	☐	☐
6. Solving Business Initiatives with the PI System – *OSIsoft*	☐	☐	☐	☐
7. PI Analytics and Coresight for Business Process Improvement – *Avista*	☐	☐	☐	☐
8. Seeq helps customers get even more value from their OSIsoft PI System – *Seeq Inc.*	☐	☐	☐	☐
9. What's Really Going on with your Beer's Fermentation? – *Deschutes Brewery*	☐	☐	☐	☐

Quality of seminar

	Poor	Good	Excellent	N/A
1. Presentation topics meeting your needs or interests	☐	☐	☐	☐
2. Time allowed for lunch/breaks/discussions	☐	☐	☐	☐
3. Pace and time allocated to the presentations	☐	☐	☐	☐

Thank You