Innovative PI System Displays that Optimize Power Trading in US Markets

Presented by **Jay Moore**

Agenda

- Introduction
- Products used by EDF Trading NA, LLC
- Business Challenge Solved
    - This presentation will describe EDF Trading's integration of the PI System into the US Power Trading Markets and will highlight the value of real-time data for operational support and trading. EDFTNA has extended PI Architecture to asset based portfolios in all of the US power markets. Value to EDF Trading NA is realized by integrating the PI System with the Generation Management System which provides a real-time "system at a glance" view and enables a competitive advantage for the management of the EDFTNA portfolio.
- Future
- Conclusion

About EDF Trading North America, LLC

- Manages approximately 28,500 MWs of third-party capacity with 24,000 MW of power generating assets and 4,500 MW of peak commercial, industrial or aggregated load

- Optimizes customer portfolio via term, monthly, day-ahead, and intra-day markets using physical and financial instruments

- Provides risk management, hedging, logistical, and credit services, as well as market access for our customers

- Wide presence: ERCOT, PJM, MISO, SERC, VACAR, SPP, FRCC, NYISO, ISO NE, WECC, CAISO
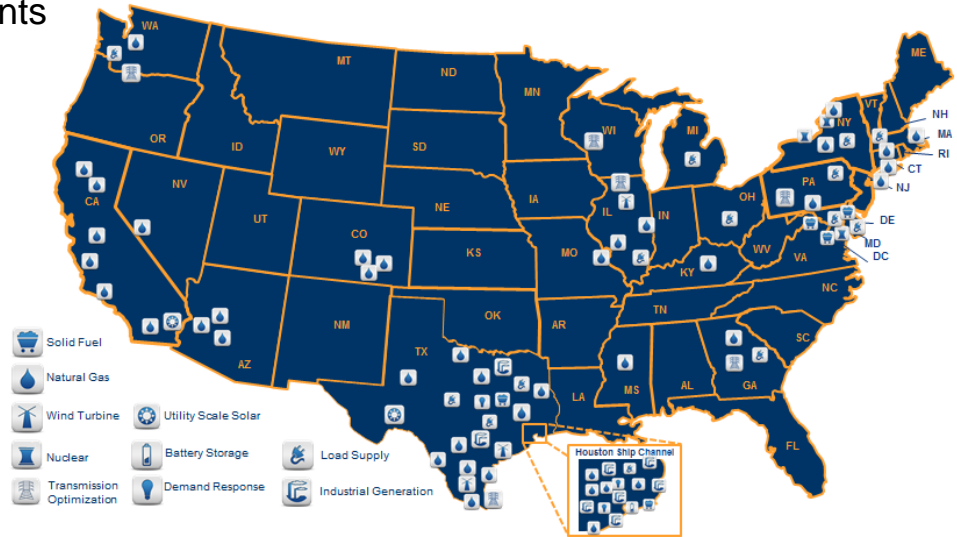
OSIsoft Products Utilized

- EDF Trading North America utilizes the following OSIsoft products:

  - OSIsoft vCampus*
  - OSIsoft YouTube Learning Channel*
  - OSIsoft Users Community
  - PI AF or PI Asset Framework Collective
  - PI DataLink*
  - PI Interface for OPC
  - PI Interface for RDBODBC
  - PI Perfmon Interface
  - PI Ping Interface
  - PI Interface for DNP3
  - PI Interface for XML

  - PI MCN Health Monitor
  - PI Notifications*
  - PI ProcessBook*
  - PI SDK
  - PI Server Collective*
  - PI System Explorer*
  - PI System Management Tools (PI SMT)
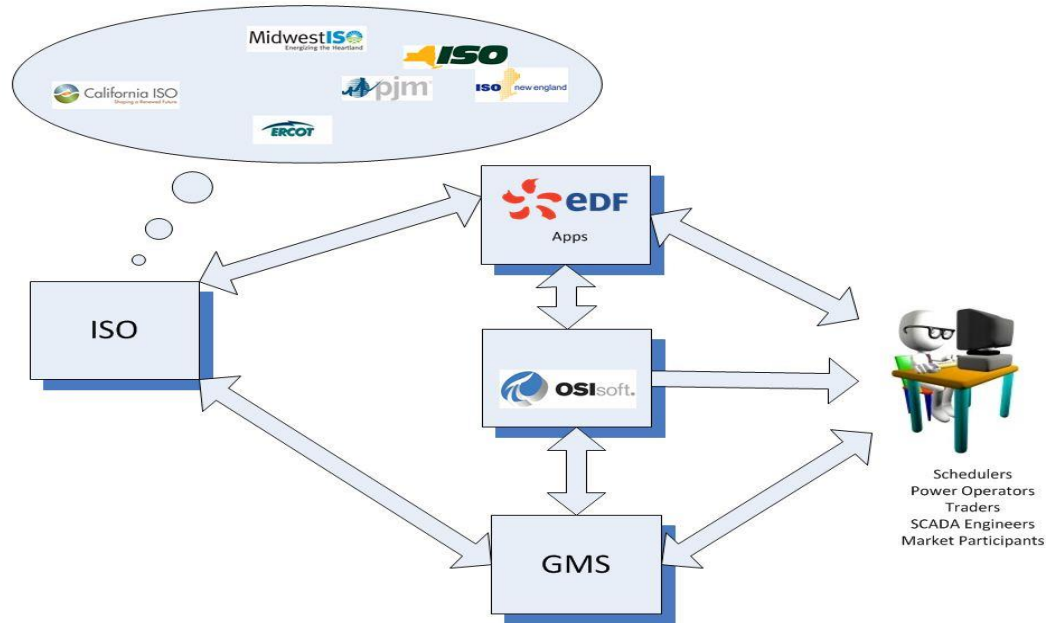 - PI to PI Interface
  - PI Web Services

Challenge/Problem Detail Solution

- Operate generating and load resources in multiple North American power markets
- Multiple technologies
- Multiple capacity buckets
- Multiple owner/customers
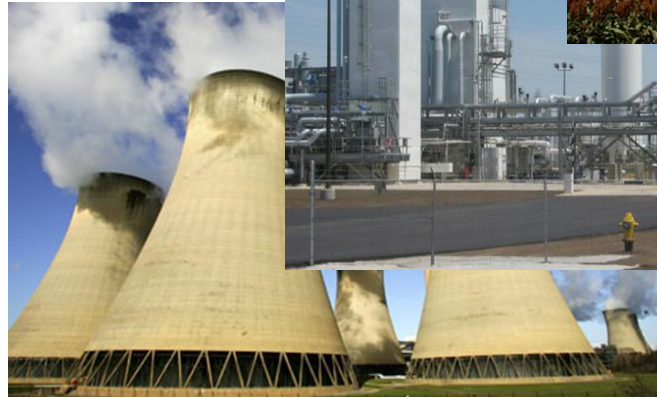
Solution

- Use various PI System products to collect and historize data from multiple data sources and then use a custom API to bring external data into our GMS system

Tangible Benefits

- Improved visualization (PI ProcessBook)
- Improved alerting (PI Notifications and multi-state)
- Low cost of integration (PI Interfaces)
- End-users are able to query data and generate their own reports using PI System data (PI DataLink)
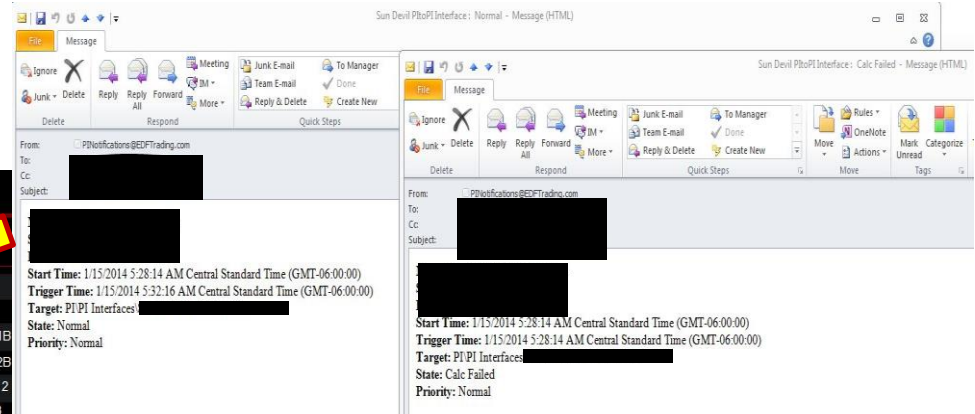
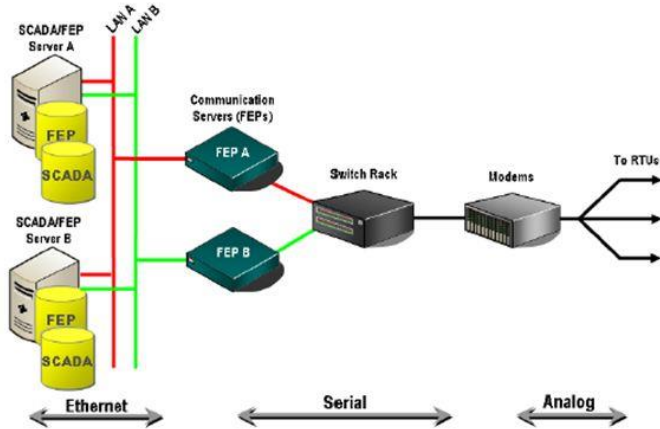# Tangible Benefits - Visualization
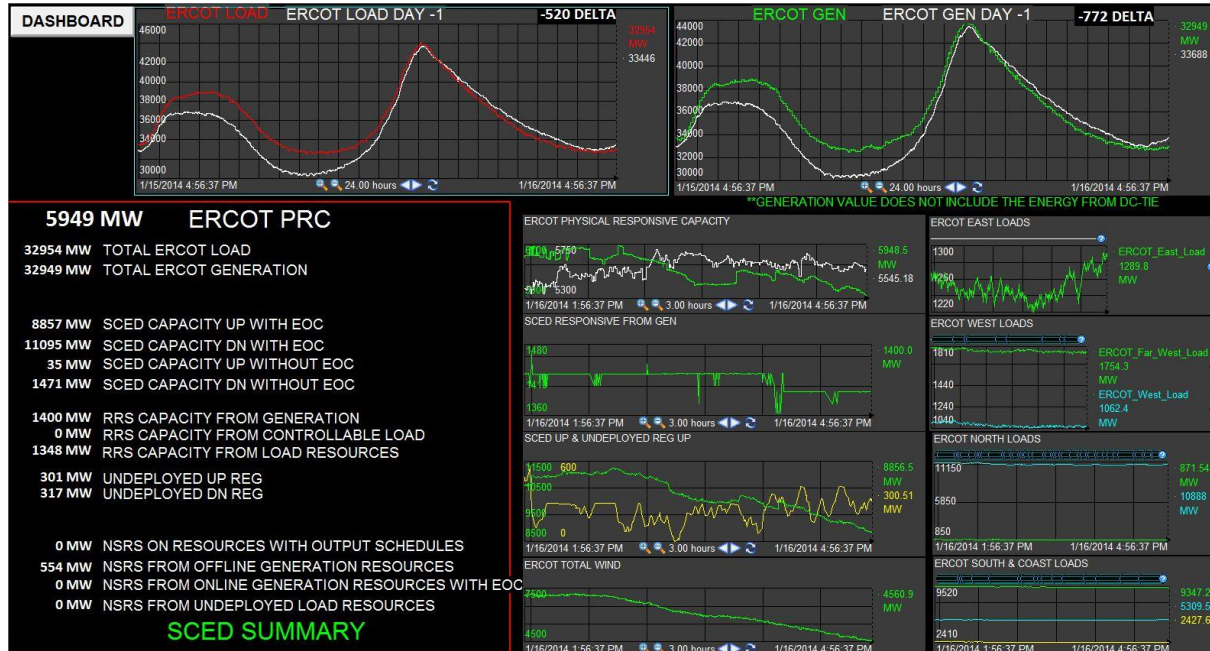
Tangible Benefits - Alerting

- Configurable PI Notifications using PI AF and multi-state color change on PI ProcessBook displays
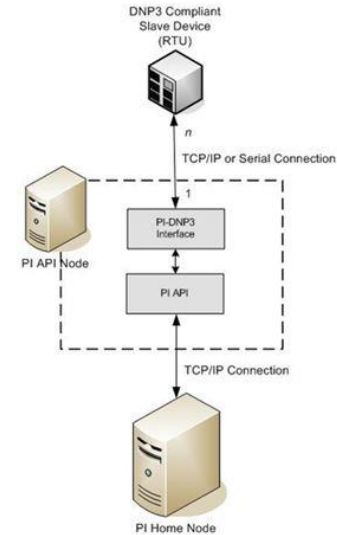
Tangible Benefits

- Low cost of integration to RTU when compared to SCADA dedicated connections

Typical SCADA Connection to RTU

Typical PI Connection to RTU

Tangible Benefits – Data Analytics

- End-users are able to query data and generate their own reports using PI System data (PI DataLink)

	Today	Yesterday	2 Days Ago	3 Days Ago	4 Days Ago	5 Days Ago	6 Days Ago	7 Days Ago	8 Days Ago	9 Days Ago	10 Days Ago	11 Days Ago	12 Days Ago	13 Days Ago	14 Days Ago	15 Days Ago	16 Days Ago	17 Days Ago	18 Days Ago	19 Days Ago
Interval Ending	1/16/2014	1/15/2014	1/14/2014	1/13/2014	1/12/2014	1/11/2014	1/10/2014	1/9/2014	1/8/2014	1/7/2014	1/6/2014	1/5/2014	1/4/2014	1/3/2014	1/2/2014	1/1/2014	12/31/2013	12/30/2013	12/29/2013	12/28/2013
1:00	100.0	100.0	1.5	114.6	145.2	3.6	7.5	2.1	115.4	71.5	104.1	126.0	145.9	56.3	140.6	115.5	2.2	2.2	70.7	76.3
2:00	100.0	100.0	4.2	129.1	147.3	8.6	1.5	14.8	120.8	74.8	115.9	142.1	145.5	69.4	130.3	123.1	4.8	0.5	81.3	67.1
3:00	99.9	100.0	3.8	108.3	145.6	54.8	4.4	20.6	115.4	72.2	110.1	144.3	144.8	85.1	112.0	137.1	3.3	0.0	65.2	60.1
4:00	99.0	99.9	2.7	104.4	144.7	73.5	43.9	19.8	108.5	86.2	45.3	144.3	144.4	98.2	92.7	141.7	7.1	0.0	37.9	51.4
5:00	99.0	99.0	4.0	118.9	149.9	65.1	20.2	15.8	117.1	93.5	18.8	143.2	144.5	81.7	81.8	142.9	5.9	0.0	21.9	37.9
6:00	99.0	99.0	4.3	106.4	145.1	66.3	54.4	10.8	125.4	93.5	8.6	139.6	144.3	89.1	91.1	143.8	6.8	0.0	3.9	58.5
7:00	99.1	99.0	3.5	115.7	141.2	76.1	63.6	8.2	134.4	76.4	0.7	139.1	145.4	112.1	83.5	138.7	0.0	0.7	33.8	59.4
8:00	99.9	99.0	2.7	103.7	145.0	87.2	74.0	4.0	133.6	92.2	0.0	124.8	146.5	135.4	70.0	143.1	0.0	0.0	20.3	49.8
9:00	98.0	99.6	2.2	102.6	145.4	79.8	106.2	1.3	120.8	87.7	1.3	128.2	145.0	117.7	40.1	144.2	2.5	0.0	126.2	43.1
10:00	98.8	96.1	0.7	121.8	145.3	30.9	119.2	0.0	118.6	63.8	4.5	143.3	144.5	108.2	33.0	137.2	8.5	0.0	135.7	22.8
11:00	73.8	96.0	3.4	104.4	145.0	10.5	133.3	0.0	119.7	66.5	13.3	134.0	141.6	136.5	38.5	129.4	2.5	0.0	108.3	20.8
12:00	96.1	98.9	5.5	77.0	145.3	20.7	130.5	0.0	121.5	68.4	14.5	138.5	135.8	138.7	21.5	131.7	22.6	0.0	89.5	26.3
13:00	99.0	98.8	6.1	73.9	145.8	37.8	131.2	0.0	113.7	85.5	4.8	130.2	135.8	139.8	15.9	120.9	38.2	0.0	83.8	34.6
14:00	99.5	100.0	5.2	80.0	144.7	30.7	122.3	0.0	76.3	87.7	1.2	117.0	126.3	143.8	3.1	118.1	26.8	0.0	64.1	38.7
15:00	99.9	100.0	5.6	86.1	145.8	20.3	108.7	0.0	40.7	101.1	0.0	112.0	89.6	146.2	0.0	103.1	37.0	0.0	39.9	52.8
16:00	99.9	100.0	5.3	69.4	145.2	5.8	121.9	0.0	27.0	105.2	0.0	121.4	73.7	145.6	0.0	77.9	54.6	0.0	30.0	31.3
17:00	99.9	100.0	5.4	37.6	144.5	0.7	110.2	0.0	26.6	117.9	0.0	122.4	85.8	143.6	0.0	115.9	50.6	0.0	26.6	21.8
18:00	100.0	100.0	5.3	14.2	146.0	1.1	69.2	0.0	52.5	125.2	0.0	107.3	57.4	140.9	0.0	143.4	67.5	0.0	22.0	24.9
19:00	Good Data Fo	100.0	4.2	13.8	144.4	4.8	47.6	0.2	66.5	116.4	0.8	86.2	66.7	144.2	0.0	142.1	101.3	0.0	37.9	38.5
20:00	Good Data Fo	100.0	3.6	16.6	145.9	3.2	37.9	6.9	65.6	111.6	12.7	108.1	87.7	144.5	0.0	144.7	134.8	0.0	44.2	70.5
21:00	Good Data Fo	100.0	2.6	11.2	145.8	23.6	20.4	22.3	36.9	132.9	17.6	134.3	77.5	144.6	0.0	145.2	137.2	0.0	33.2	91.8
22:00	Good Data Fo	100.0	2.8	14.0	127.3	72.4	14.5	17.7	22.8	127.3	32.4	126.2	132.8	145.8	6.2	135.5	125.6	0.0	24.4	91.0
23:00	Good Data Fo	100.0	1.2	32.2	134.6	138.4	1.1	17.1	7.7	123.4	58.6	130.1	109.9	146.3	22.3	127.5	124.5	0.0	28.5	91.1
0:00	Good Data Fo	100.0	1.7	40.2	116.0	137.8	0.0	9.7	0.1	121.7	65.3	119.0	124.2	145.3	36.2	141.6	118.8	0.0	16.0	84.6
Daily Total	1760.8	2385.2	87.5	1796.4	3431.0	1053.7	1543.9	171.3	1987.5	2302.8	630.8	3061.5	2895.6	2959.0	1018.7	3144.3	1083.1	3.5	1245.2	1245.2

Future Plans

- Continuously look for ways to improve visualization and alerting of real-time and scheduling data that enables a competitive advantage

- Look for ways to minimize cost of collecting and delivering data to our internal and external customers (PI WebParts)

Summary/Conclusion
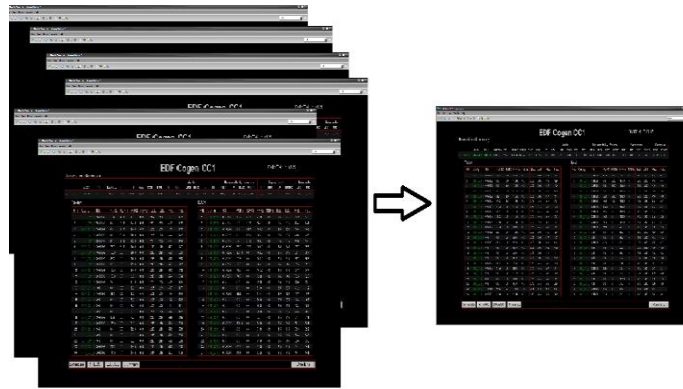
Business Challenge

- Operate generating and load resources in multiple North American power markets

- Multiple technologies

- Multiple capacity buckets

- Multiple owner/customers

Solution

- Develop a single portal to view multiple data points from multiple data sources

Results and Benefits

- Successfully deployed a working customized GMS/Market analysis solution available to multiple internal customers

Contact Information

Jay Moore

Jay.Moore@EDFTrading.com

Manager Real Time Group

EDF Trading North America, LLC

THANK YOU

Brought to you by

OSIsoft