



Transform Data into Information

for Real-time Decision Support

Presented by **Bryan Pope, Systems Engineer**



What's the status?

Is there a problem?

What do I need to do?

Information helps you make good decisions, quickly

A look at decision-ready information

OSIsoft | Esri | Oil and Gas Dashboard

Wells

Search

- CE-08300011
Flow Rate: 250.92 k sft3/h
Flow Tubing Pressure: 181.21 psig
1/6/2014 12:19 PM
- CE-08300073
Flow Rate: 362.30 k sft3/h
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Flow Rate: 247.43 k sft3/h
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Flow Rate

250.92

Flow Tubing Pressure

181.21

psi

Production KPI

295.17 k sft3/h

Cat Canyon Operations Dashboard Map

GeoFences

GeoFenceId	Category	Name
Danger Zone 1 Items		
DangerousArea/Danger Zone	DangerousArea	Danger Zone
Drilling Activity 1 Items		

Alerts

Alerts (8)

Incident Name	Resource	Resource Name	Description	As
Cumulative 8 Items				
DangerousArea	Roustabout Miguel		Ongoing for last 54 seconds.	
DangerousArea	Roustabout Miguel		Ended at Mon Jan 06 17:18:05 UTC 2014 and lasted for 36 seconds.	
DangerousArea	Roustabout Carol		Ongoing for last 3 minutes and 40 seconds.	

PI CoreSight

Bottom Hole Pressure

Trucks

- Roustabout Miguel
Fuel: 0.00 gal
Speed: 2.92 mph
- Electrician Bob
Fuel: 0.00 gal
Speed: 2.69 mph
- Welder Joe
Fuel: 68.22 gal
Speed: 10.84 mph
- Supervisor Lauren
Fuel: 16.52 gal
Speed: 26.13 mph

Truck Detail

Roustabout Miguel

This truck has consumed 0.00 gallons and has driven 316,019.69 miles

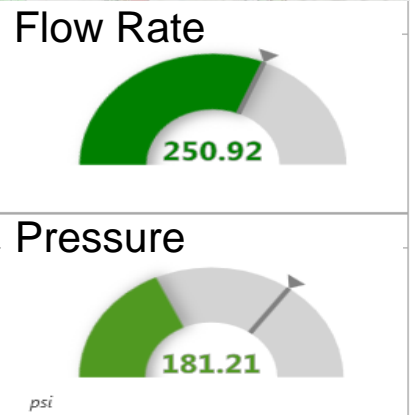
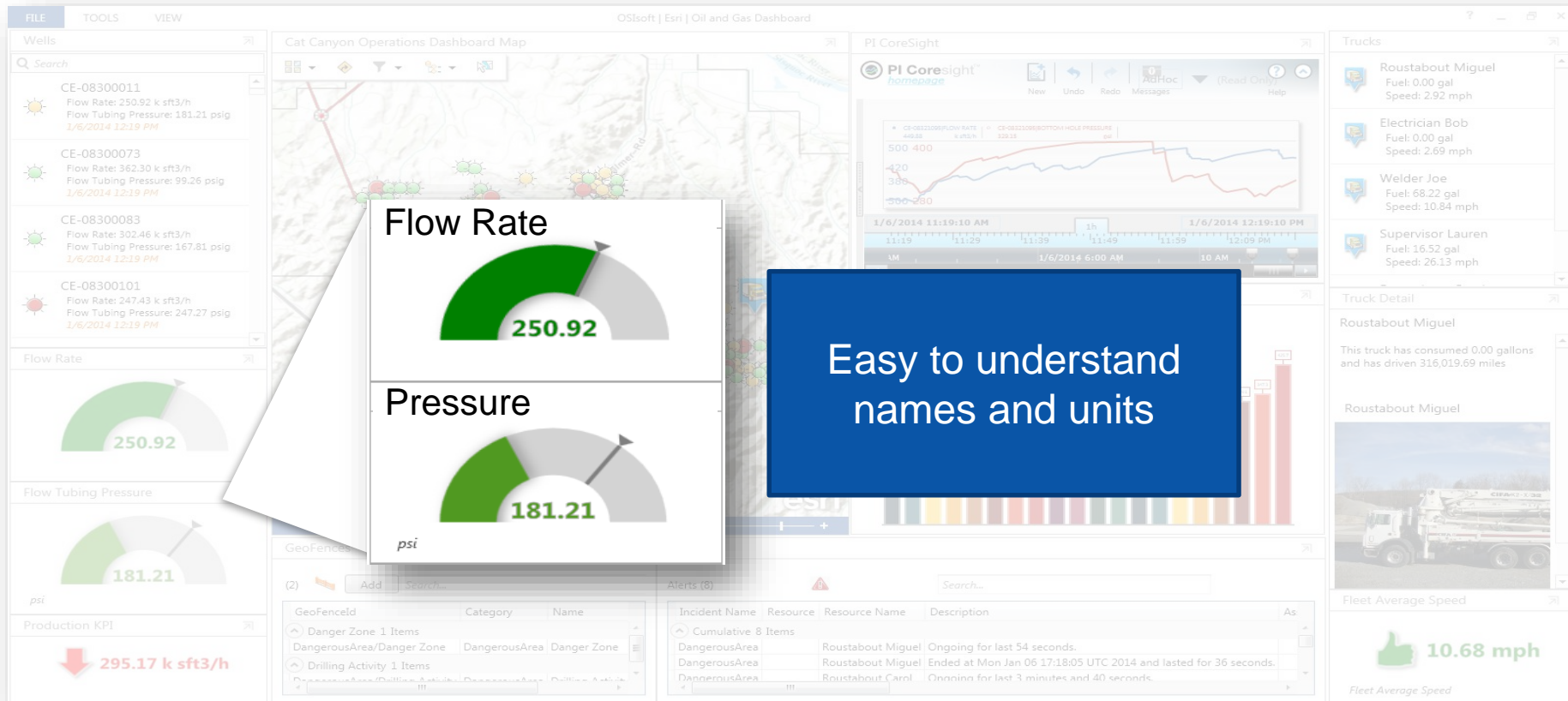
Roustabout Miguel

Fleet Average Speed

10.68 mph

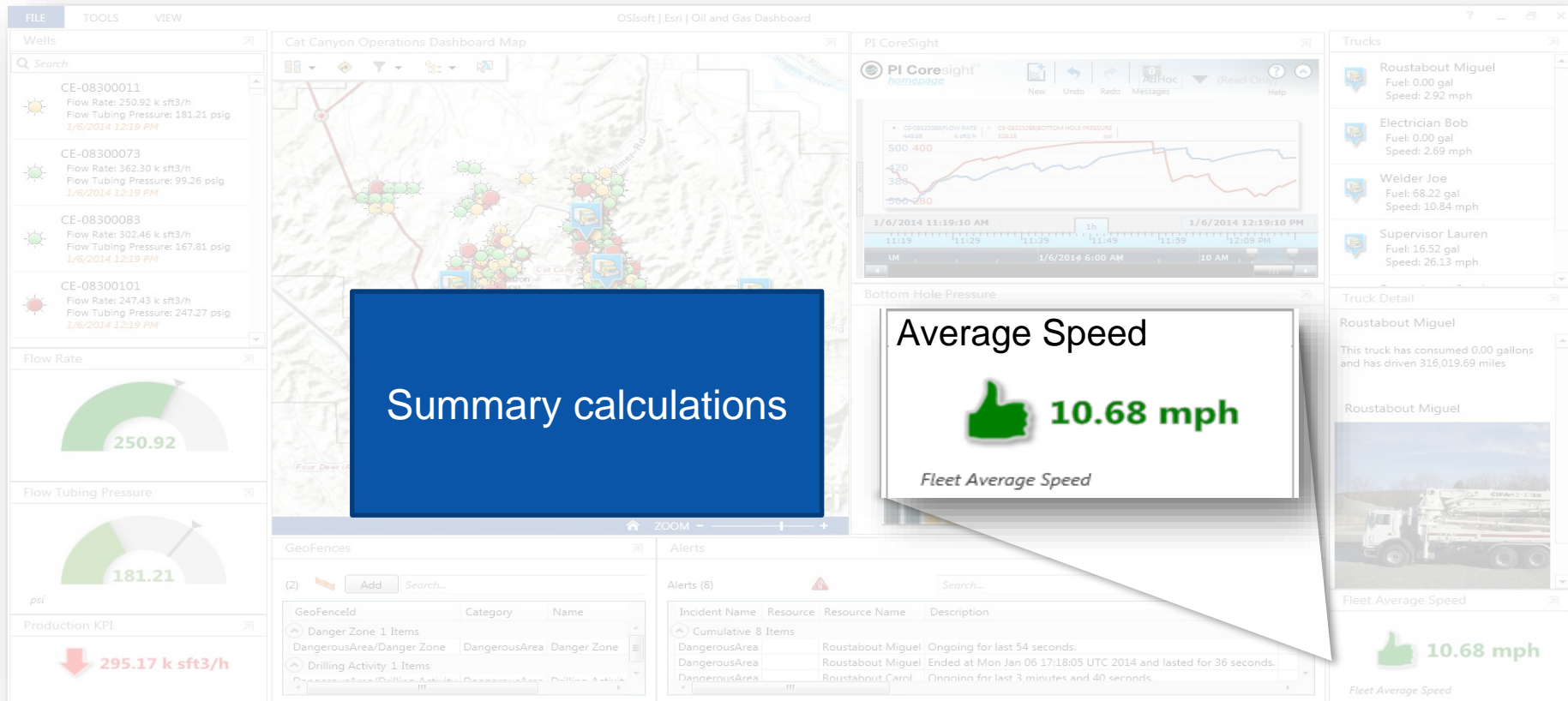
Fleet Average Speed

A look at decision-ready information

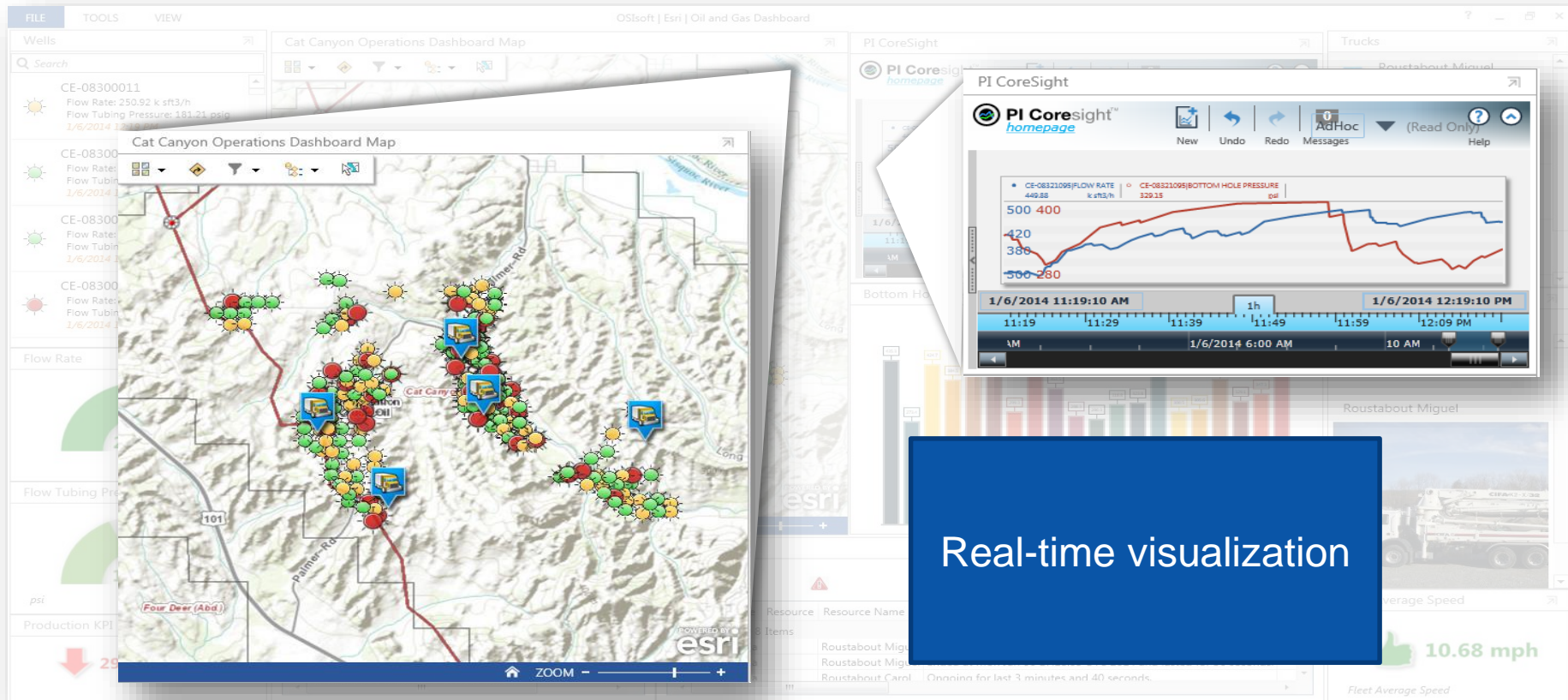


Easy to understand names and units

A look at decision-ready information

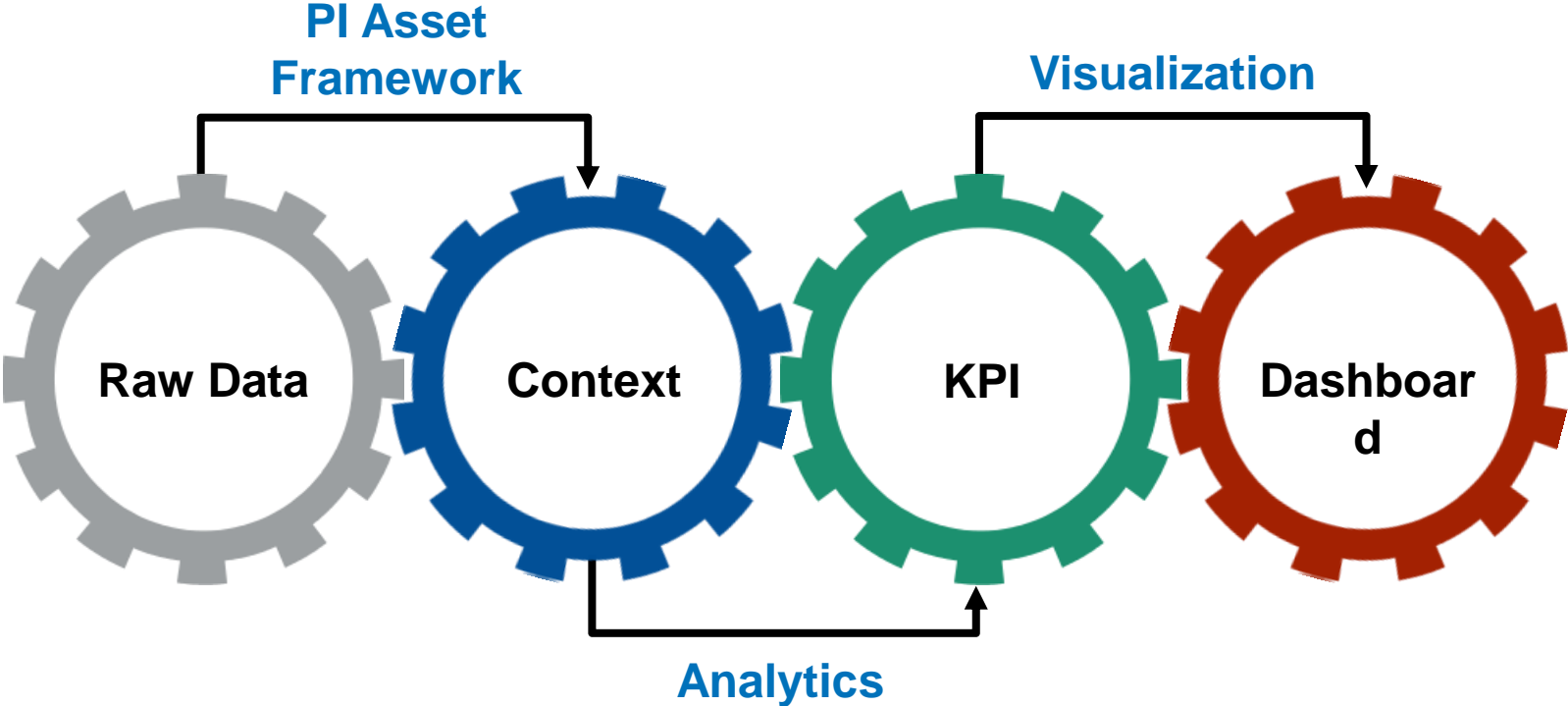


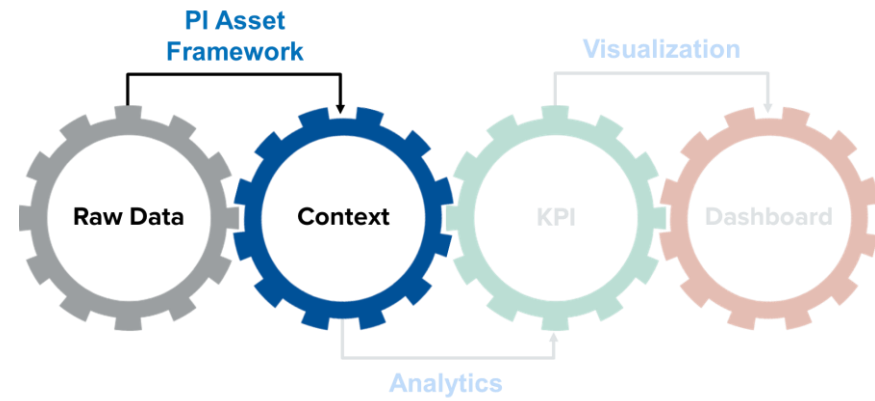
A look at decision-ready information



Real-time visualization

How do you transform data into decision-ready information?





Context and Standardization

What is context?

Wind speed

3.7 kts

Upper limit:
50 kts

Gabsheim, Germany

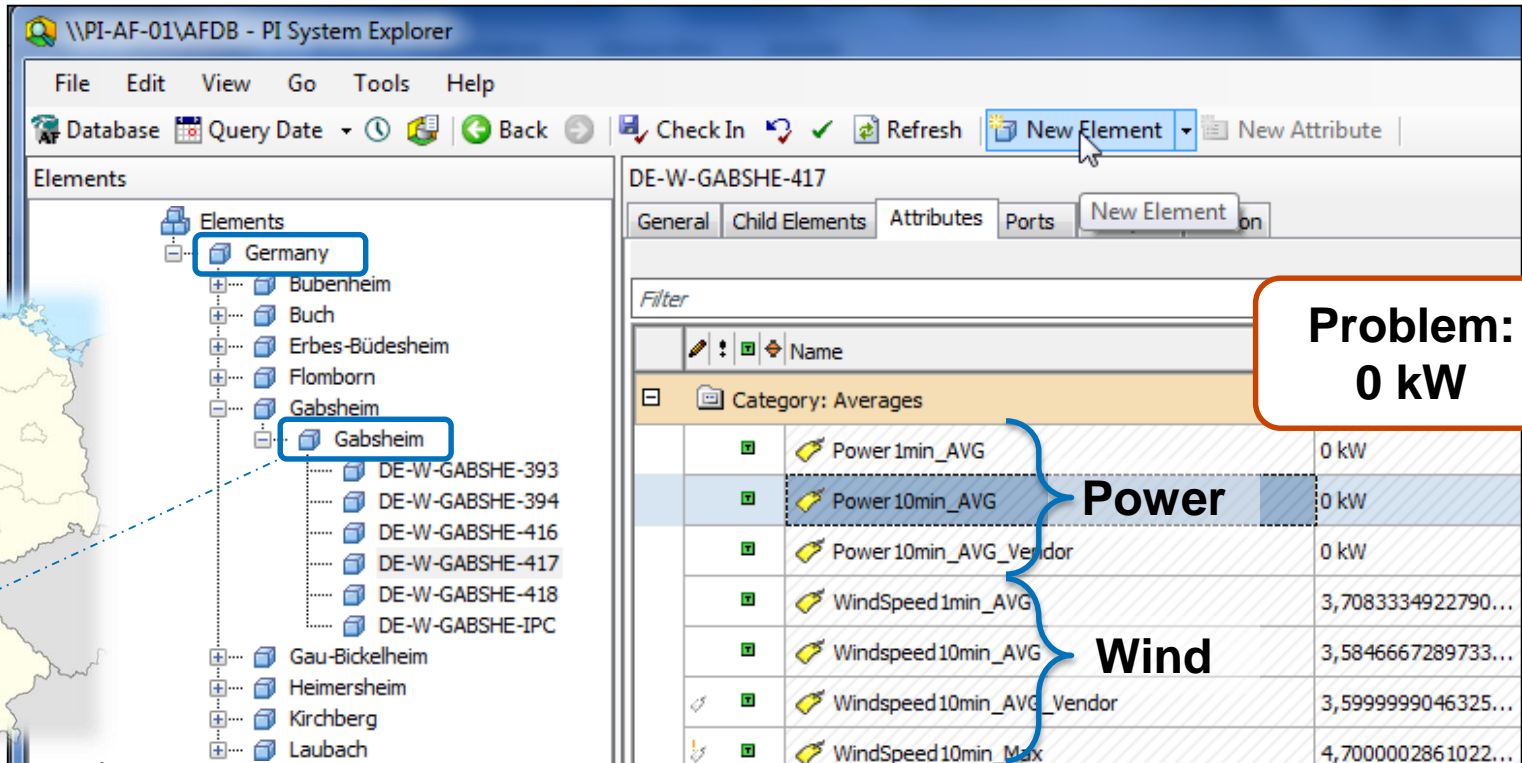


Acme Windmill

10 minute average

Power 0 kW

PI Asset Framework organizes context and relationships



The screenshot shows the PI System Explorer interface. On the left, a tree view displays a hierarchy of assets under 'Germany' and 'Gabsheim'. A map of Germany is overlaid on the left side, with a blue dot indicating the location of Gabsheim. The main pane shows the details for asset 'DE-W-GABSHE-417'. The 'Attributes' tab is active, displaying a table of data points. A red callout box highlights the value '0 kW' for the 'Power 10min_AVG' attribute. A blue bracket groups the 'Power' attributes, and another blue bracket groups the 'Wind' attributes.

Category	Name	Value
Power	Power 1min_AVG	0 kW
	Power 10min_AVG	0 kW
	Power 10min_AVG_Vendor	0 kW
Wind	WindSpeed 1min_AVG	3,7083334922790...
	Windspeed 10min_AVG	3,5846667289733...
	Windspeed 10min_AVG_Vendor	3,5999999046325...
	WindSpeed 10min_Max	4,7000002861022...

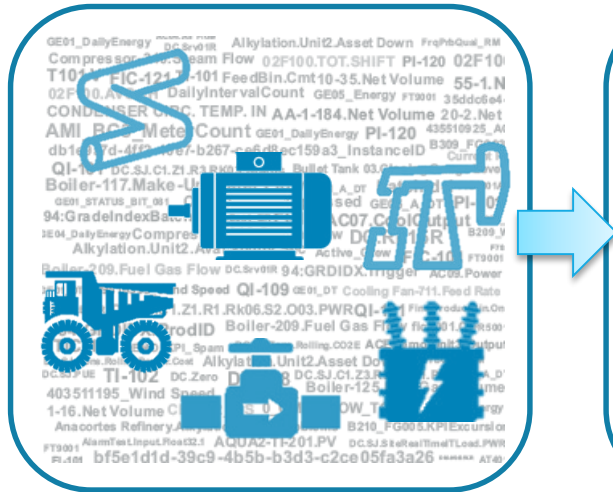
**Problem:
0 kW**

Power

Wind

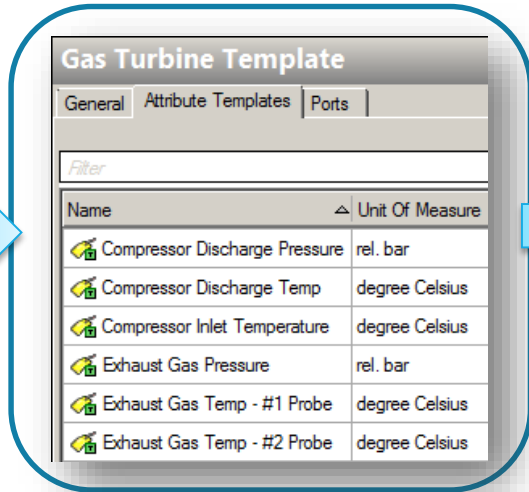
Context leads to faster response

Assets



A screenshot of a data-rich asset page, likely from a SCADA or industrial control system. The page is filled with text, including asset names like 'Boiler-117', 'Compressor', and 'Exhaust Gas Temp'. A large blue magnifying glass icon is overlaid on the page, symbolizing search or discovery.

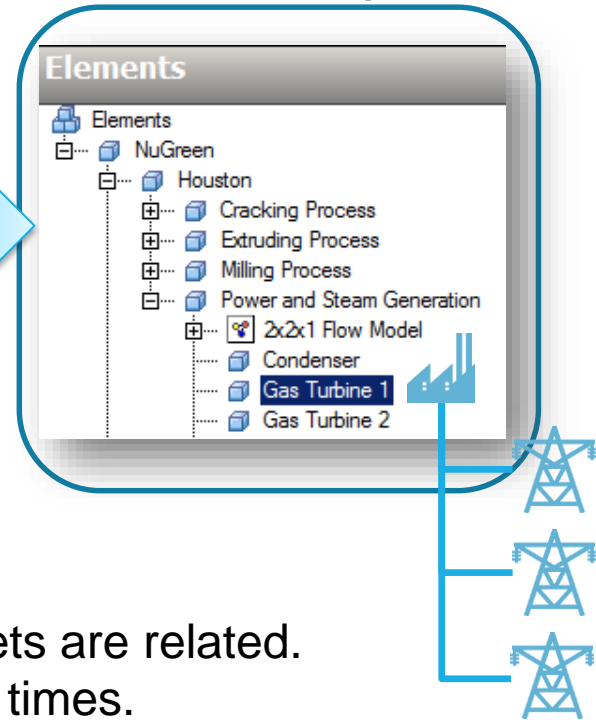
Common Terms



A screenshot of a 'Gas Turbine Template' page. It features a table with columns for 'Name' and 'Unit Of Measure'. The table lists several common terms related to gas turbines, such as 'Compressor Discharge Pressure' and 'Exhaust Gas Temp'. A blue arrow points from the 'Assets' section to this section.

Name	Unit Of Measure
Compressor Discharge Pressure	rel. bar
Compressor Discharge Temp	degree Celsius
Compressor Inlet Temperature	degree Celsius
Exhaust Gas Pressure	rel. bar
Exhaust Gas Temp - #1 Probe	degree Celsius
Exhaust Gas Temp - #2 Probe	degree Celsius

Relationships



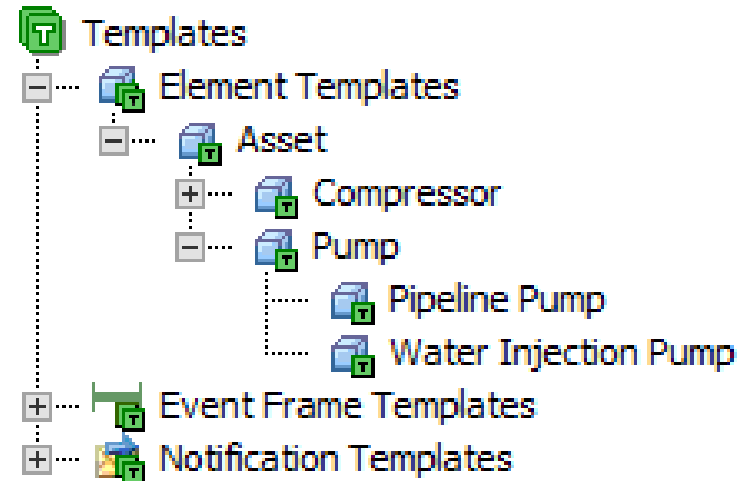
A screenshot of an 'Elements' tree view. The tree shows a hierarchy of elements, including 'NuGreen', 'Houston', 'Cracking Process', 'Extruding Process', 'Milling Process', 'Power and Steam Generation', '2x2x1 Flow Model', 'Condenser', 'Gas Turbine 1', and 'Gas Turbine 2'. A blue arrow points from the 'Common Terms' section to this section. To the right of the tree, there are three blue power line tower icons connected by a blue line.

PI Asset Framework

Allows anyone to quickly understand data and how assets are related.
Preserves domain knowledge and reduces on-boarding times.

Templates enable rapid roll-out and **standardization**

- **Faster** deployment
 - Standardize attributes and KPIs
- **Facilitate** asset management
 - Centrally push updates to all assets
- **Reuse** visualization screens
 - See consistent displays for similar assets

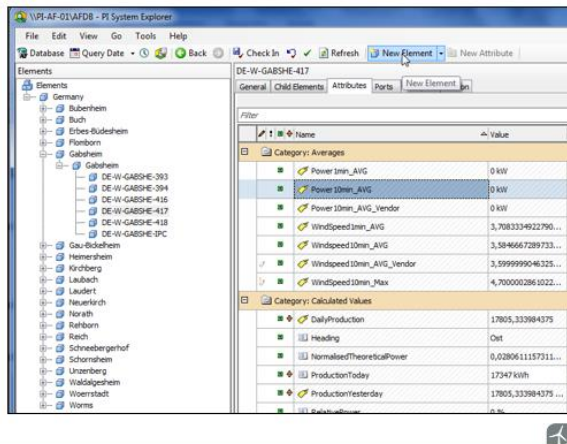


Renewable power company uses PI Asset Framework in strategy to save 2.6M euros

“Look and Feel” – Asset view in PI Asset Framework



- “Copy/paste” tree structure
- Standardization of Assets using Templates
 - generic (90%)
 - specific (5%)
 - analytics (5%)
- Triple structure views
 - Assets by location
 - Assets by owner
 - Assets by energy flow
- Benefits of using PI AF
 - Big time savings
 - No errors when adding new assets

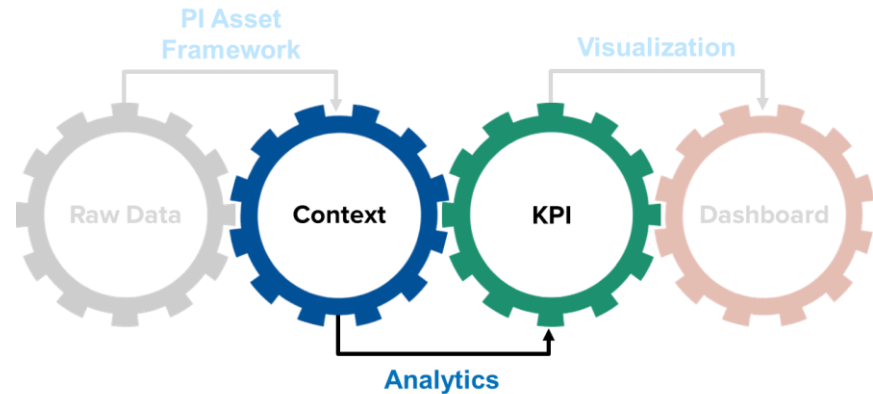


“Before, it took us 1 week to connect, 2 weeks to find mistakes.”

“[With PI AF] You pick templates, apply the template, and you can be quite sure that the values will be **correct.**”



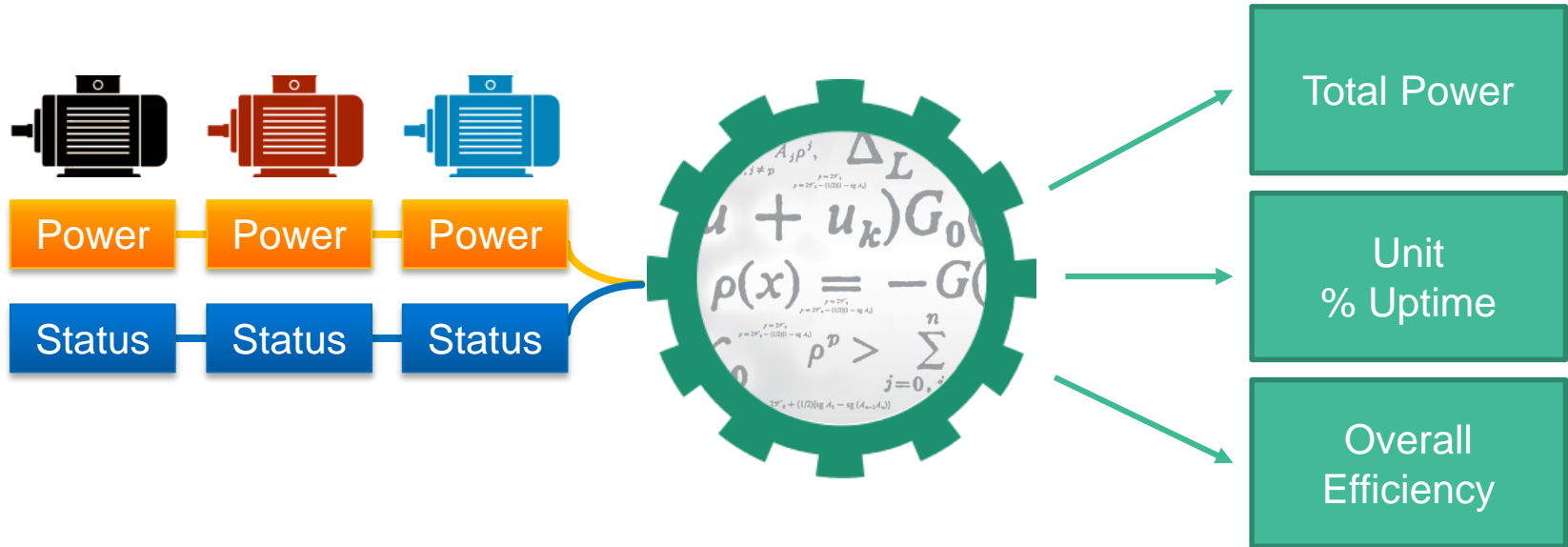
Dr. Thomas Weiss, JUWI



Calculations & KPIs

PI AF templates put data into a standard, **consistent** format

Asset analytics turns data into **KPIs**



Easily track **site-level** metrics with **rollup** capabilities

Well Pad 035

General Child Elements Attributes Ports Analyses Version

Name Backfilling

- Oil Flow Rate Rollup
- Well Pad Volume Flow Rate Rollup

Name: Oil Flow Rate Rollup

Description:

Categories:

Analysis Type: Expression Rollup

Rollup attributes from

- Child elements of Well Pad 035
- This element - Well Pad 035

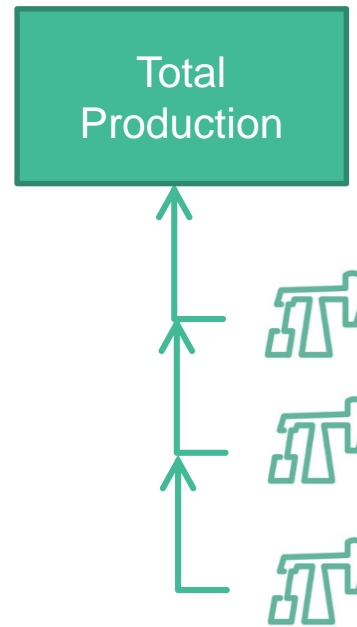
To select attributes set criteria below

Attribute Name: Oil Flow Rate

Attribute Category:

Attributes

Name	Parent Element
✓ Oil Flow Rate	OW-259
✓ Oil Flow Rate	OW-262
✓ Oil Flow Rate	OW-258
✓ Oil Flow Rate	OW-261
✓ Oil Flow Rate	OW-260



Heineken uses KPIs to save water, energy, and reduce costs

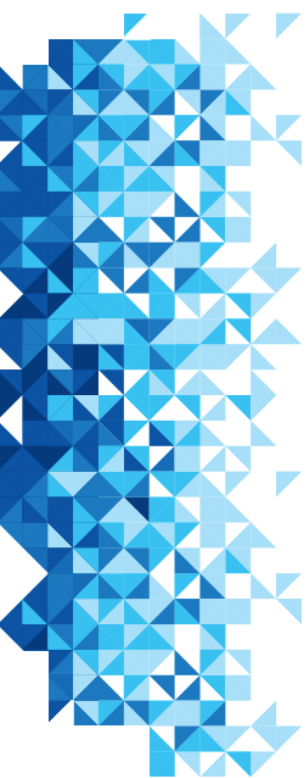


We can check in real time the efficiency, pressure, power, and flow.

Also we check efficiency values for the last 24 hours, last week, and last month.



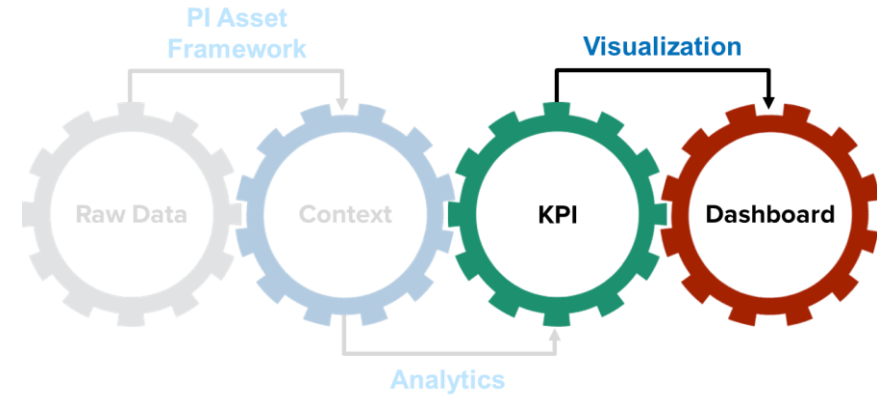
Consuelo Carmona Miura



The screenshot shows a software interface with a tree view on the left and a detailed view on the right. The tree view lists various data points (TR0606, TR0842, TR1123, TR1171, TR2003, TR2822, TR4085, TR4522, TR4559, TR4967, TR5493, TR5620, TR6002, TR6676, TR7785, TR8243, TR9124, TR9946, TR3450, TRManual) and two districts (Eastern District, Northern District). The detailed view for TR3450 shows a table of gas analysis results.

Category: Current DGA Analysis		
Name	Value	
Acetylene	<1	
Carbon Dioxide	3004 ppm	
Carbon Monoxide	223 ppm	
Ethane	137 ppm	
Ethylene	38 ppm	
Hydrogen	193 ppm	
Methane	115 ppm	
Nitrogen	22698 ppm	
Oxygen	2340 ppm	

Demo

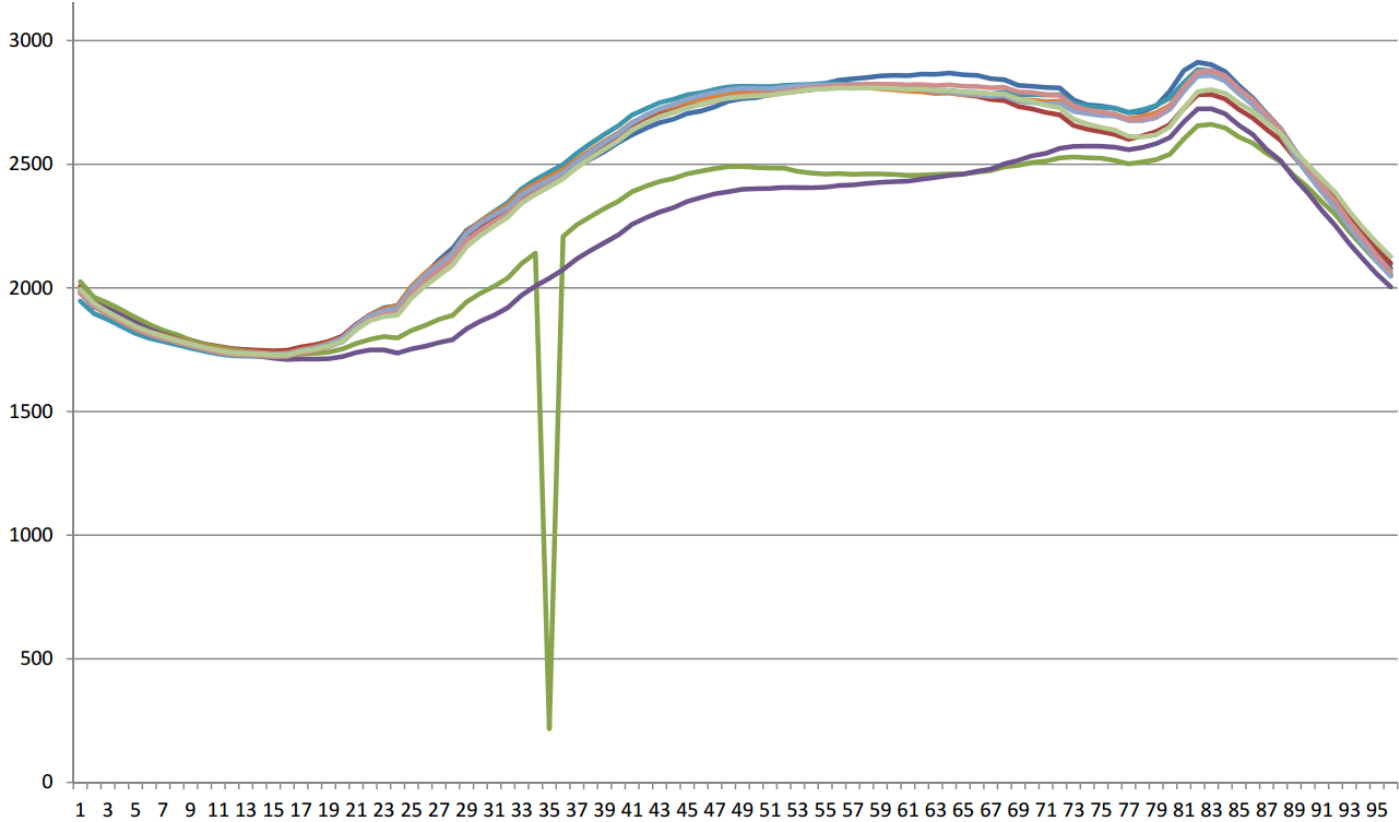


Real-time Visualization

Can you see the problem?

4:30	1766.807	1770.041	1735.584	1712.094	1748.954	1760.249	1756.513	1746.813	1751.224
4:45	1782.593	1783.582	1740.005	1713.625	1763.2	1776.202	1772.523	1762.432	1765.907
5:00	1804.619	1804.311	1753.202	1722.105	1782.787	1798.3	1796.214	1783.199	1785.155
5:15	1851.697	1851.983	1775.265	1738.878	1833.121	1848.069	1846.02	1832.959	1832.181
5:30	1891.173	1889.403	1791.779	1749.428	1874.77	1890.169	1887.194	1871.383	1867.261
5:45	1918.68	1914.849	1803.538	1749.229	1901.105	1913.318	1905.974	1891.461	1883.946
6:00	1927.751	1928.128	1797.334	1736.343	1917.293	1927.759	1919.787	1900.453	1889.87
6:15	2001.637	2003.804	1827.463	1753.16	1994.741	2006.415	1996.289	1975.221	1958.406
6:30	2054.95	2058.036	1848.321	1764.349	2050.196	2060.041	2051.025	2028.24	2008.001
6:45	2112.258	2103.88	1872.549	1778.843	2095.131	2102.328	2094.292	2072.529	2050.109
7:00	2160.629	2137.386	1888.932	1790.602	2135.888	2143.732	2138.594	2116.436	2091.379
7:15	2232.516	2211.839	1943.359	1834.518	2220.943	2225.654	2219.614	2192.266	2166.789
7:30	2267.812	2254.537	1978.218	1865.147	2270.142	2268.746	2261.528	2233.358	2211.937
7:45	2294.774	2288.251	2006.233	1889.359	2308.142	2303.487	2294.172	2266.28	2249.907
8:00	2325.94	2322.89	2040.28	1920.23	2345.282	2336.993	2324.838	2299.474	2286.259
8:15	2370.621	2371.534	2099.076	1970.189	2400.857	2389.888	2377.086	2352.518	2342.512
8:30	2398.012	2401.169	2140.396	2007.306	2437.142	2420.344	2408.794	2385.162	2377.984
8:45	2427.269	2429.596	217.261	2038.443	2468.24	2449.527	2436.273	2415.056	2409.495
9:00	2452.356	2457.249	2208.352	2074.063	2499.239	2478.301	2465.481	2444.879	2441.46
9:15	2490.627	2502.216	2255.25	2117.835	2544.785	2520.463	2509.126	2488.076	2487.573
9:30	2521.597	2540.463	2288.521	2151.365	2584.2	2557.204	2550.518	2526.244	2525.164
9:45	2551.844	2575.42	2321.138	2182.995	2621.057	2593.661	2588.434	2561.901	2560.209
10:00	2588.298	2611.475	2350.499	2213.857	2655.357	2626.772	2622.822	2596.66	2594.748
10:15	2619.03	2650.911	2388.768	2256.956	2699.702	2668.777	2666.828	2638.944	2637.933
10:30	2645.652	2678.506	2411.097	2283.247	2724.45	2695.779	2698.503	2667.695	2667.878
10:45	2668.184	2703.642	2430.173	2307.043	2749.066	2720.254	2725.196	2691.454	2693.37
11:00	2682.564	2718.079	2442.608	2324.405	2763.242	2733.837	2741.958	2709.303	2710.661
11:15	2705.387	2736.648	2461.428	2349.543	2780.964	2750.594	2762.598	2728.487	2728.311
11:30	2715.591	2742.262	2472.007	2365.656	2788.949	2764.653	2778.697	2743.69	2742.778

How about now?

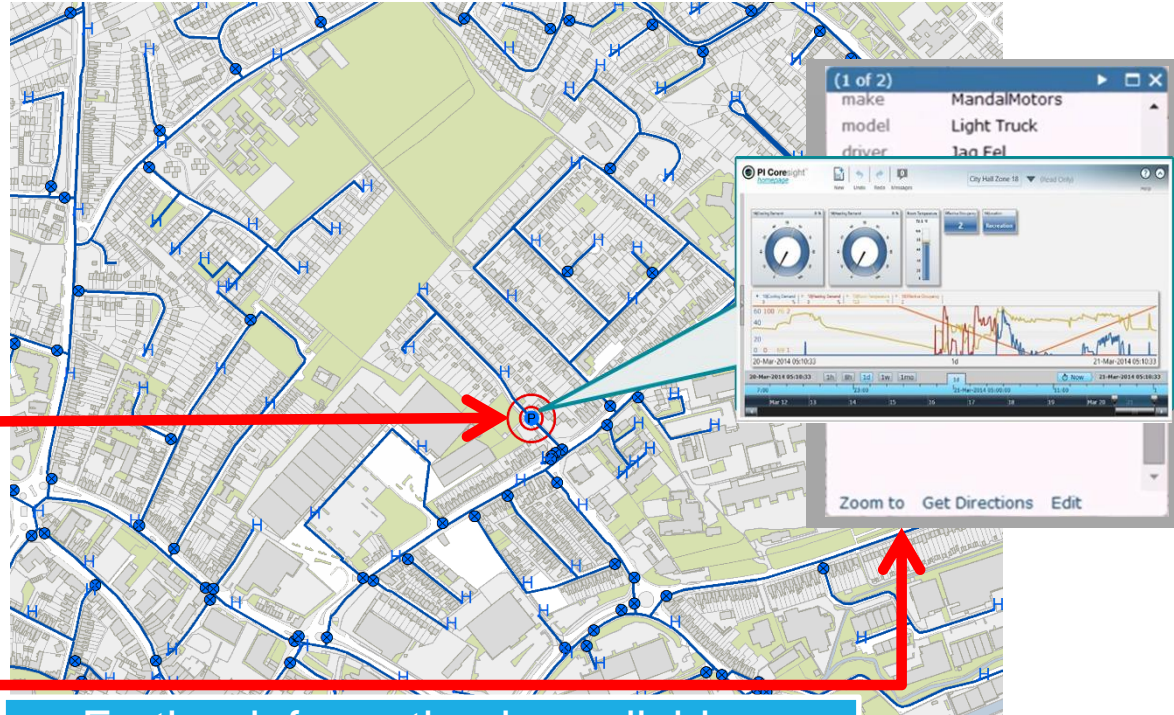


Proactive network & asset management



Operator clicks on the asset on GIS display

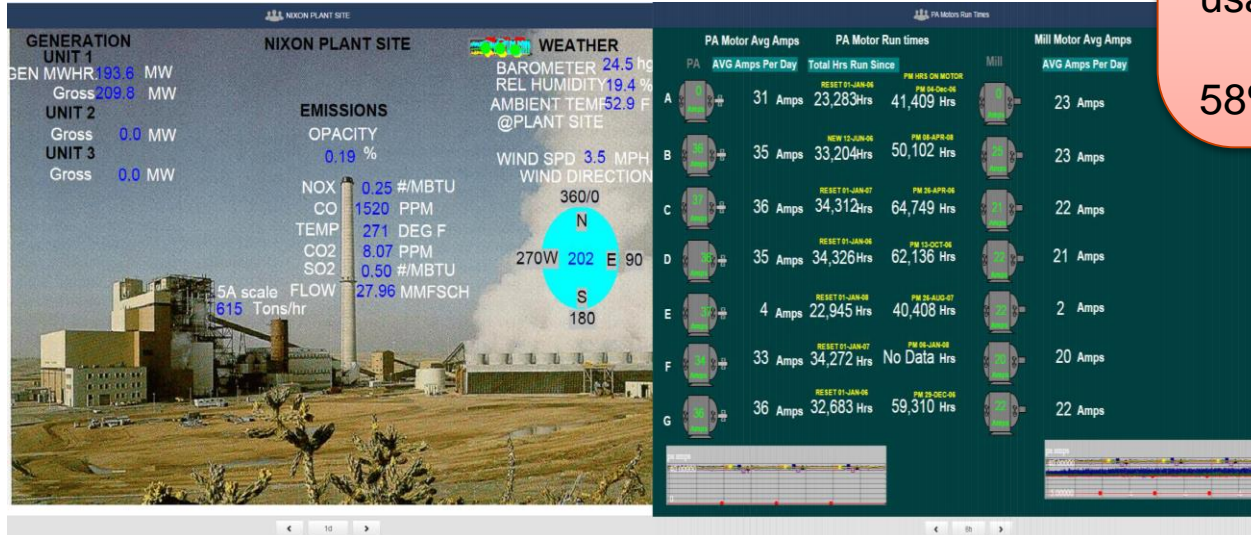
Real-time information from the PI System for this asset is displayed



Further information is available - single click to access

Colorado Springs Utilities

Improving Business Processes through Operational Intelligence for Electric Generation



Operational Gains

29% Reduction in resource allocation for inspections

30% Reduction in vehicle usage annually

58% Reduction in overtime



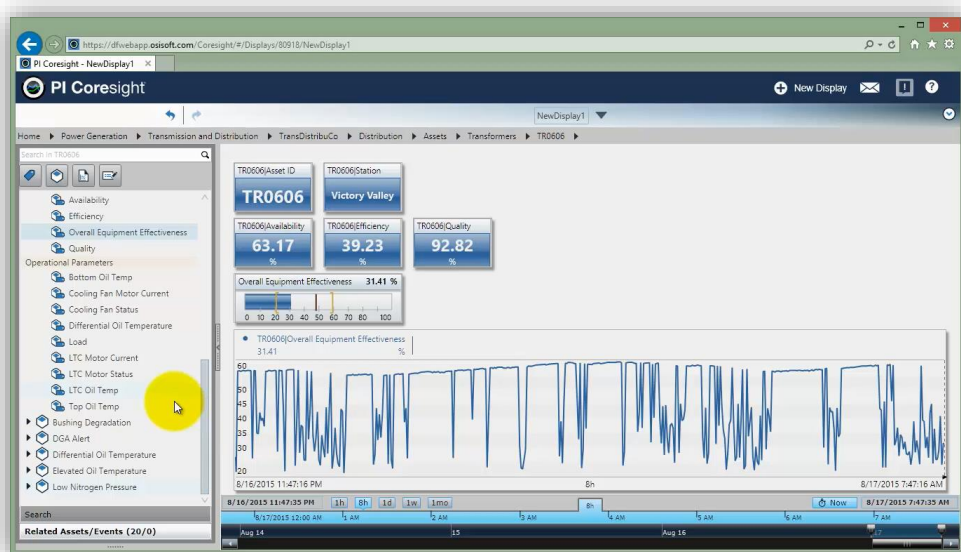
David Mora



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32



Demo



Summary

Improve process & operational workflows



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Fuel: 16.52 gal
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Truck Detail

Roustabout Miguel

This truck has consumed 0.00 gallons and has driven 316,019.69 miles

Roustabout Miguel

Fleet Average Speed

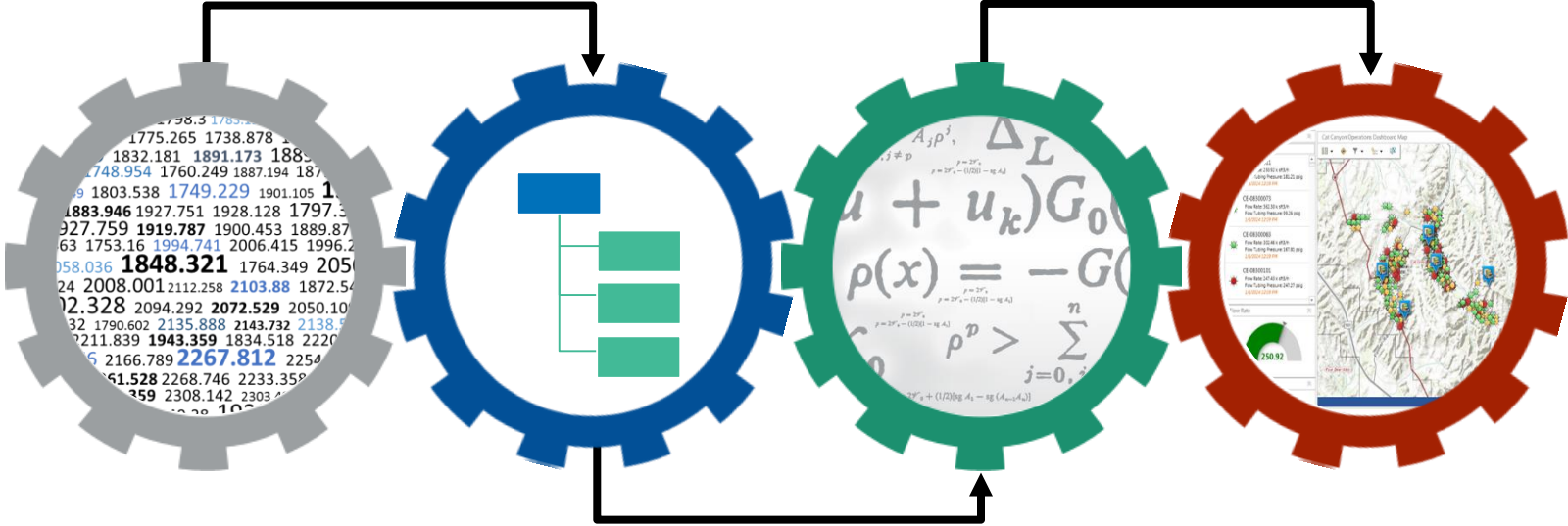
10.68 mph

Fleet Average Speed

Make faster, better decisions with the latest PI System tools

PI Asset Framework

Visualization



Analytics

Explore on your own with Asset-based PI Example Kits

The screenshot displays the software interface with several key components highlighted by blue callout boxes:

- Hierarchy:** A tree view on the left showing the organizational structure, including 'PIServer', 'West Texas', 'Clear Fork', and various wells (Well29, Well30, Well31, Well32).
- Templates:** A tree view on the right showing 'Element Templates' (Equipment, PIServer, Production Area, Well, Well Pad) and 'Event Frame Templates' (Well Downtime).
- Analyses:** A list of analysis tools on the left, including 'Downtime tracking', 'LifetimeTracking', 'OSIDEMO_RandomWellMetrics', and 'OSIDEMO_RandomWellStates'.
- Visualization with demo data:** A central area showing a 'Stacked Area Chart' titled 'Odessa Production Rate bbl/d' from 12/1/14 to 12/31/14. Below the chart is a data table with columns for Well13, Well14, Well15, and Well16.

Well13	Well14	Well15	Well16
11.89813204	94.87028	14.98340913	76.04343
5.79815374	97.83235	49.7699508	41.17318
30.94527917	100.7944	27.15279329	80.84262

- Learning tool & starting point for an Asset-based PI System
- Different industry examples
- Available to everyone on the [TS Download Center](#)
 - Search for “Example kit”

Contact Information

Bryan Pope

bpope@osisoft.com

Systems Engineer

OSIsoft, LLC



Questions

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



State your **name & company**

Please remember to...

Complete the Survey for this session



The Power of Data
DECISION READY IN REAL-TIME

Evaluation Form (Seminar Location - Date)

Name: _____ Company: _____

Email: _____

Quality and content of the presentations	Poor	Good	Excellent	N/A
Welcome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Journey To Real-Time Operational Intelligence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Power of Connection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tank Level Management System	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using the FI System to Aid in Troubleshooting Operational Aspects of Oil and Gas Well Drilling and Completion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unleash your Infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information on the Spot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wrap-up/Seminar Conclusion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality and organization of the seminar				
Choice of date	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time allowed for lunch/breaks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Choice of presentations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Break time allowed for the presentation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



감사합니다

谢谢

Danke

Merci

Gracias

Thank You

ありがとう

Спасибо

Obrigado