

# OSIsoft 2014 Releases: Customer Perspectives

Presented by **Ray Hall**

**Vice President, Development at OSIsoft**

# Our Presenters



**Sari Ziade'**

*IT Project Manager*



**Brandon Lake**

*Lead OSIsoft PI Systems  
Analyst*



**Stein-Roar Bjornstad**

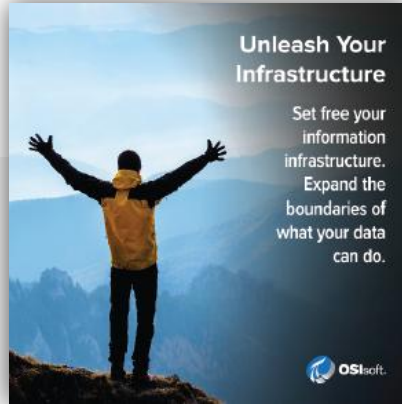
*System Architect*



**Gabor Mucsina**

*Energy Management  
Sr. Systems Engineer*

# OSIsoft Engineering Focus



- PI Event Frames
- Asset Analytics
- Future Data



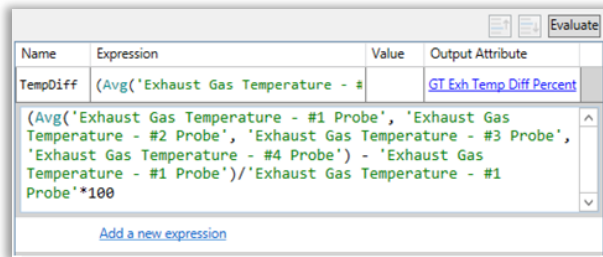
- PI Connectors
- PI Web API
- PI Cloud Connect
- PI Integrator for Esri



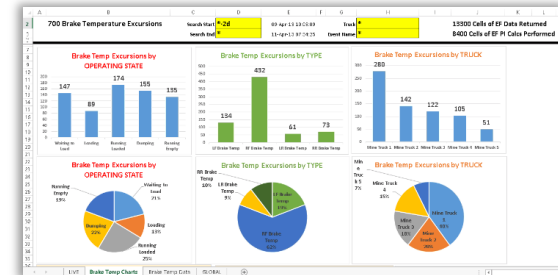
- PI Coresight Mobile
- PI Manual Logger
- PI ProcessBook Displays in PI Coresight

# OSIsoft 2014 Releases: Customer Perspectives

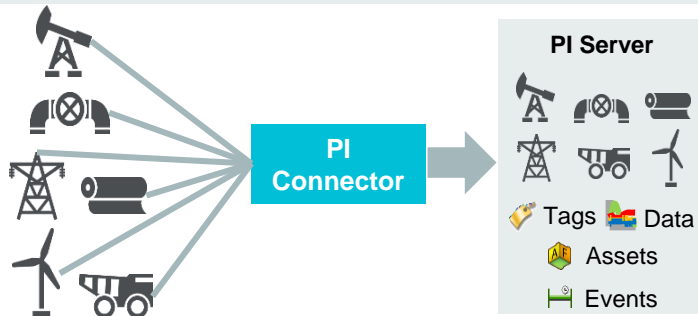
## Asset Based Analytics



## PI Event Frames



## PI Connectors



## PI ProcessBook Displays in PI Coresight



# Reviewing Asset Analytics



**Sari Ziade'**  
*IT Project Manager*



**Brandon Lake**  
*Lead OSIsoft PI Systems Analyst*



**Stein-Roar Bjornstad**  
*System Architect*

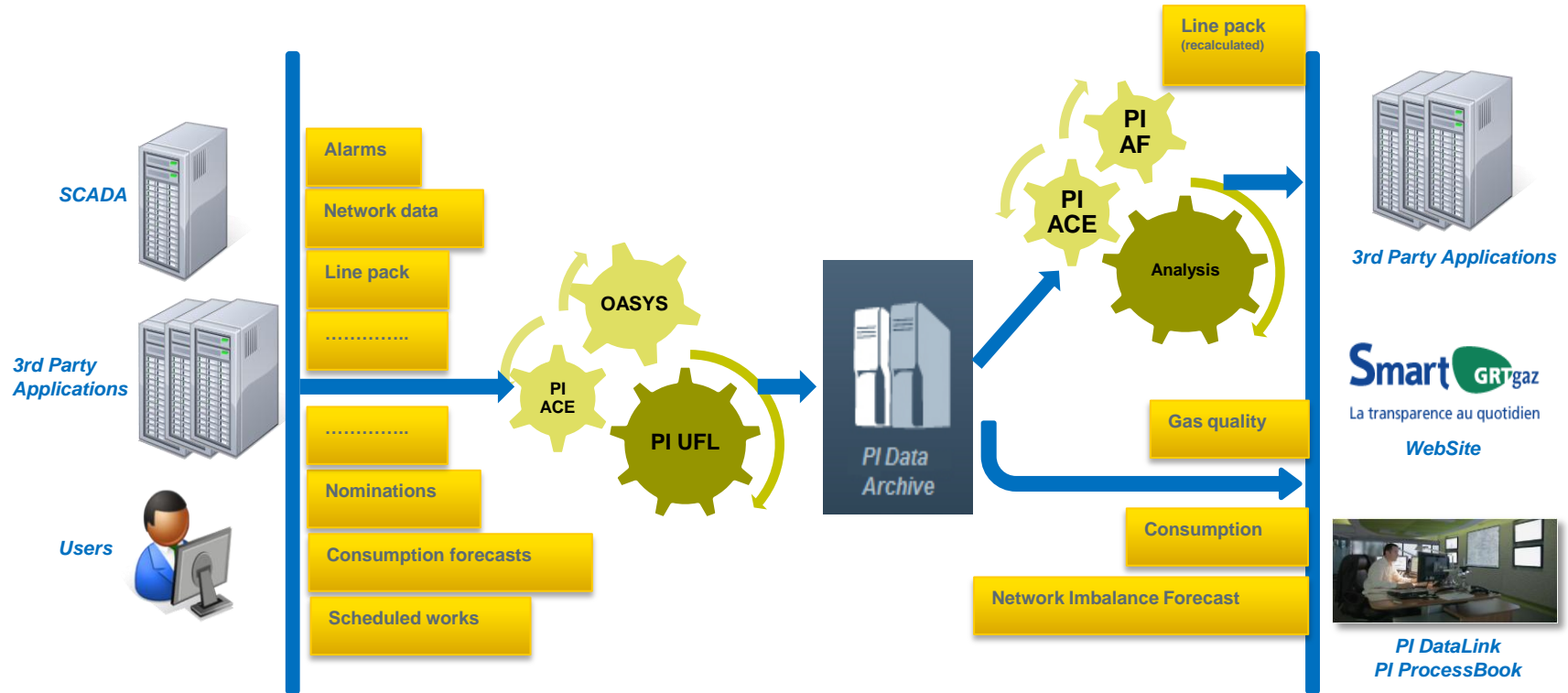


**Gabor Mucsina**  
*Energy Management  
Sr. Systems Engineer*

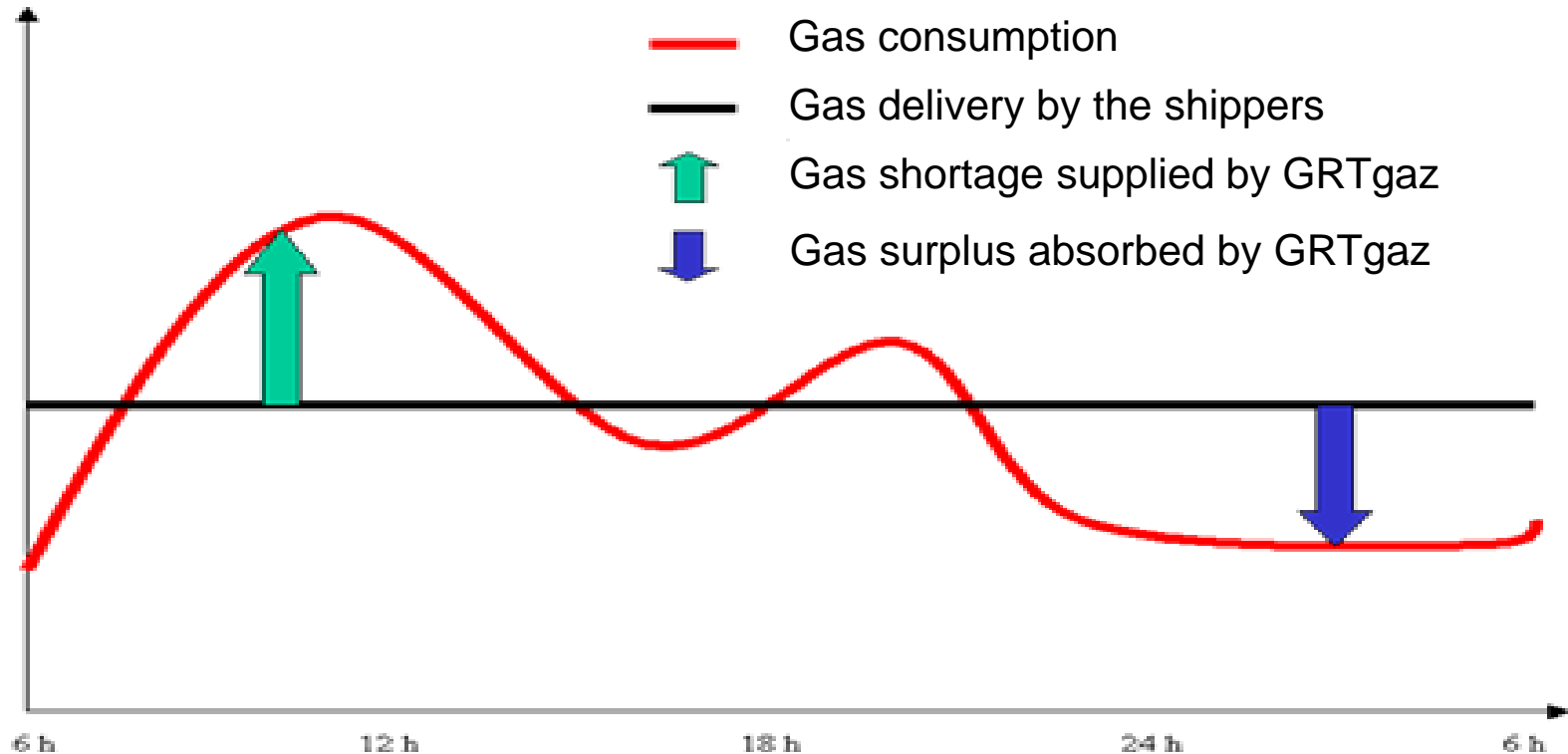
# GRTgaz



# The PI System at GRTgaz



# Line Pack



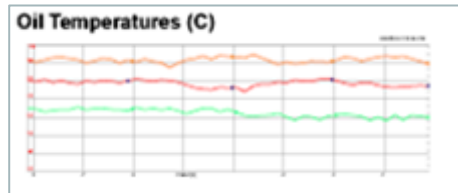




# Asset Analytics

Create Actionable Information from Raw Data Streams

## Your PI System Data



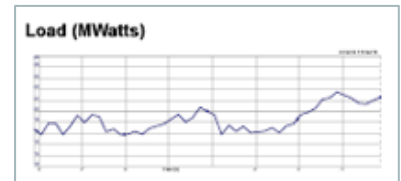
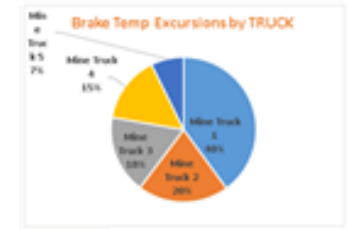
## Easy Calculation Interface

Name	Expression	Value	Output Attribute
TempDiff	(Avg('Exhaust Gas Temperature - #1 Probe', 'Exhaust Gas Temperature - #2 Probe', 'Exhaust Gas Temperature - #3 Probe', 'Exhaust Gas Temperature - #4 Probe') - 'Exhaust Gas Temperature - #1 Probe') * 100		GT Exh Temp Diff Percent

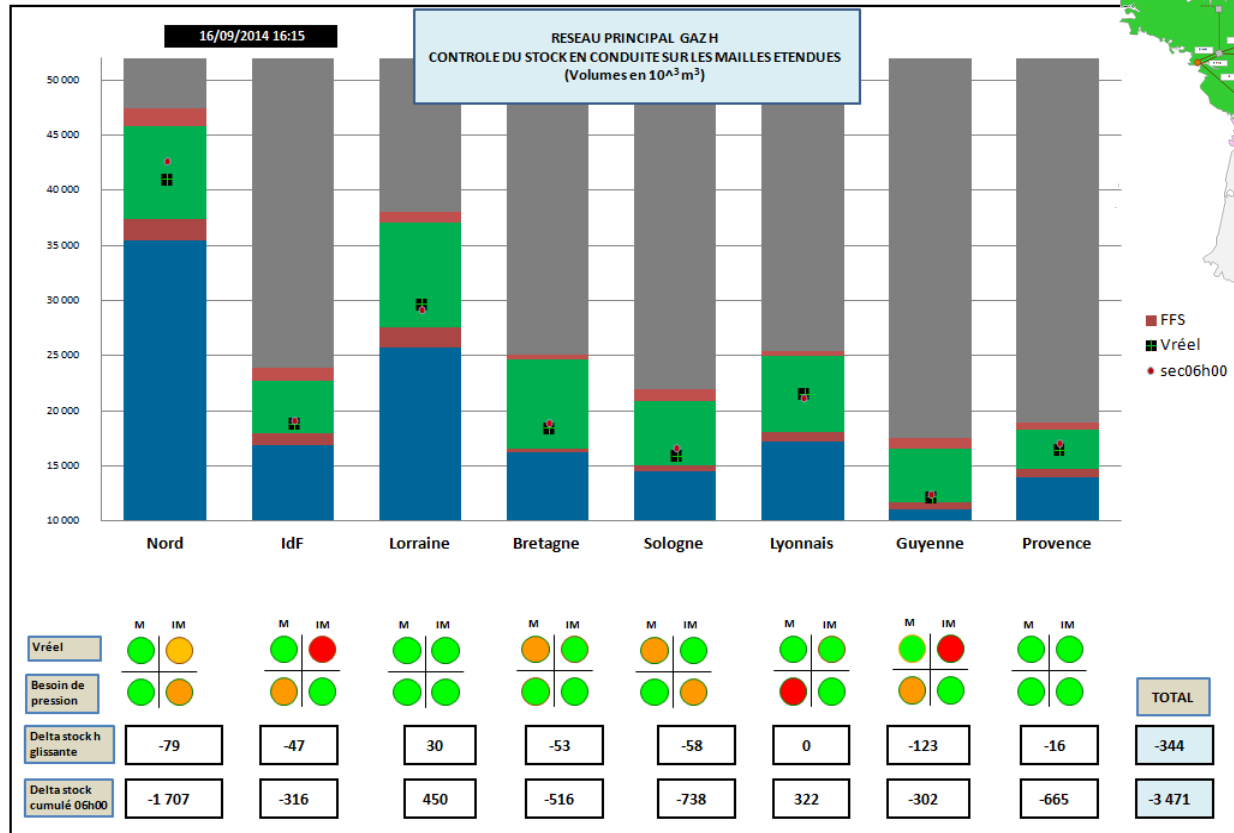
[Add a new expression](#)



## New Data Streams & Event Frames



- Auto-creates tags
- Equipment rollups
- Template based



# Reviewing Event Frames



Sari Ziade'  
*IT Project Manager*



**Brandon Lake**  
*Lead OSIsoft PI Systems  
Analyst*



Stein-Roar Bjornstad  
*System Architect*



Gabor Mucsina  
*Energy Management  
Sr. Systems Engineer*

# Iberdrola Group

**More than 46,000 MWs of installed capacity...**

150-year history with roots in hydroelectric power

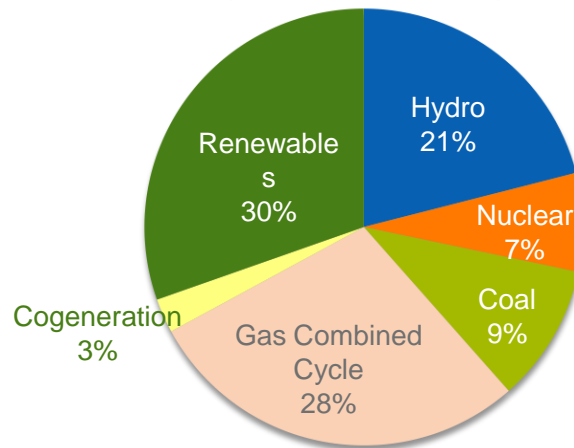
Leading renewables producer worldwide with >14 GW installed

30,000+ employees in nearly 40 countries

One of the lowest CO2 emissions levels in the electricity sector

Strategic focus on US, UK, Latin America and Spain

## Generation Capacity (58% emissions-free)



**...that is flexible and economical**

# Iberdrola Renewables, LLC

## A collection of exceptional assets...

#2 owner of wind projects in the U.S. with more than 5.7 GWs owned and contracted

More than \$10 billion of U.S. assets at nearly 60 installed plants

750+ employees at the end of 2013, compared with 12 in 1999

636 MW of CCGT & peaking capacity on the strategic CA-OR border

Represents 39% of Iberdrola S.A.'s global wind capacity

## US Renewables



### Wind

5,700+ MW



### Power

536 MW CCGT  
100 MW peaking



### Solar & Biomass

50 MW Solar  
55 MW Biomass

And clean gas generation

...focused on operational excellence and selective growth

# U.S. Power Assets



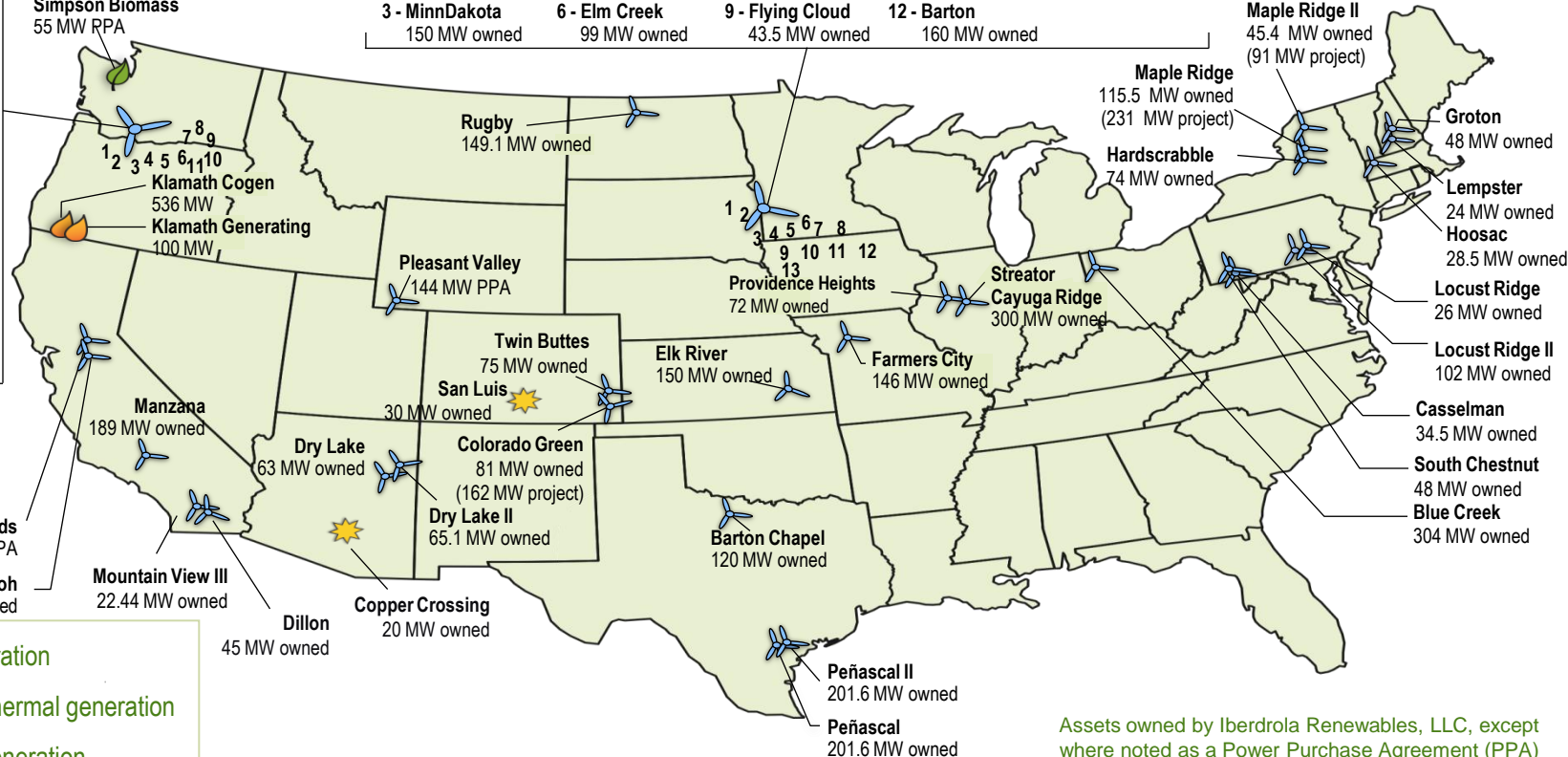
## WIND PROJECTS



## WIND PROJECTS

- 1 - Klondike IIIa  
76.5 MW owned
- 2 - Hay Canyon  
100.8 MW owned
- 3 - Klondike  
24 MW owned
- 4 - Klondike III  
223.6 MW owned
- 5 - Star Point  
99 MW owned
- 6 - Klondike II  
75 MW owned
- 7 - Big Horn  
199.5 MW owned
- 8 - Big Horn II  
50 MW owned
- 9 - Juniper Canyon  
151.2 MW owned
- 10 - Pebble Springs  
98.7 MW owned
- 11 - Leaning Juniper II  
201.3 MW owned

Simpson Biomass  
55 MW PPA



- |                                      |                                 |                                    |                                    |                                  |
|--------------------------------------|---------------------------------|------------------------------------|------------------------------------|----------------------------------|
| 1 - Buffalo Ridge<br>50.4 MW owned   | 4 - Moraine<br>51 MW owned      | 7 - Elm Creek II<br>148.8 MW owned | 10 - Winnebago<br>20 MW owned      | 13 - New Harvest<br>100 MW owned |
| 2 - Buffalo Ridge II<br>210 MW owned | 5 - Moraine II<br>49.5 MW owned | 8 - Trimont<br>101 MW owned        | 11 - Top of Iowa II<br>80 MW owned |                                  |
| 3 - MinnDakota<br>150 MW owned       | 6 - Elm Creek<br>99 MW owned    | 9 - Flying Cloud<br>43.5 MW owned  | 12 - Barton<br>160 MW owned        |                                  |



Wind generation



Gas-fired thermal generation



Biomass generation



Solar generation

Assets owned by Iberdrola Renewables, LLC, except where noted as a Power Purchase Agreement (PPA)

MAP-US2000, Rev. 12/31/2012





# PI Event Frames

Detect, Store and Analyze Actionable Information

## Asset Based Analytics: Event Detection

Name: Curtailment

Description: EF Generation

Categories: Park Curtailment

Analysis Type: ☐ Expression ☐ Rollup ☒ Event Frame Generation

Event Frame Template: Curtailment Event Frame

Name	Expression	Value
EventOnOff	If('Curtailment Trigger'=1) then 1 else 0	
StartTrigger	'Curtailment Trigger'=1	
EndTrigger	'Curtailment Trigger'=0	

Add a new expression

StartTrigger true for: 0 Minutes

☐ Generate child root cause event frame before parent event frame starts

Duration: 5 Minutes

Name: Root Cause

Category:

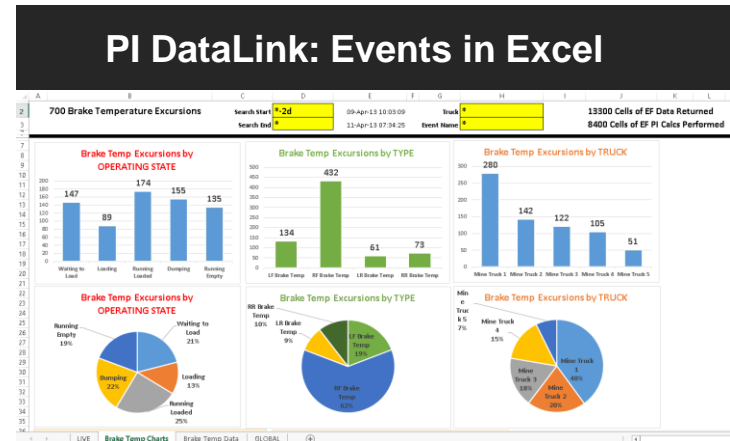
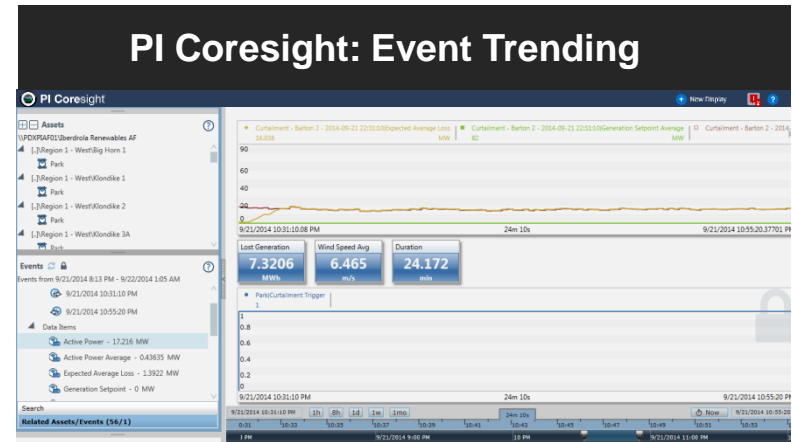
Scheduling: ☒ Event-Triggered ☐ Periodic

Functions

Attributes

Select an element and then insert a relationship to one of its attributes into the event frame.

- Iberdrola Renewables AF
  - Region 1 - West
  - Region 2 - Midwest
  - Region 3 - Northeast
  - Region 4 - Texas/Southwest
  - USA All
- Active Power
  - Address
  - CORE Park Name
  - Curtailment Trigger
  - Event Frame Trigger
  - Generation Setpoint
  - Mfr Abbreviation



# Curtailment Report

## Curtailment Summary (MTD) by Operating Region

Through 5/30/14

## Region Specific

Region	Operating Capacity	Month to Date (MWh's)							Year To Date (MWh's)						
		Trans	Other	Dispatch	BPA	Total	% Δ of Budgeted Generation	% Δ of Proforma Generation	Trans	Other	Dispatch	BPA	Total	% Δ of Budgeted Generation	% Δ of Proforma Generation
1 - West	1,708	4,799	0	0	12,100	16,899	3.5%	3.3%	18,197	0	2	33,123	51,322	2.7%	2.7%
2 - Midwest	1,412	0	0	18,595	0	18,595	4.6%	4.3%	2,377	0	287,304	0	289,681	14.5%	13.1%
3 - Northeast	1,220	628	3,318	2,157	0	6,102	2.4%	2.3%	15,437	3,632	26,687	0	45,756	2.8%	2.8%
4 - Texas/Southwest	1,153	1,346	0	2,875	0	4,221	1.3%	1.3%	15,825	0	44,627	0	60,452	3.9%	3.6%
<b>Owned</b>	<b>5,493</b>	<b>6,772</b>	<b>3,318</b>	<b>23,627</b>	<b>12,100</b>	<b>45,817</b>	<b>3.1%</b>	<b>3.0%</b>	<b>51,837</b>	<b>3,632</b>	<b>358,620</b>	<b>33,123</b>	<b>447,212</b>	<b>6.3%</b>	<b>6.0%</b>
PPA	306	0	0	0	0	0	0.0%	0.0%	0	0	0	0	0	0.0%	0.0%

<b>Region 1 - WEST</b>	<b>1,708</b>	<b>4,799</b>	<b>0</b>	<b>0</b>	<b>12,100</b>	<b>16,899</b>	<b>3.5%</b>	<b>3.3%</b>	<b>18,197</b>	<b>0</b>	<b>2</b>	<b>33,123</b>	<b>51,322</b>	<b>2.7%</b>	<b>2.7%</b>
Big Horn	200	699	0	0	321	1,019	2.0%	1.9%	2,920	0	0	710	3,630	1.5%	1.5%
Big Horn II	50	481	0	0	81	562	4.9%	4.9%	964	0	0	345	1,309	2.1%	2.1%
Dillon	45	0	0	0	0	0	0.0%	0.0%	3,532	0	0	0	3,532	5.2%	6.2%
Hay Canyon	101	0	0	0	105	105	0.5%	0.4%	162	0	0	742	905	1.0%	0.9%
Juniper Canyon	151	294	0	0	5,798	6,092	24.7%	18.3%	1,440	0	0	15,247	16,688	10.0%	9.8%
Klondike I	24	0	0	0	0	0	0.0%	0.0%	42	0	0	0	42	0.2%	0.2%
Klondike II	75	167	0	0	128	295	1.3%	1.2%	689	0	0	316	1,005	1.1%	1.1%
Klondike III	300	97	0	0	183	280	0.3%	0.3%	898	0	0	546	1,444	0.5%	0.4%
Leaning Juniper II	201	2,317	0	0	5,028	7,346	14.9%	13.2%	3,955	0	2	13,499	17,456	8.4%	8.0%
Manzana	189	0	0	0	0	0	0.0%	0.0%	240	0	0	0	240	0.1%	0.1%
Mountain View III	22	0	0	0	0	0	0.0%	0.0%	1,675	0	0	0	1,675	5.0%	4.9%
Pebble Springs	99	561	0	0	131	692	2.4%	2.4%	1,081	0	0	837	1,918	1.9%	1.7%
Phoenix	2	0	0	0	0	0	0.0%	0.0%	0	0	0	0	0	0.0%	0.0%
Shiloh	150	0	0	0	0	0	0.0%	0.0%	29	0	0	0	29	0.0%	0.0%
Star Point	99	183	0	0	325	508	2.1%	1.8%	568	0	0	881	1,449	1.4%	1.4%
<b>Region 2 - MW</b>	<b>1,412</b>	<b>0</b>	<b>0</b>	<b>18,595</b>	<b>0</b>	<b>18,595</b>	<b>4.6%</b>	<b>4.3%</b>	<b>2,377</b>	<b>0</b>	<b>287,304</b>	<b>0</b>	<b>289,681</b>	<b>14.5%</b>	<b>13.1%</b>
Barton	160	0	0	7,836	0	7,836	20.1%	15.2%	0	0	89,247	0	89,247	57.5%	34.6%
Buffalo Ridge	50	0	0	1,202	0	1,202	8.1%	8.1%	0	0	19,064	0	19,064	26.6%	25.0%

# Reviewing PI Connectors



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*System Architect*



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# KONGSBERG Maritime

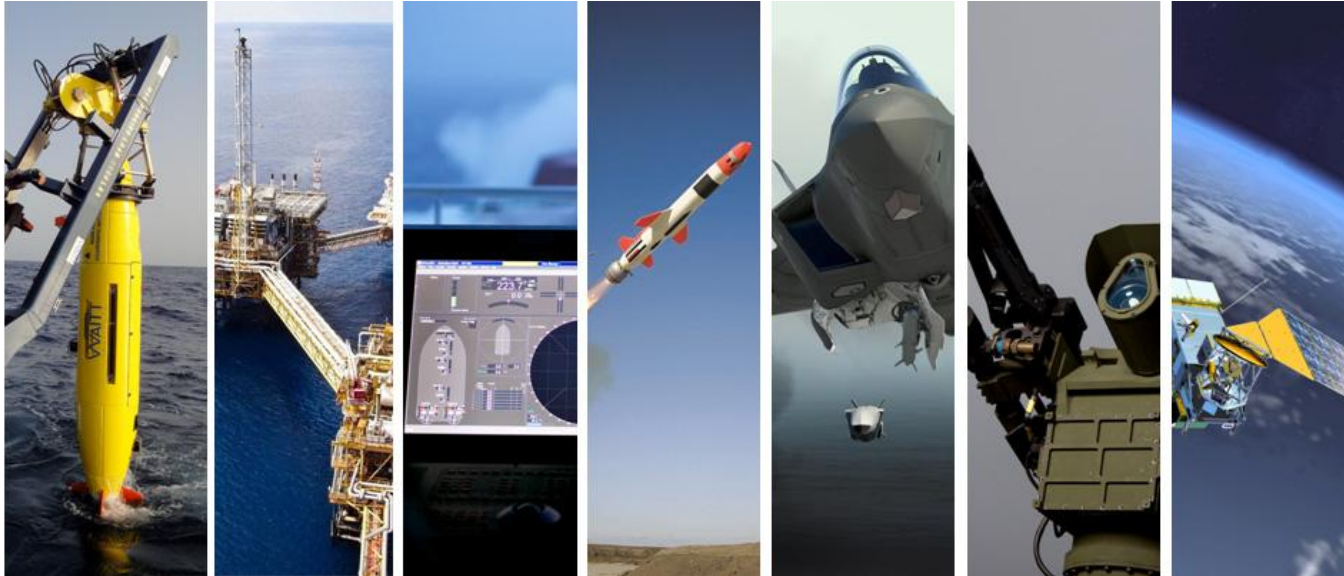
A company in the Kongsberg Group



KONGSBERG

200

# High-tech solutions, from deep sea to outer space



**WORLD CLASS - through people, technology and dedication.**





## Kongsberg Maritime

- Offshore – Merchant Marine – Subsea
- 55 offices in 18 countries
- 4 163 employees (2012)
- Revenues MNOK 7 485 (2012)
- Installed on more than 16,000 vessels
- Dynamic positioning, navigation, automation, simulation, seabed surveying and fisheries

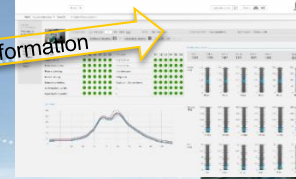
# K-IMS

## ALL SYSTEMS, ONE VIEW

Kongsberg Global  
Support



Support information



KONGSBERG MARITIME  
Global Customer Support Centre  
3rd Party Supplier Support



Fleet information

Fleet office applications

MANAGEMENT  
OFFICE



Assets – Sensor data

PI Connector for  
Kongsberg

Offshore Applications



# Developed locally, commissioned globally

## – A demand for easily configured systems



- Advanced solutions, difficult configuration
- Commission is done globally, often without PI System experienced personnel
- Limited service window, vessels leave dock or yard on time





# Experience with the PI Connector for Kongsberg



## Expected benefits with the new PI Connector

- Less errors during commissioning – Easier configuration
- Faster deployment – The PI Connector builds asset structure and PI Points
- Higher performance – Native PI Interface
- Better failover support – Next generation control system is redundant
- Less maintenance – Assets and PI Points updated automatically

# Reviewing PI Coresight 2014



**Sari Ziade'**  
*IT Project Manager*



**Brandon Lake**  
*Lead OSIsoft PI Systems Analyst*



**Stein-Roar Bjornstad**  
*System Architect*

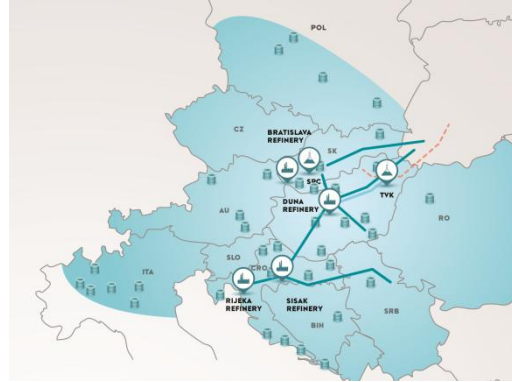


**Gabor Mucsina**  
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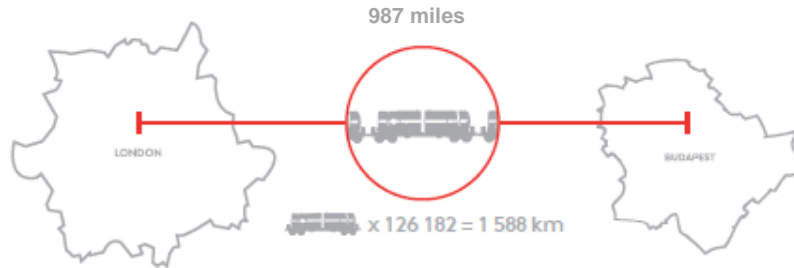
# MOL Group in Numbers



● 1 million  
retail customer transactions/day.  
Every year, we serve the equivalent  
of the entire population  
of South America.



● 50 million barrels  
of oil-equivalent hydrocarbons  
produced annually



## FORTUNE GLOBAL 500

[ 410 ] McDONALD'S



[ 411 ] DANONE



[ 412 ] MOL



[ 445 ] BRITISH AMERICAN  
TOBACCO



[ 467 ] HEINEKEN



● 32 000 employees  
employed worldwide  
could be seated on  
145 Boeing 787 Dreamliners.



# MOL Group Downstream

6 production sites

23.5 mtpa refining capacity

2.1 mtpa petrochemicals capacity

>1,900 filling stations

under 8 brands in 11 CEE

370 000 PI Tag capacity

# PI Coresight Testing Environment

2 production sites

- One uses PI System for years
- The other uses PI System for a couple of weeks

150 000 PI Tag capacity

117 000 Actual PI Tag

>4000 PI AF Elements

>1000 existing displays (svg format)





# PI Coresight 2014

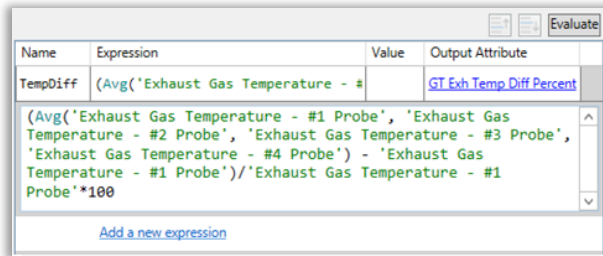
View and Share your PI ProcessBook Displays on any Device



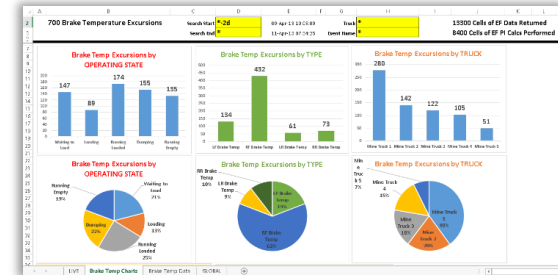


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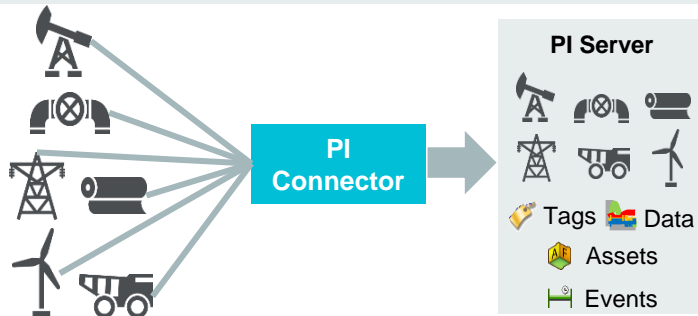
## Asset Based Analytics



## PI Event Frames



## PI Connectors

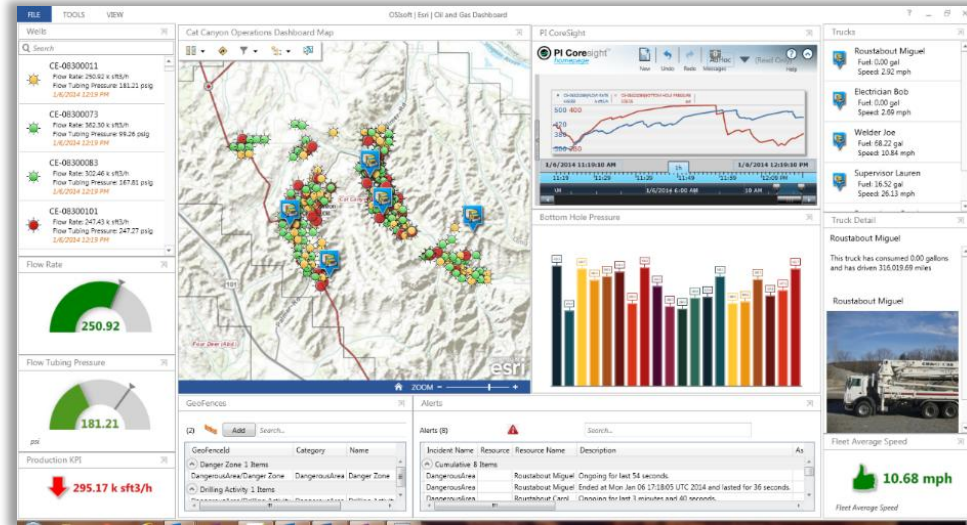


## PI ProcessBook Displays in PI Coresight



# PI Integrator for Esri ArcGIS

## Overlay Assets and Real-time Information onto Esri Maps



- Overview of your PI System assets using Esri maps
- Esri maps become live with PI System data
- Drill into asset data using PI Coresight
- Import Esri ArcGIS assets into PI AF

# PI Coresight Mobile

Quickly Find and Use PI System Data using Small Form Factor Devices

- Designed for small screens and accessible on any device
- Leverage your existing investment with PI ProcessBook displays
- Fast and easy access to PI System data



# PI Server 2015: Future Data

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STORE



ANALYZE



MONITOR



REPORT



PI Server 2015 lets you manage large amounts  
of both historical and future data.



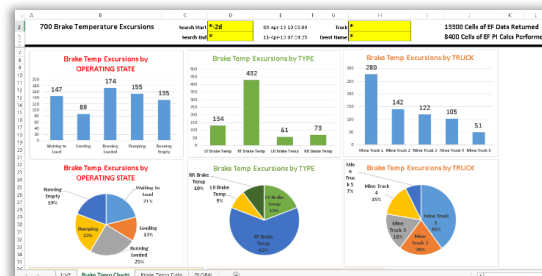
# OSIsoft 2014 Releases: Call to Action

## Asset Based Analytics

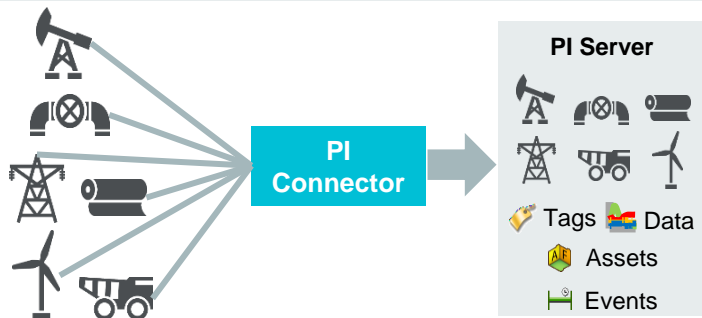
Name	Expression	Value	Output Attribute
TempDiff	(Avg('Exhaust Gas Temperature - #1 Probe', 'Exhaust Gas Temperature - #2 Probe', 'Exhaust Gas Temperature - #3 Probe', 'Exhaust Gas Temperature - #4 Probe') - 'Exhaust Gas Temperature - #1 Probe')*100		GT Exh Temp Diff Percent

[Add a new expression](#)

## PI Event Frames



## PI Connectors



## PI Coresight 2014



# OSIsoft 2014 Releases: Call to Action

## Asset Based Analytics

Ready for Adoption and Value

## PI Event Frames

Ready for Adoption and Value

## PI Connectors

Tell us Your Connector Needs

## PI Coresight 2014

Released at UC EMEA!

# OSIsoft 2014 Releases: Call to Action

## Asset Based Analytics

Ready for Adoption and Value

## PI Event Frames

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Released at UC EMEA!

**PI Server 2015 Beta:** [WWW.OSISOFT.COM/CORPORATE/PISERVER2015BETA](http://WWW.OSISOFT.COM/CORPORATE/PISERVER2015BETA)

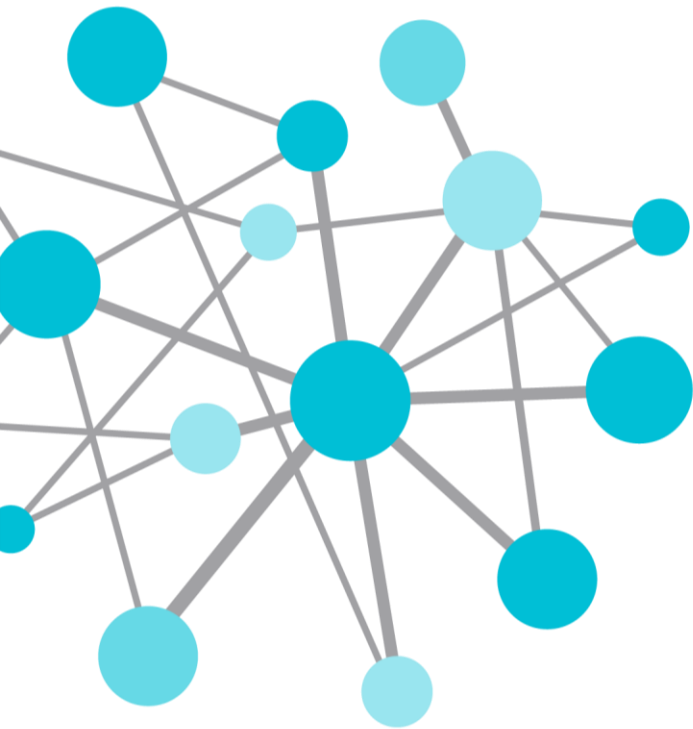


# Ray Hall

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VP, Development

OSIsoft, LLC



THANK  
YOU

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