

osisoft.

USERS CONFERENCE 2013

The Power of Data

THRIVING
IN A
WORLD OF
CHANGE



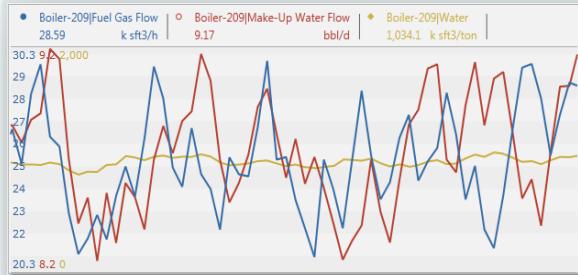
Tools & Best Practices For PI System Analytics & Reporting

Presented by **Christian Leroux, EPM**

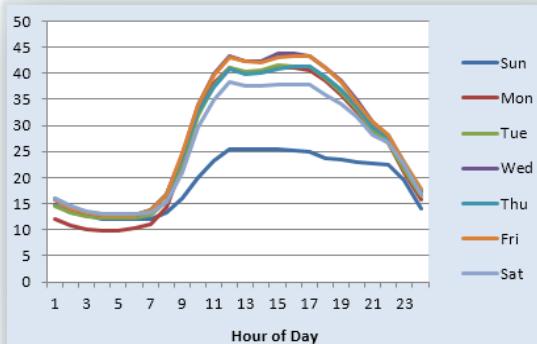
Matt Ziegler, Product Manager

Visual Contexts for PI System Data

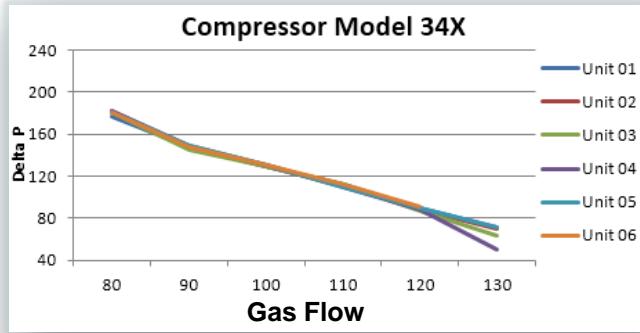
Time and Events



Profile



Behavioral



Performance Scorecard

	Bahrain			Kuwait		
	KPI Value	Plan Target	Dev %	KPI Value	Plan Target	Dev %
Crude Unit						
Light Naphtha 90 Pct. Pt.	179.9	180	-0.1 %	177.2	175	1.3 %
FCCU						
Conversion	63.4	64	-0.9 %	67.8	69	-1.7 %
FCC Gasoline (R+M)/2	86.2	86	0.2 %	85.2	86	-0.9 %
FCC Gasoline RVP	12.3	13	-1.6 %	11.8	12	0.0 %
FCC 2						
Conversion		60.2	62	62	60.2	-3.0 %
FCC Gasoline (R+M)/2		87.0	86	86	87.0	1.8 %
FCC Gasoline RVP		13.1	12	12	13.1	9.2 %

Ad Hoc



Geospatial



Asset Benchmarking and Scorecarding



PSE&G drives
Operational
Excellence,
DistribuTECH
2013

UG TRANSFORMER CONDITION ASSESSMENT

Row Labels	CA Score	Sum of Age
NEB UG NTWK_2607_P395E	793.5	0
NEWARK UG_2602_15	547.2	0
NEB UG NTWK_2601_6080N	372.8	29
NEWARK UG_2603_12	328.7	0
NEWARK UG_2602_14	208.2	0
NEB UG NTWK_2607_6135W	178.1	2
NEB UG NTWK_2607_6078N	149.3	29
NEB UG NTWK_2603_6674N	132.5	2
NEB UG NTWK_2601_0074N	116.2	4
NEWARK UG_2601_21	71.7	0

Row Labels	Cnt Alarms
NEB UG NTWK_2607_P395E	2524
NEWARK UG_2602_15	1824
NEB UG NTWK_2601_6080N	1204
NEB UG NTWK_2603_12	1094
NEWARK UG_2602_14	694
NEB UG NTWK_2607_6135W	591
NEB UG NTWK_2607_6078N	459
NEB UG NTWK_2603_6674N	439
NEB UG NTWK_2601_0074N	382
NEWARK UG_2601_21	239

Row Labels	Cntf Overloads
NEB UG NTWK_2607_P395E	121
NEB UG NTWK_2602_6408N	120
NEB UG NTWK_2601_5925W	0
NEB UG NTWK_2601_5801E	0
NEB UG NTWK_2601_6074N	0
NEB UG NTWK_2601_6080N	0
NEB UG NTWK_2601_5881W	0
NEB UG NTWK_2601_5809E	0
NEB UG NTWK_2601_5685W	0
NEB UG NTWK_2601_5917W	0

Row Labels	% KVA	KVA_RATING
NEB UG NTWK_2607_P395E	466	500
NEB UG NTWK_2602_6408N	152	1000
NEWARK UG_2602_2	83	500
NEWARK UG_2601_2	83	500
NEWARK UG_2601_3	79	500
NEWARK UG_2602_3	70	500
NEWARK UG_2601_4	67	1500
NEWARK UG_2602_4	64	500
NEWARK UG_2602_23	59	2000
PAT UG NTWK_S-305-B_902	57	750

Sum of KVA 1

Network Weekly Loads

Week	NEB UG NTWK	NEWARK UG	PAT UG NTWK
1	60000	35000	30000
2	60000	35000	30000
3	70000	35000	30000
4	55000	35000	30000
6	15000	10000	10000
7	60000	35000	30000
1	35000	30000	20000
2	35000	30000	20000
3	35000	30000	20000
4	35000	30000	20000
6	10000	10000	10000
7	30000	30000	20000

NETWORK Weekday

Gas Transmission Pipeline Reliability



Columbia Gas,
OSIsoft O&G
Day Zero Event
2013

Columbia Pipeline Group System Reliability

Enterprise Analytics Transforming Data into Action

Gulf Charleston Ohio Commonwealth Pennsylvania EA Compression Home

Clementsville - Unit 210

Unit Status: Run
Heat Rate: 11582
BHP: 5757 HP
Fuel: 93 MSCFH
PCD: 182 PSIG
Ambient Temp: 74 DegF
NPT Speed: 7429 RPM
NGP Speed: 10623 RPM
Suction Press: 708 PSIG
Suction Temp: 47 DegF
Capacity: 649 MMSCFD
Disch Press: 892 PSIG
Disch Temp: 82 DegF

Mare 90 Gas Driver C601 Gas Compressor

KPI Status

Heat Rate: Within Tolerance (Green)
PCD: Within Tolerance (Green)
Fuel: Within Tolerance (Green)
BHP: Within Tolerance (Green)
Capacity: Within Tolerance (Green)
Disch Temp: Within Tolerance (Green)

Bearing Status

T5 Thermocouples

Monthly State - Run Hours

Monthly State - Percentage

Degradation Trend

Reports

Select Month(s): 2012-07, 2012-08, 2012-09, 2012-10, 2012-11, 2012-12, 2013-01

Carroll - Unit 2

Comp. Oil Comp., Disch. Temp., Eng. Balance, Fuel Rate, Heat Rate

Monthly State - Run Hours

Monthly State - Percentage

API Status

Heat Rate: Low (Yellow), Eng. Oil Cons.: Within Tolerance (Green), Cap. Oil Cons.: Within Tolerance (Green), Disch Temp: Within Tolerance (Green), Eng. Oil Cons.: High (Red), Eng. Oil Cons.: Medium (Orange)

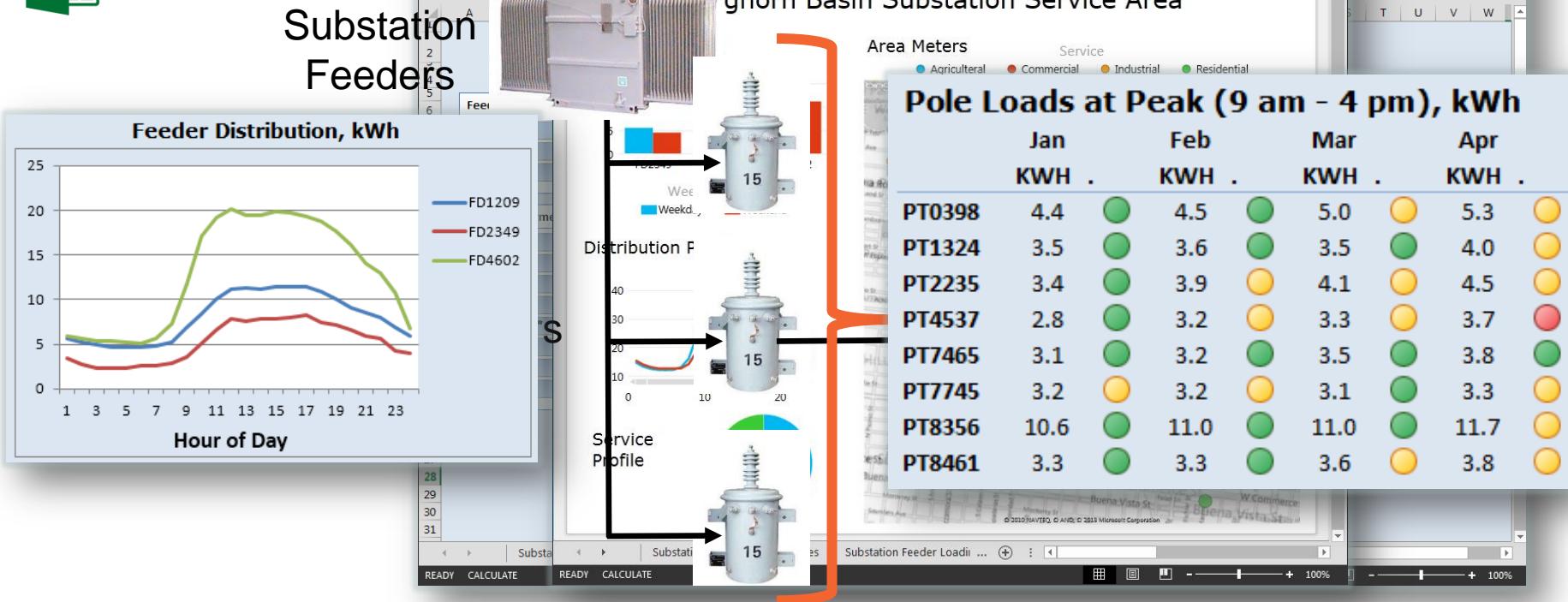
Shift Vibration

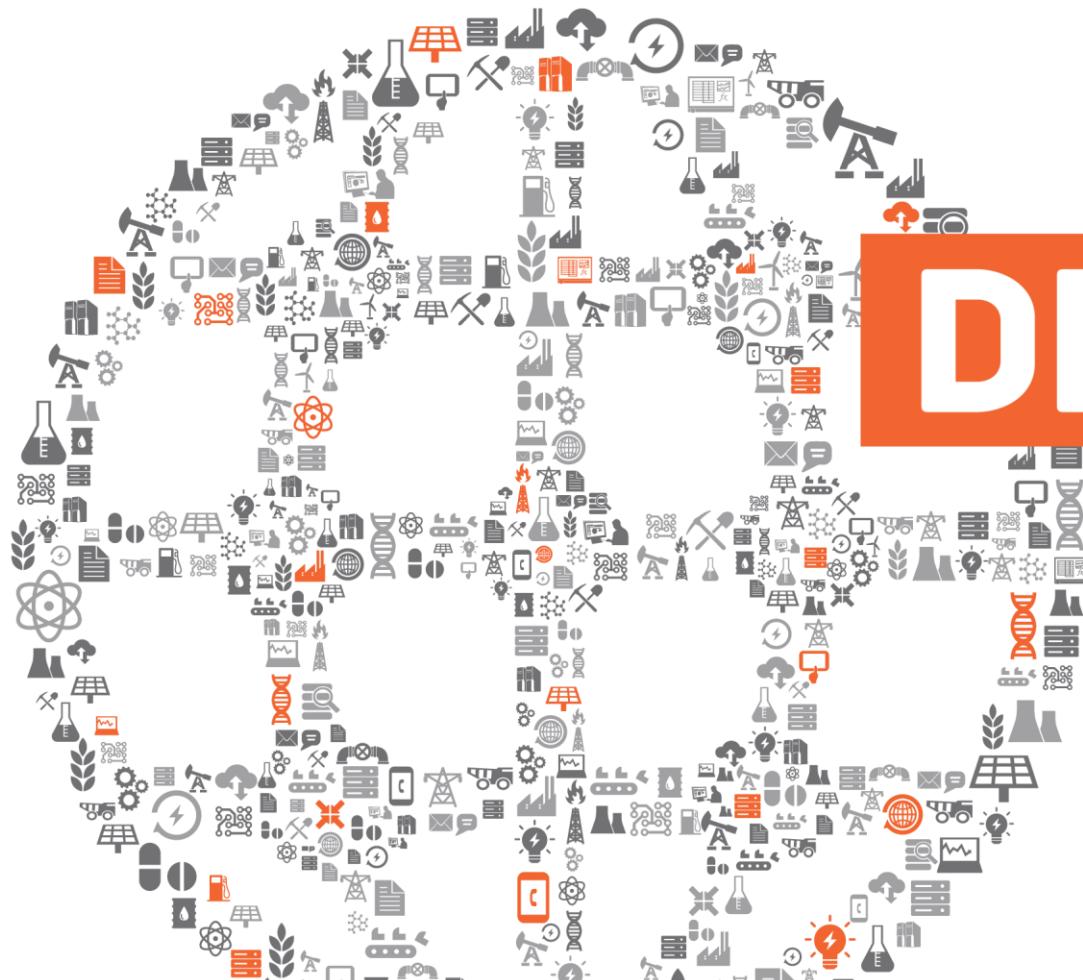
Jacket Water, Air, Water, Lubricant

Degradation Trend

The dashboard displays various operational metrics for two compressor units (Clementsville and Carroll) across different months. It includes sections for KPI status, bearing and thermocouple monitoring, and degradation trends. The interface is designed to provide quick visual insights into system reliability and performance.

Demand Profile and Network Analysis





Distribution Profile Report_2013 - Excel

Curt Hertler

B3

A B C D E F G H I J K L M N O P Q R S T U V W X

1

2

Feeder and Pole Transformer Analysis

Feeder Circuit

- FD1209
- FD2349
- FD4602

Pole Transformer

- PT0398
- PT1324
- PT2235
- PT4537
- PT7465
- PT7745
- PT8356
- PT8461

Weekday Profiles, kWh

Weekday \ Weekend Profiles, kWh

Monthly Profiles, kWh

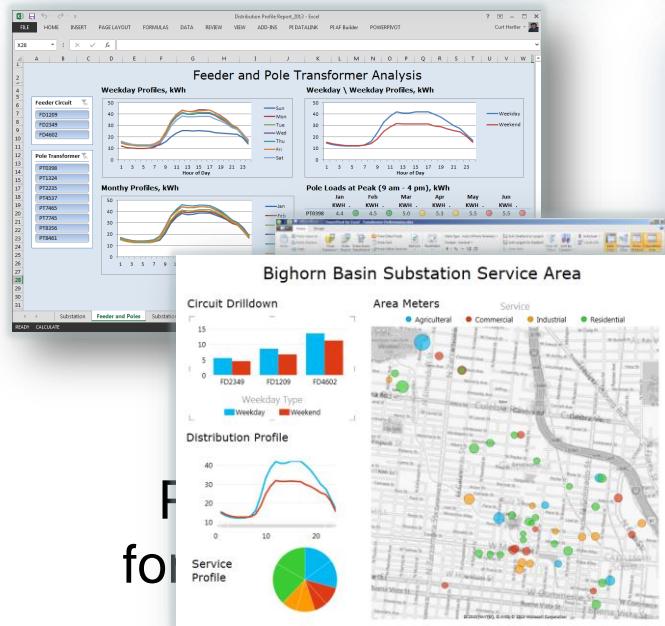
Pole Loads at Peak (9 am - 4 pm), kWh

	Jan	Feb	Mar	Apr	May	Jun
PT0398	4.4	4.5	5.0	5.3	5.5	5.5
PT1324	3.5	3.6	3.5	4.0	4.1	4.2
PT2235	3.4	3.9	4.1	4.5	4.7	3.1
PT4537	2.8	3.2	3.3	3.7	3.8	3.7
PT7465	3.1	3.2	3.5	3.8	3.9	4.0
PT7745	3.2	3.2	3.1	3.3	3.6	4.3
PT8356	10.6	11.0	11.0	11.7	12.1	11.7
PT8461	3.3	3.3	3.6	3.8	3.8	3.5

Substation Feeder Loading

READY CALCULATE

Toolkit for Operational Insight – 2013 Update



OSIsoft
PI Server 2012
PI OLEDB Enterprise

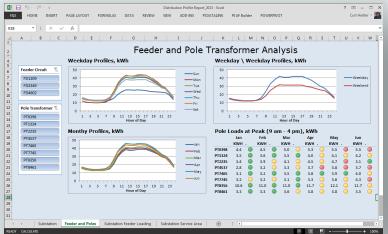


Power View

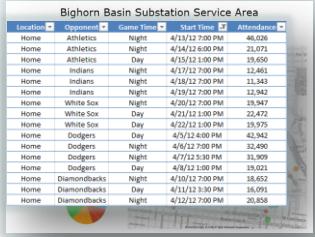
Excel 2013 Anatomy

Worksheets

Pivot
Tables &
Charts



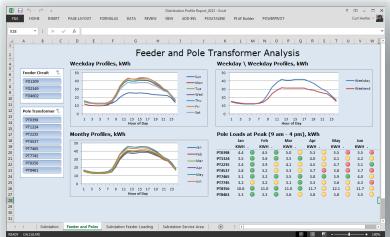
Pivot
Tables
Reports



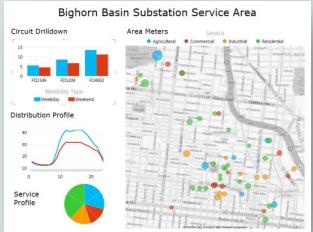
Excel 2013 Anatomy

Worksheets

Pivot
Tables &
Charts



Power
View
Reports



Excel
Tables

Location	Opponent	Game Time	Start Time	Attendance
Home	Athletics	Night	4/14/12 6:00 PM	21,073
Home	Athletics	Day	4/14/12 1:00 PM	19,500
Home	Indians	Night	4/17/12 7:00 PM	12,463
Home	Indians	Night	4/18/12 7:00 PM	11,343
Home	White Sox	Night	4/20/12 7:00 PM	19,547
Home	Red Sox	Day	4/21/12 1:00 PM	22,472
Home	White Sox	Day	4/22/12 1:00 PM	19,975
Home	Dodgers	Day	4/23/12 4:00 PM	42,942
Home	Dodgers	Night	4/24/12 7:00 PM	32,490
Home	Dodgers	Night	4/25/12 7:00 PM	17,883
Home	Dodgers	Day	4/26/12 1:00 PM	19,021
Home	Diamondbacks	Night	4/10/12 7:00 PM	18,652
Home	Diamondbacks	Day	4/11/12 3:30 PM	16,091
Home	Diamondbacks	Night	4/12/12 7:00 PM	20,858

Data Model

PowerPivot
Tables

Date	Category	Actual	Target	Plan Deviation
5/30/2012 12:00:00 AM	PIA/P2012	14,398.0	14,000	300.0
5/30/2012 2:00:00 AM	PIA/P2012	14,376.4	14,000	376.4
5/30/2012 4:00:00 AM	PIA/P2012	14,354.8	14,000	354.8
5/30/2012 6:00:00 AM	PIA/P2012	14,333.2	14,000	333.2
5/30/2012 8:00:00 AM	PIA/P2012	14,311.6	14,000	311.6
5/30/2012 10:00:00 AM	PIA/P2012	14,289.0	14,000	289.0
5/30/2012 12:00:00 PM	PIA/P2012	14,267.4	14,000	267.4
5/30/2012 2:00:00 PM	PIA/P2012	14,245.8	14,000	245.8
5/30/2012 4:00:00 PM	PIA/P2012	14,224.2	14,000	224.2
5/30/2012 6:00:00 PM	PIA/P2012	14,192.6	14,000	192.6
5/30/2012 8:00:00 PM	PIA/P2012	14,171.0	14,000	171.0
5/30/2012 10:00:00 PM	PIA/P2012	14,149.4	14,000	149.4
5/30/2012 12:00:00 AM	PIA/P2012	14,127.8	14,000	127.8
5/30/2012 2:00:00 AM	PIA/P2012	14,106.2	14,000	106.2
5/30/2012 4:00:00 AM	PIA/P2012	14,084.6	14,000	84.6
5/30/2012 6:00:00 AM	PIA/P2012	14,063.0	14,000	63.0
5/30/2012 8:00:00 AM	PIA/P2012	14,041.4	14,000	41.4
5/30/2012 10:00:00 AM	PIA/P2012	14,019.8	14,000	19.8
5/30/2012 12:00:00 PM	PIA/P2012	14,008.2	14,000	8.2
5/30/2012 2:00:00 PM	PIA/P2012	14,006.6	14,000	6.6
5/30/2012 4:00:00 PM	PIA/P2012	14,005.0	14,000	5.0
5/30/2012 6:00:00 PM	PIA/P2012	14,003.4	14,000	3.4
5/30/2012 8:00:00 PM	PIA/P2012	14,001.8	14,000	1.8
5/30/2012 10:00:00 PM	PIA/P2012	14,000.2	14,000	0.2

Date	Category	Actual	Target	Plan Deviation
5/30/2012 12:00:00 AM	PIA/P2012	14,048.0	14,000	308.0
5/30/2012 2:00:00 AM	PIA/P2012	14,026.4	14,000	26.4
5/30/2012 4:00:00 AM	PIA/P2012	14,004.8	14,000	4.8
5/30/2012 6:00:00 AM	PIA/P2012	14,003.2	14,000	3.2
5/30/2012 8:00:00 AM	PIA/P2012	14,001.6	14,000	1.6
5/30/2012 10:00:00 AM	PIA/P2012	14,000.0	14,000	0.0
5/30/2012 12:00:00 PM	PIA/P2012	14,001.4	14,000	1.4
5/30/2012 2:00:00 PM	PIA/P2012	14,002.8	14,000	2.8
5/30/2012 4:00:00 PM	PIA/P2012	14,004.2	14,000	4.2
5/30/2012 6:00:00 PM	PIA/P2012	14,005.6	14,000	5.6
5/30/2012 8:00:00 PM	PIA/P2012	14,007.0	14,000	7.0
5/30/2012 10:00:00 PM	PIA/P2012	14,008.4	14,000	8.4

Data Sources



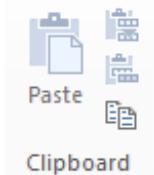
PI AF



Relational Data



Windows Azure
Marketplace

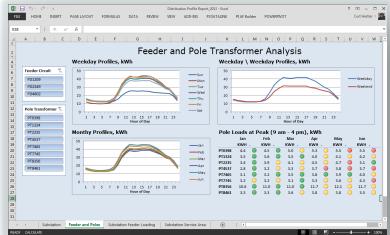


Paste
Clipboard

Excel 2013 Anatomy

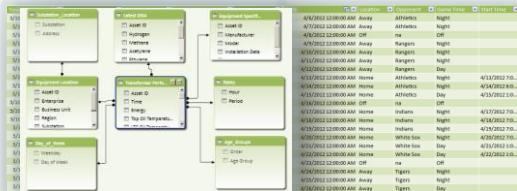
Worksheets

Pivot
Tables &
Charts

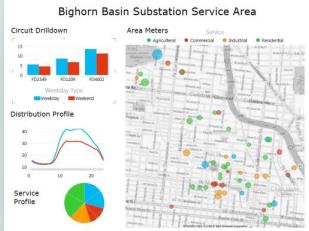


Data Model

PowerPivot
Tables



Power View Reports



Excel Tables

Location	Opponent	Game Time	Start Time	Attendance
Home	Athletics	Night	4/14/13 6:00 PM	21,073
Home	Indians	Day	4/17/13 12:00 PM	19,000
Home	Indians	Night	4/18/13 12:00 PM	12,463
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Excel

Performance Scorecard

Operation to Target Summary_2013 - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW ADD-INS PI DATALINK PI AF Builder POWERPIVOT Curt Hertler

R32 A B C D E F G H I J K L M N C

1

2

3

4 Refining Division Operation to Plan - 7 Days

5 Bahrain Kuwait Oman Qatar

6 Crude Unit KPI Value Plan Target Dev % KPI Value Plan Target Dev % KPI Value Plan Target Dev % KPI Value Plan Target Dev %

7 Crude Unit

	Bahrain	Kuwait	Oman	Qatar								
	KPI Value	Plan Target	Dev %	KPI Value	Plan Target	Dev %	KPI Value	Plan Target	Dev %	KPI Value	Plan Target	Dev %
Light Naphtha 90 Pct. Pt.	179.9	180	● -0.1 %	177.2	175	● 1.3 %	184.0	185	● -0.5 %	189.3	180	● 5.2 %
FCCU												
Conversion	63.4	64	● -0.9 %	67.8	69	● -1.7 %	68.5	68	● 0.7 %	62.4	62	● 0.6 %
FCC Gasoline (R+M)/2	86.2	86	● 0.2 %	85.2	86	● -0.9 %	84.2	87	● -2.7 %	85.6	85	● 0.8 %
FCC Gasoline RVP	12.3	13	● -1.6 %	11.8	12	● 0.0 %	12.5	12	● 0.8 %	11.9	12	● -0.8 %
FCCU 2												
Conversion				60.2	62	● -3.0 %						
FCC Gasoline (R+M)/2				87.0	86	● 1.8 %						
FCC Gasoline RVP				13.1	12	● 9.2 %						
Isomerization												
Isomerate RONC	87.8	89	● -1.3 %				88.7	88	● 0.8 %	89.1	88	● 1.2 %
Reformer												
Feed N+2A	60.3	61	● -1.1 %	57.9	58	● -0.2 %	60.2	61	● -0.5 %	55.9	62	● -10.0 %
Reactor Temperature	984.0	985	● -0.1 %	981.9	975	● 0.7 %	963.8	970	● -0.6 %	975.5	974	● 0.2 %
Reformer 2												
Feed N+2A	58.8	59	● -0.3 %									
Reactor Temperature	967.8	980	● -1.2 %									
Vacuum Unit												
Vacuum Gas Oil 90 Pct. Pt	1,023.0	1,030	● -0.7 %	1,000.0	1,055	● -5.2 %	1,050.0	1,020	● 2.9 %	1,078.0	1,000	● 7.8 %

8 Date
5/10/2012 5/11/2012 5/12/2012 5/13/2012 5/14/2012 5/15/2012 5/16/2012

9 Crude
Al Shaheen Arab Heavy Kuwait Oman Qatar Marine

10 Operating Conditions Production Goals Executive Summary +

11 READY

Scoring of Operational Objectives

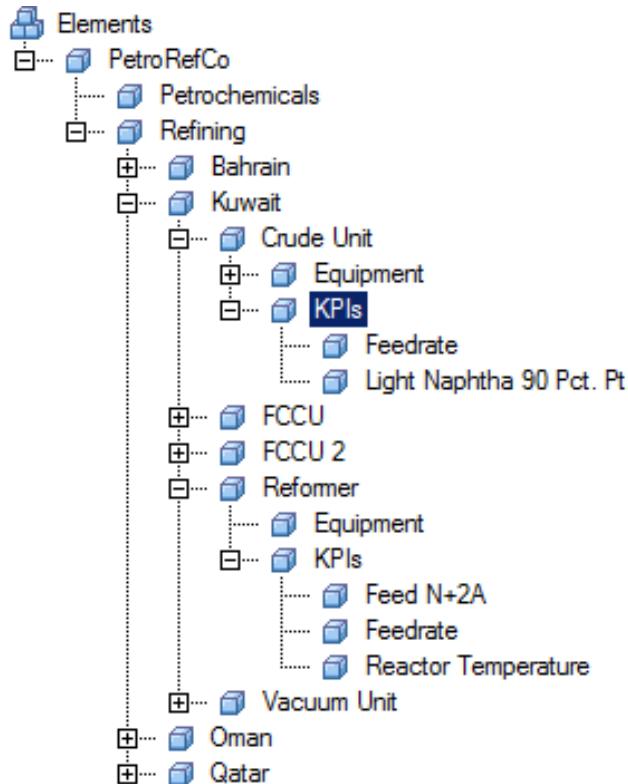
- Quality
- Production
- Energy

Can be driven by PI AF structure

Asset Context – *PI Asset Framework*

Asset Hierarchy

- Plant
- Process
- KPI



“KPI Total” Template

Name	Value
Category: Operating Plan Data	
Operating Plan Target	16700 bbl
Category: Process Data	
Hourly Throughput	16761.332951708042
Process Value	401676.21875 bbl/d

“KPI Laboratory” Template

Name	Value
Category: Operating Plan Data	
Operating Plan Target	175 °F
Category: Process Data	
Laboratory Value	177.199996948242 °F

Operating Data with Context - PI OLEDB Enterprise

PowerPivot Table

- AF Attributes

PI Data

Table Lookup

- Calculations

- AF Hierarchy

Process
Context

Time	KPI Value	Plan Target	Plan Deviation	Refinery	Process	KPI
5/15/2012 2:00:00 PM	60.2	61	-0.3	Oman	Reformer	Feed N+2A
5/15/2012 3:00:00 PM	60.2	61	-0.3	Oman	Reformer	Feed N+2A
5/15/2012 4:00:00 PM	60.2	61	-0.3	Oman	Reformer	Feed N+2A
5/15/2012 5:00:00 PM	60.2	61	-0.3	Oman	Reformer	Feed N+2A
5/15/2012 6:00:00 PM	60.2	61	-0.3	Oman	Reformer	Feed N+2A

... Assets and KPI's ...

5/11/2012 11:00:00 AM	1,118.3	1,200				
5/11/2012 12:00:00 PM	1,114.8	1,200				
5/11/2012 1:00:00 PM	1,115.7	1,200	-84.3	Bahrain	Isomerization	Feedrate
5/11/2012 2:00:00 PM	1,114.0	1,200	-86.0	Bahrain	Isomerization	Feedrate

... Assets and KPI's ...

5/12/2012 4:00:00 PM	62.4	64	-1.6	Bahrain	FCCU	Conversion
5/12/2012 5:00:00 PM	62.4	64	-1.6	Bahrain	FCCU	Conversion
5/12/2012 6:00:00 PM	62.7	64	-1.3	Bahrain	FCCU	Conversion
5/12/2012 7:00:00 PM	62.7	64	-1.3	Bahrain	FCCU	Conversion
5/12/2012 8:00:00 PM	62.9	64	-1.5	Bahrain	FCCU	Conversion

... Assets and KPI's ...

Plan Deviation
 $=[\text{KPI Value}] - [\text{Plan Target}]$

PetroRefCo Refining KPIs | Qatar Crude Runs | Bahrain Crude Runs | Kuwait Crude Runs | Oman Crude Runs | Bahrain Unit Capacities | ...

Operational Insight for the Organization

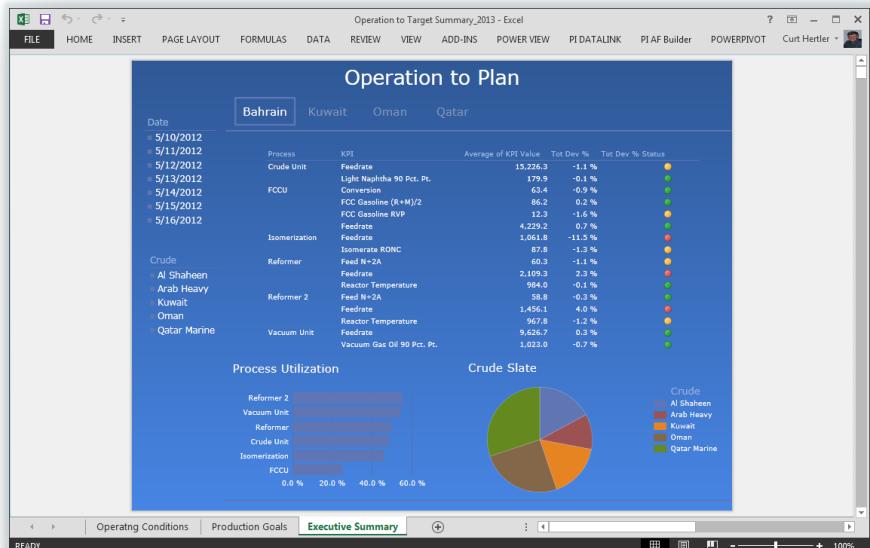
Excel 2013 Worksheet

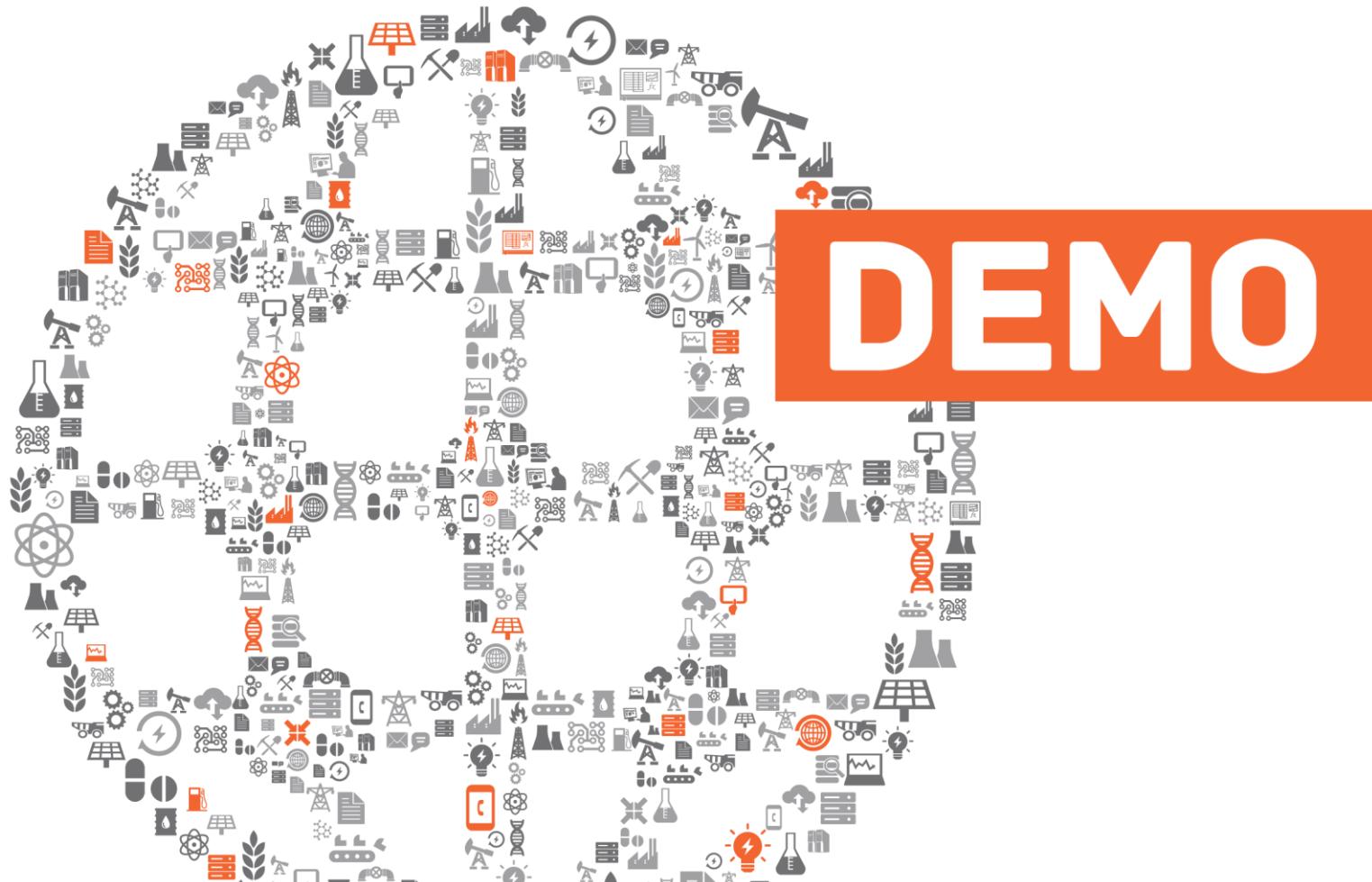
Operation to Target Summary_2013 - Excel

Curt Hertler

	Bahrain			Kuwait			Oman			Qatar		
	KPI Value	Plan Target	Dev %	KPI Value	Plan Target	Dev %	KPI Value	Plan Target	Dev %	KPI Value	Plan Target	Dev %
Crude Unit												
Light Naphtha 90 Pct. Pt.	179.9	180	-0.1%	177.2	175	1.3%	184.0	185	-0.5%	189.3	180	5.2%
FCCU												
Conversion	63.4	64	-0.9%	67.8	69	-1.7%	68.5	68	0.7%	62.4	62	0.6%
FCC Gasoline (R+M)/2	86.2	86	0.2%	85.2	86	-0.9%	84.2	87	-2.7%	85.6	85	0.8%
FCC Gasoline RVP	12.3	13	-1.6%	11.8	12	0.0%	12.5	12	0.8%	11.9	12	-0.8%
FCCU 2												
Conversion				60.2	62	-3.0%						
FCC Gasoline (R+M)/2				87.0	86	1.8%						
FCC Gasoline RVP				13.1	12	9.2%						
Isomerization							88.7	88	0.8%	89.1	88	1.2%
Isomate RONC	87.8	89	0.1%									
Reformer 2												
Feed N2A	60.3	61	-1.1%	57.9	58	-0.2%	60.2	61	-0.5%	55.9	62	-10.0%
Reactor Temperature	984.0	985	-0.1%	981.9	975	0.7%	963.8	970	-0.6%	975.5	974	0.2%
Reformer 2												
Feed N2A	58.8	59	-0.3%									
Reactor Temperature	967.8	980	-1.2%									
Vacuum Unit												
Vacuum Gas Oil 90 Pct. Pt.	1,023.0	1,030	-0.7%	1,000.0	1,055	-5.2%	1,050.0	1,020	2.9%	1,078.0	1,000	7.8%
Date	5/10/2012	5/11/2012	5/12/2012	5/13/2012	5/14/2012	5/15/2012	5/16/2012					
Crude	Al Shaheen	Arab Heavy	Kuwait	Oman	Qatar							
Operating Conditions	Production Goals	Executive Summary										

Excel 2013 Power View Report





FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW ADD-INS PI DATALINK PI AFBUILDER POWERPIVOT

PivotTable Recommended Table PivotTables Tables Pictures Online Pictures SmartArt Apps for Office Apps Recommended Charts Charts PivotChart Power View Line Column Win/Loss Slicer Timeline Hyperlink Text Box Header & Footer Signature Line Object Text Symbols

A1 : fx

Refining Division Operation to Plan - 7 Days

	Bahrain			Kuwait			Oman			Qatar		
	KPI Value	Plan	Target	KPI Value	Plan	Target	KPI Value	Plan	Target	KPI Value	Plan	Target
Crude Unit												
Light Naphtha 90 Pct. Pt.	179.9	180	● -0.1 %	177.2	175	● 1.3 %	184.0	185	● -0.5 %	189.3	180	● 5.2 %
FCCU												
Conversion	63.4	64	● -0.9 %	67.8	69	● -1.7 %	68.5	68	● 0.7 %	62.4	62	● 0.6 %
FCC Gasoline (R+M)/2	86.2	86	● 0.2 %	85.2	86	● -0.9 %	84.2	87	● -2.7 %	85.6	85	● 0.8 %
FCC Gasoline RVP	12.3	13	● -1.6 %	11.8	12	● 0.0 %	12.5	12	● 0.8 %	11.9	12	● -0.8 %
FCCU 2												
Conversion				60.2	62	● -3.0 %						
FCC Gasoline (R+M)/2				87.0	86	● 1.8 %						
FCC Gasoline RVP				13.1	12	● 9.2 %						
Isomerization												
Isomerate RONC	87.8	89	● -1.3 %				88.7	88	● 0.8 %	89.1	88	● 1.2 %
Reformer												
Feed N+2A	60.3	61	● -1.1 %	57.9	58	● -0.2 %	60.2	61	● -0.5 %	55.9	62	● -10.0 %
Reactor Temperature	984.0	985	● -0.1 %	981.9	975	● 0.7 %	963.8	970	● -0.6 %	975.5	974	● 0.2 %
Reformer 2												
Feed N+2A	58.8	59	● -0.3 %									
Reactor Temperature	967.8	980	● -1.2 %									
Vacuum Unit												
Vacuum Gas Oil 90 Pct. Pt	1,023.0	1,030	● -0.7 %	1,000.0	1,055	● -5.2 %	1,050.0	1,020	● 2.9 %	1,078.0	1,000	● 7.8 %
Date												
5/10/2012	5/11/2012	5/12/2012	5/13/2012	5/14/2012	5/15/2012	5/16/2012	Crude					
AI Shaheen	Arab Heavy	Kuwait	Oman	Qatar Marine								

Production Goals Operating Conditions

+

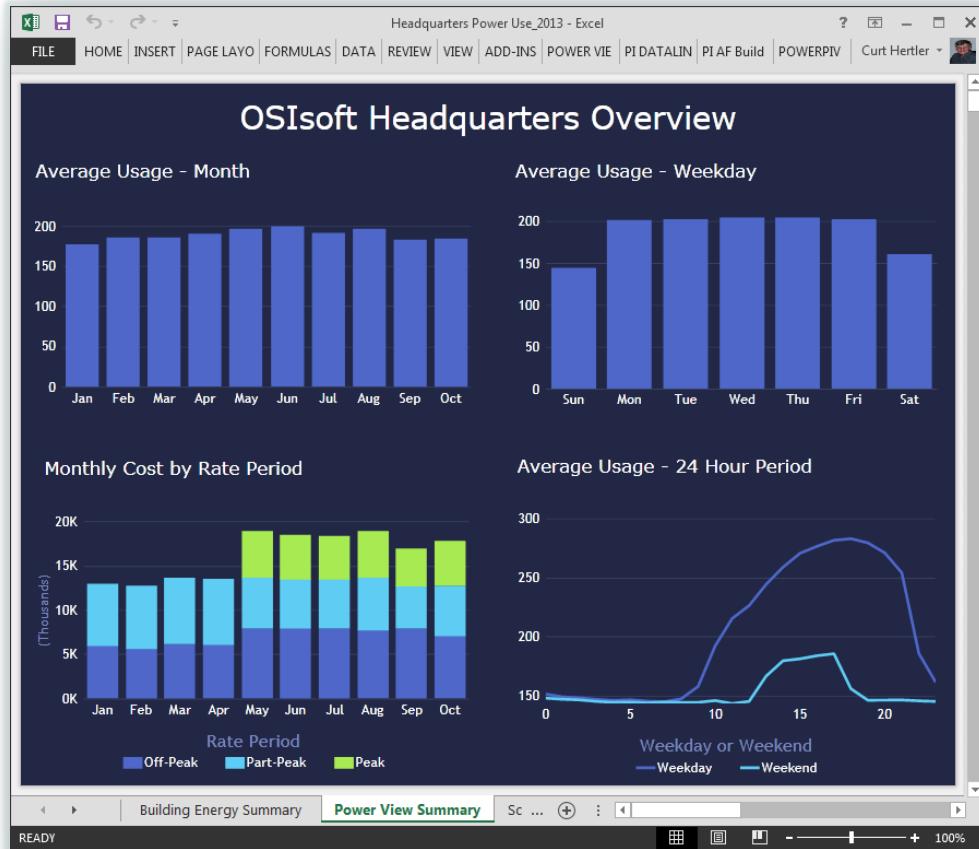
READY

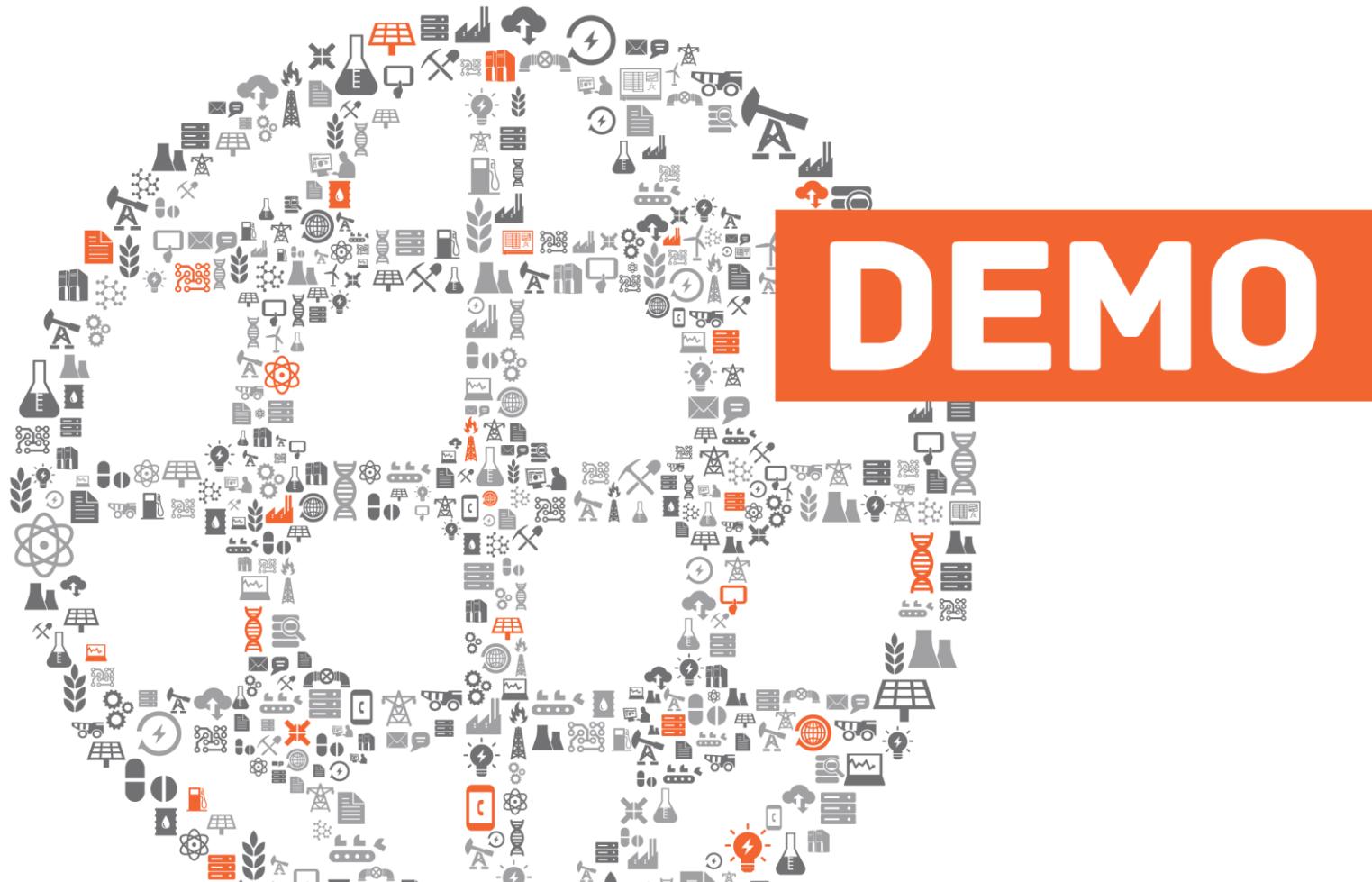
100%

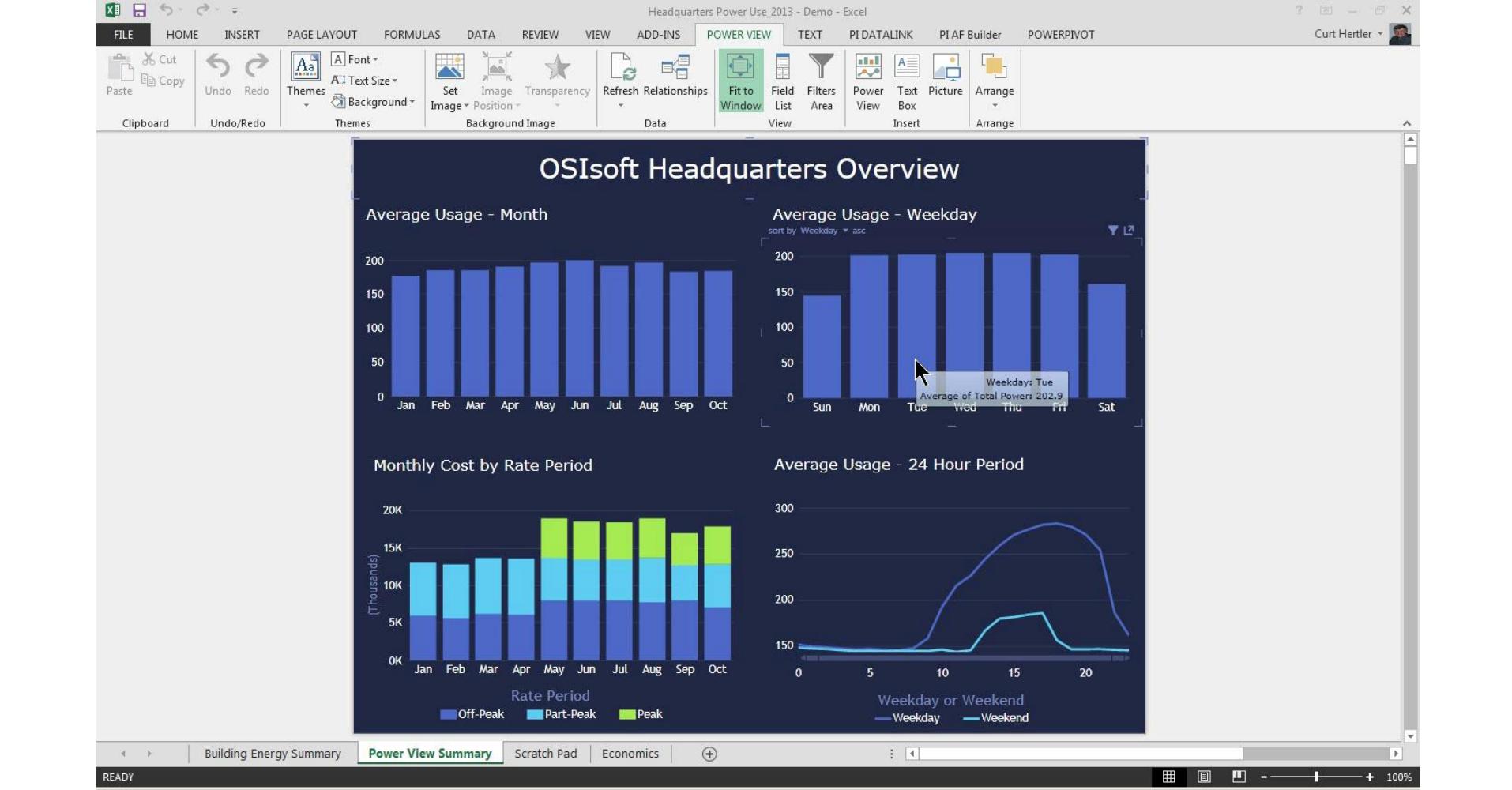
Ad Hoc Analysis



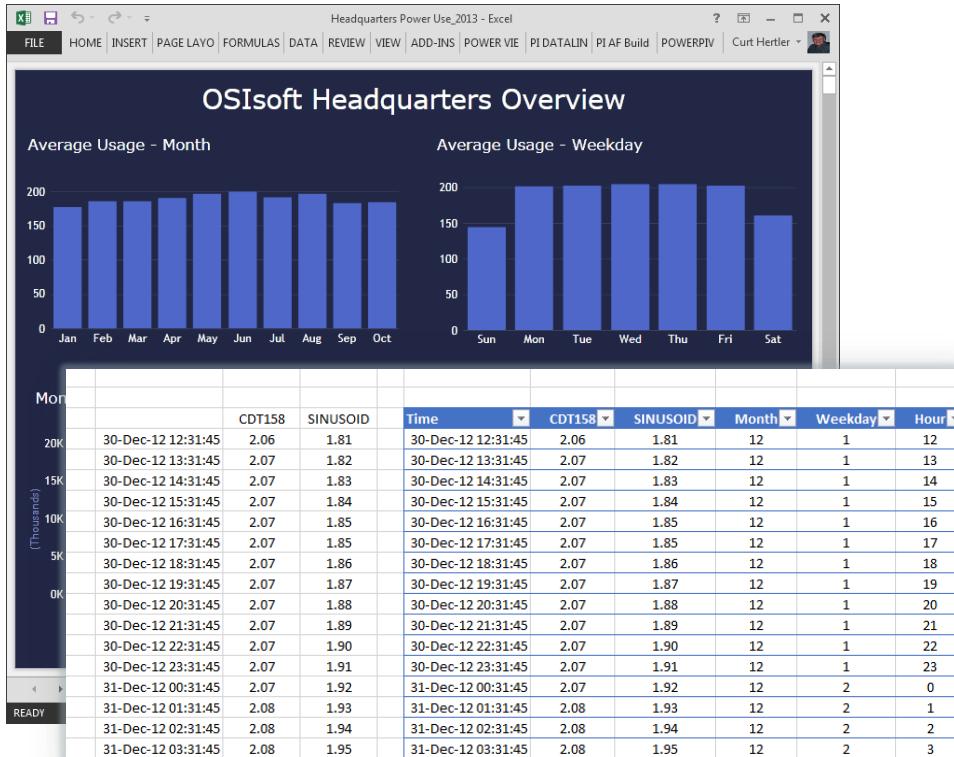
Power Use at OSIsoft Headquarters







Data Integration using DataLink



Requires reference to DataLink array for table range formatting

Limited to ~1 million rows

Best for single assets

No support for automatic refresh in SharePoint 2013

No support for upsizing to SQL Analysis Services 2012



PI for Office 365

Evolving Excel

Motivation

Increase Productivity



- Shorten the time to develop reports
- More visuals - Integrate natively with charts and tables
- Make it easy to share insights

Collections of things



- Report by exception
- Compare across equipment
- Do BI on aggregate and summary information
- Work with bigger collections of data

Redefining how we work



- Work with Mobile devices
- Make it web based
- Embrace non-experts
- Ensure the data is decision ready

Beyond spreadsheets



Microsoft Power Query for Excel



Microsoft PowerPivot for Excel

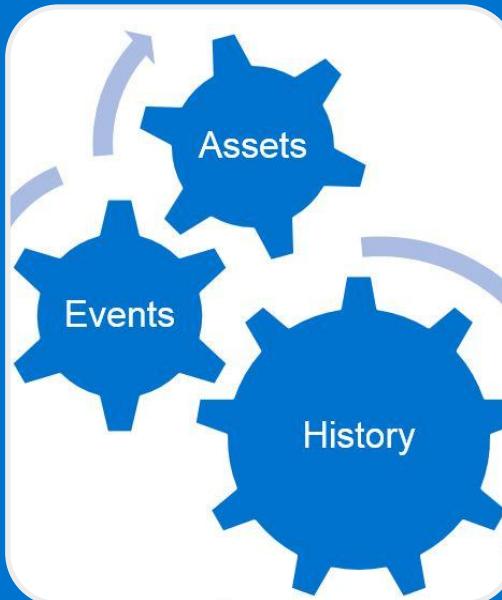
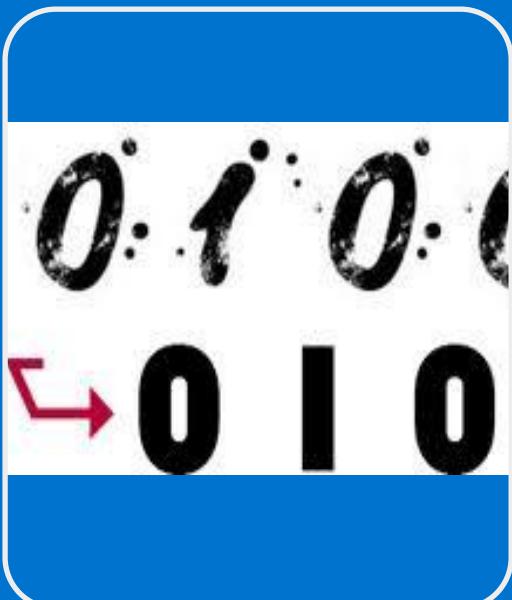


Microsoft PowerView for Excel



Microsoft Power Map for Excel

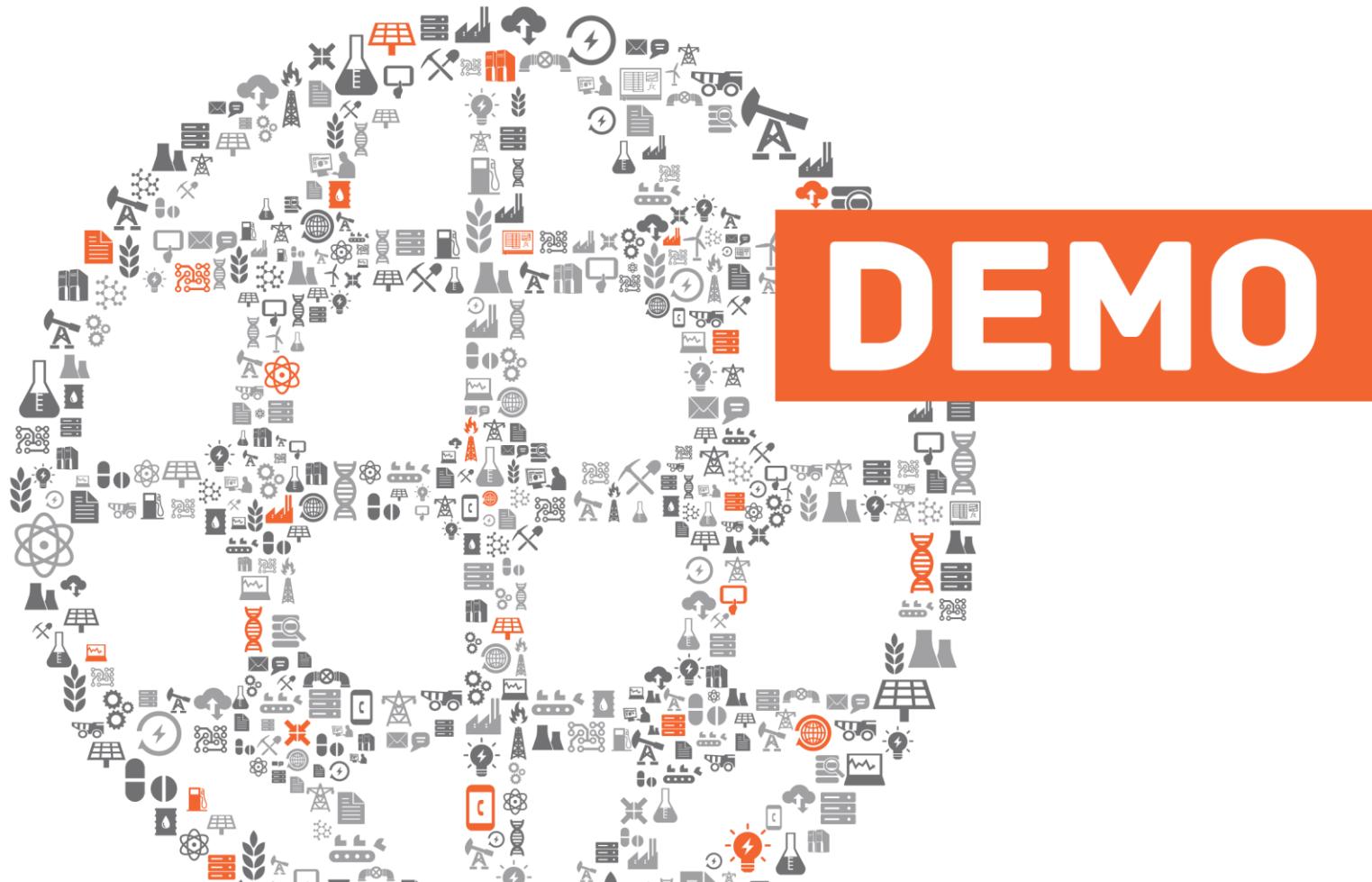
Streamlining reporting and analysis



Decision Ready Data

In Context

Rich Visualization



Additional Information

OSIsoft Resources

- “Using Microsoft PowerPivot and Power View with the PI System”

OSIsoft Tech Support

\ Download Center \Training Materials
techsupport.osisoft.com

- OSIsoft vCampus vcampus.osisoft.com
- For SRP Customers learning.osisoft.com
- For EA Customers, contact your EPM.

Helpful Books

- “PowerPivot for the Data Analyst”, Bill Jelen
- “Practical PowerPivot & DAX Formulas for Excel 2010”, Art Tennick



Cubing your PI Asset Framework

Version 1.02

Scope

This document contains a series of exercises designed to illustrate the process of bringing PI data and metadata into business intelligence cubes. This is a self-paced series of exercises designed to take approximately 4 hours, though this will increase if you are not familiar with PI OLEDB Enterprise.

Prerequisites

Familiarity with PI Asset Framework, and with the PI System Explorer utility, is assumed. Familiarity with SQL language is very helpful.

Materials

Provided for you:

- PI Archive with tags and data
- PI AF database (*Pinwheel*) with assets and event frames

Scenario

The *Pinwheel Power Corporation* is a wind generation concern. It has two wind farms in Texas, and has developed an asset model exposing some data for its wind operations.

Pinwheel uses PI Event Frames to track turbine downtime – their causes, and their impact.

Your job is to construct a generic business intelligence cube to power some basic exploration and reporting. This process will revolve around preparing their Asset Framework model for business intelligence, and writing PI OLEDB Enterprise queries to feed the cube.

Instructions

- ❖ Do each action marked by a red diamond symbol

Get hands on knowledge of how to use and get value from the PI System



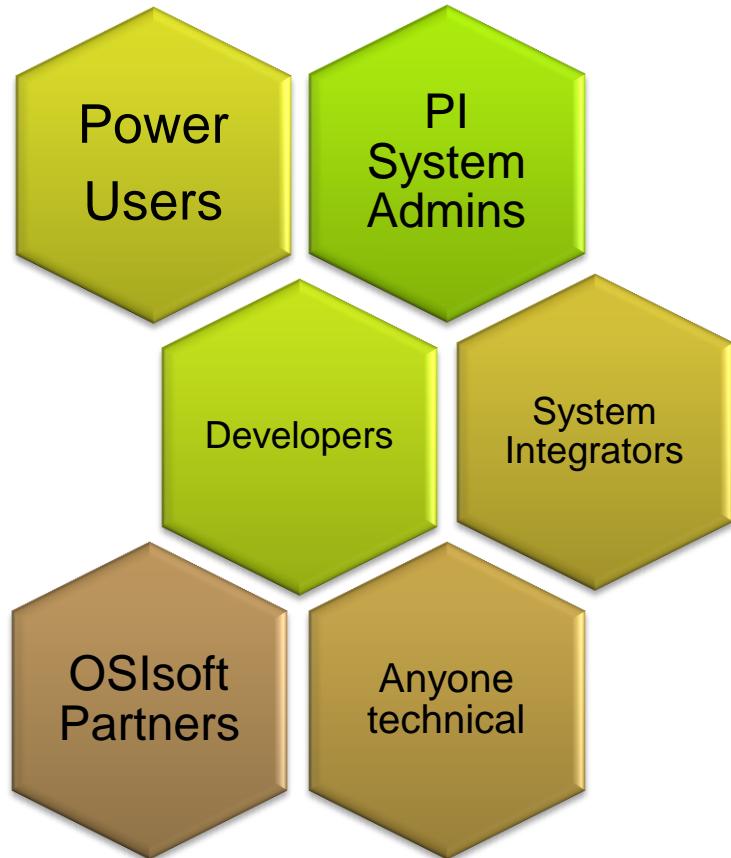
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WHERE PI GEEKS MEET



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