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REGIONAL SEMINARS 2013

The Power of Data

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Operational Insight: Using Self-Service Technologies to Do More with the PI System

Presented by **Curt Hertler, OSIsoft**

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Overview

- Microsoft's Strategy for Business Insight
- OSIsoft's Infrastructure for Operational Insight
  - Business Analytics Toolkit
  - Example: "*Sustainability at Safeco Field*"
  - Demo:
  - ***Coming soon!*** Excel 2013
  - Additional Resources

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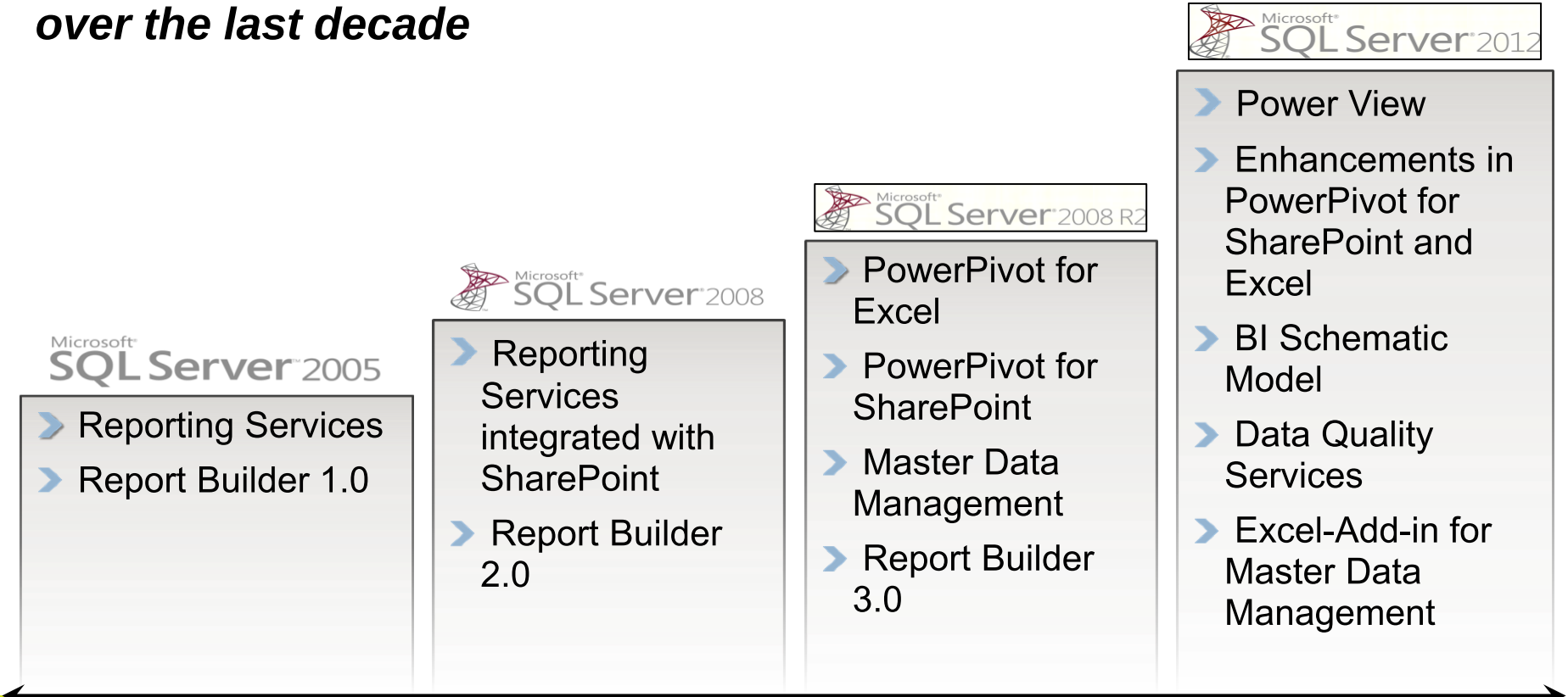
Microsoft SQL Server BI Evolution

Increased BI functionality and enterprise-level performance over the last decade



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Seamless Transition Across BI Spectrum

Personal BI	Team BI	Organizational BI
Empowered		Aligned
My Context	**Our Context**	**The Org's Context**
BI solution created by user. Context is only for user & exists as document.	BI Solution created by power user. Context is for a small team & it's managed on a server.	BI Solution created by IT, Established corporate context & is reusable, scalable and backed up.
PowerPivot For Excel	PowerPivot For SharePoint	Analysis Services

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Business Analytics Toolkit

OSIsoft. | Microsoft

Microsoft® Excel® 2010

Microsoft® SQL Server® 2012 Business Intelligence

Microsoft® SharePoint® 2010 Enterprise

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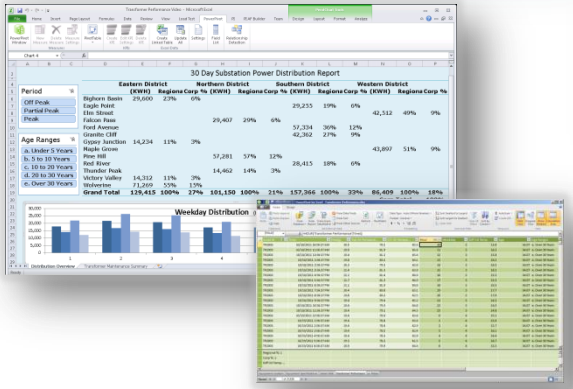
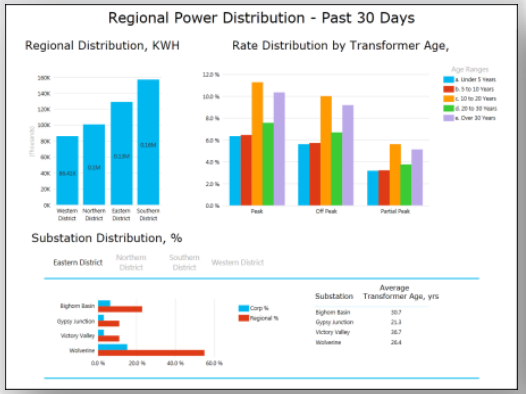
PI Server 2012

PI OLEDB Enterprise 2012



PowerPivot for Excel 2010



Power View

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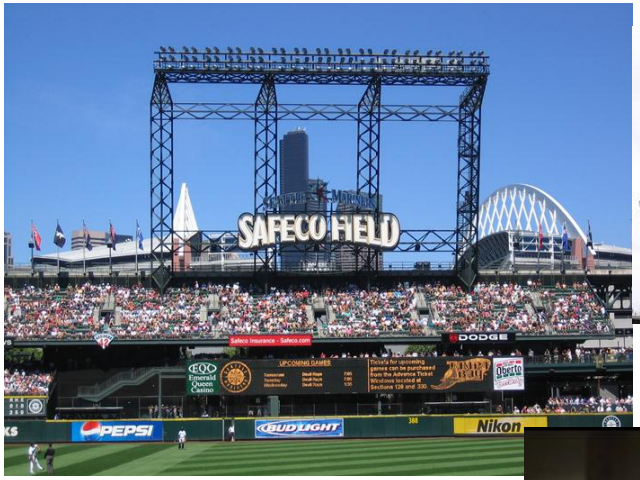
Sustainability at Safeco Field

- Real-time Operational Awareness
  - Security Office
- Unplanned Event Notification
  - Water Leak
- Operational Systems Costs
  - Stadium Roof Open/Close
- Key Equipment Reliability
  - Stadium Roof Equipment
- Solar Panel Integration
  - Green Operations and Cost Reduction



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Real-time Visualization for Awareness

Now, how can we learn from our experience?

What affects game day power and water consumption?

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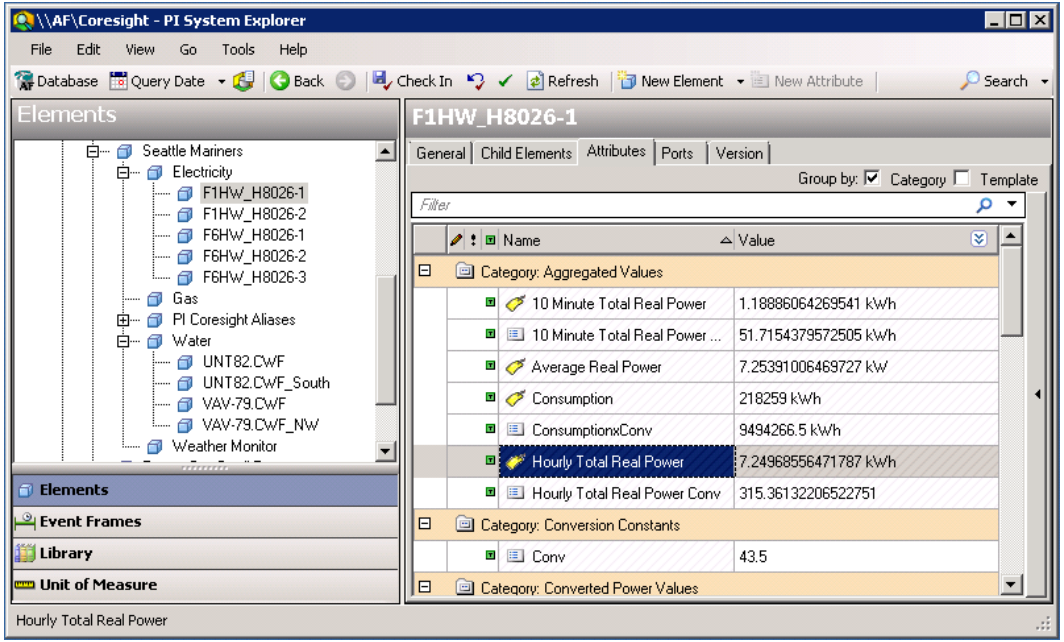
AF Structure Required

Important Considerations

- Leverage structure used throughout the PI Infrastructure
- Correct aggregation of real-time events
- Scalable, driven from PI AF Structure



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Other Required Information

2012 Seattle Mariners Schedule

Mariners will open the 2012 season in Japan vs. Oakland on March 28 & 29

APRIL

MAY

JUNE

JULY

Team Schedule

- Home or away
- Start time

2012 Seattle Mariners Schedule, Box Scores and Splits - Baseball-Reference.com - Windows Internet Explorer

Franchise Encyclopedia | 2012 | Stats | Payroll, Roster & Uniforms | Batting [+] | Pitching [+] | Fielding | Schedule & Results | Scoring | Other [+]

Team Game-by-Game Schedule and Results

Glossary · SHARE · Embed · CSV · PRE · LINK · ?

Rk	Gm#	Date		Tm	Opp	R	RA	Inn	W-L	Rank	GB	Win	Loss	Save	Time	D/N	Attendance
1	1	Wednesday, Mar 28	boxscore	SEA	@ OAK	W	3	1	11	1-0	1	up 0.5	Wilhelmsen	Carignan	League	3:04	N	44,227
2	2	Thursday, Mar 29	boxscore	SEA	@ OAK	L	1	4		1-1	1	Tied	Colon	Kelley	Balfour	2:23	N	43,391
3	3	Friday, Apr 6	boxscore	SEA	@ OAK	W	7	3		2-1	1	Tied	Vargas	McCarthy		3:06	N	35,067
4	4	Saturday, Apr 7	boxscore	SEA	@ OAK	W	8	7		3-1	1	up 1.0	Hernandez	Colon	League	2:58	N	16,612
5	5	Monday, Apr 9	boxscore	SEA	@ TEX	L	5	11		3-2	2	0.5	Darvish	Noesi		3:12	N	42,003
6	6	Tuesday, Apr 10	boxscore	SEA	@ TEX	L	0	1		3-3	2	1.5	Feliz	Beavan	Nathan	2:23	N	25,753
7	7	Wednesday, Apr 11	boxscore	SEA	@ TEX	W	4	3		4-3	2	0.5	Luetge	Nathan	League	3:20	N	32,342
8	8	Thursday, Apr 12	boxscore	SEA	@ TEX	L	3	5		4-4	2	1.5	Holland	Vargas	Adams	2:33	D	31,513
9	9	Friday, Apr 13	boxscore	SEA	OAK	L	0	4		4-5	3	2.5	Colon	Hernandez		3:02	N	46,026
10	10	Saturday, Apr 14	boxscore	SEA	OAK	W	4	0		5-5	2	2.5	Noesi	Milone		2:29	N	21,071
11	11	Sunday, Apr 15	boxscore	SEA	OAK	W	5	3		6-5	2	2.5	Beavan	Godfrey	League	2:36	D	19,650
12	12	Tuesday, Apr 17	boxscore	SEA	CLE	L	8	9		6-6	2	3.5	Perez	Furbush	Perez	3:33	N	12,461
13	13	Wednesday, Apr 18	boxscore	SEA	CLE	W	4	1		7-6	2	3.5	Vargas	Lowe	League	2:47	N	11,343
14	14	Thursday, Apr 19	boxscore	SEA	CLE	L	1	2		7-7	2	4.5	Tomlin	League	Perez	2:29	N	12,942
15	15	Friday, Apr 20	boxscore	SEA	CHW	L	3	7		7-8	2	5.0	Sale	Noesi		2:45	N	19,947
16	16	Saturday, Apr 21	boxscore	SEA	CHW	L	0	4		7-9	2	5.5	Humber	Beavan		2:17	D	22,472
17	17	Sunday, Apr 22	boxscore	SEA	CHW	L	4	7		7-10	3	6.5	Danks	Millwood	Santiago	2:56	D	19,975
18	18	Tuesday, Apr 24	boxscore	SEA	@ DET	W	7	4		8-10	3	6.0	Vargas	Scherzer	League	3:01	N	30,073

Team Results

- Attendance
- Time of game
- Win or Loss

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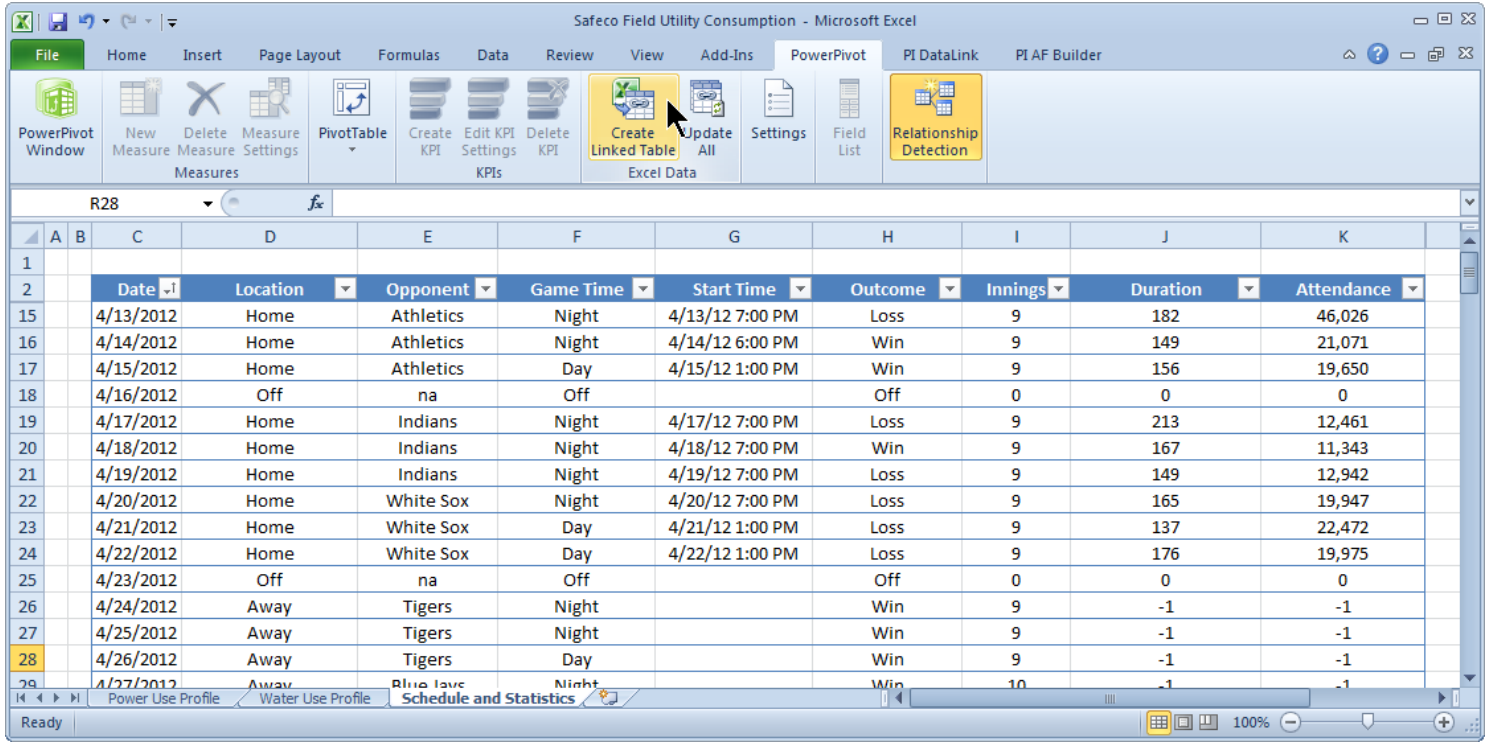
Other Required Information

Excel table linked to PowerPivot



	Date	Location	Opponent	Game Time	Start Time	Outcome	Innings	Duration	Attendance
15	4/13/2012	Home	Athletics	Night	4/13/12 7:00 PM	Loss	9	182	46,026
16	4/14/2012	Home	Athletics	Night	4/14/12 6:00 PM	Win	9	149	21,071
17	4/15/2012	Home	Athletics	Day	4/15/12 1:00 PM	Win	9	156	19,650
18	4/16/2012	Off	na	Off		Off	0	0	0
19	4/17/2012	Home	Indians	Night	4/17/12 7:00 PM	Loss	9	213	12,461
20	4/18/2012	Home	Indians	Night	4/18/12 7:00 PM	Win	9	167	11,343
21	4/19/2012	Home	Indians	Night	4/19/12 7:00 PM	Loss	9	149	12,942
22	4/20/2012	Home	White Sox	Night	4/20/12 7:00 PM	Loss	9	165	19,947
23	4/21/2012	Home	White Sox	Day	4/21/12 1:00 PM	Loss	9	137	22,472
24	4/22/2012	Home	White Sox	Day	4/22/12 1:00 PM	Loss	9	176	19,975
25	4/23/2012	Off	na	Off		Off	0	0	0
26	4/24/2012	Away	Tigers	Night		Win	9	-1	-1
27	4/25/2012	Away	Tigers	Night		Win	9	-1	-1
28	4/26/2012	Away	Tigers	Day		Win	9	-1	-1

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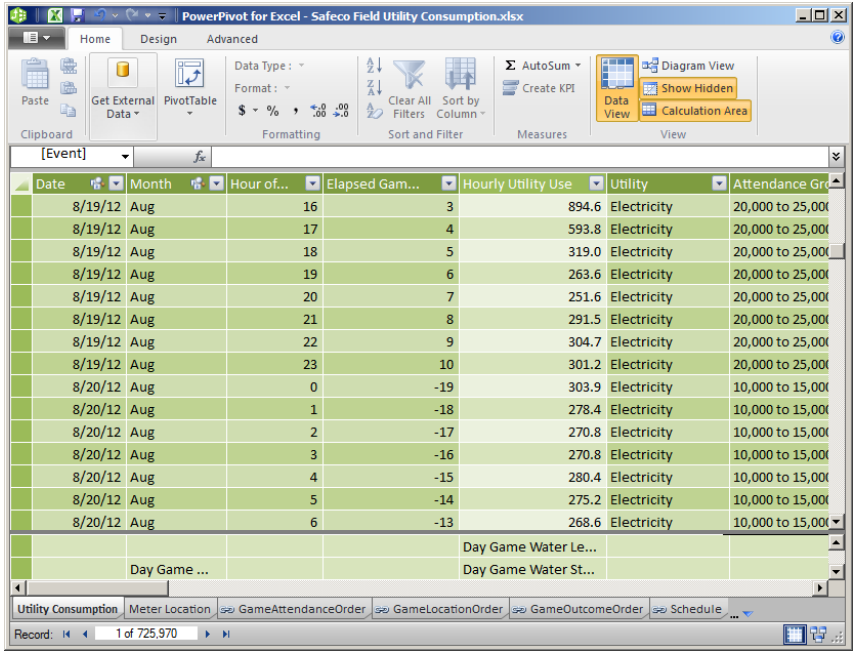
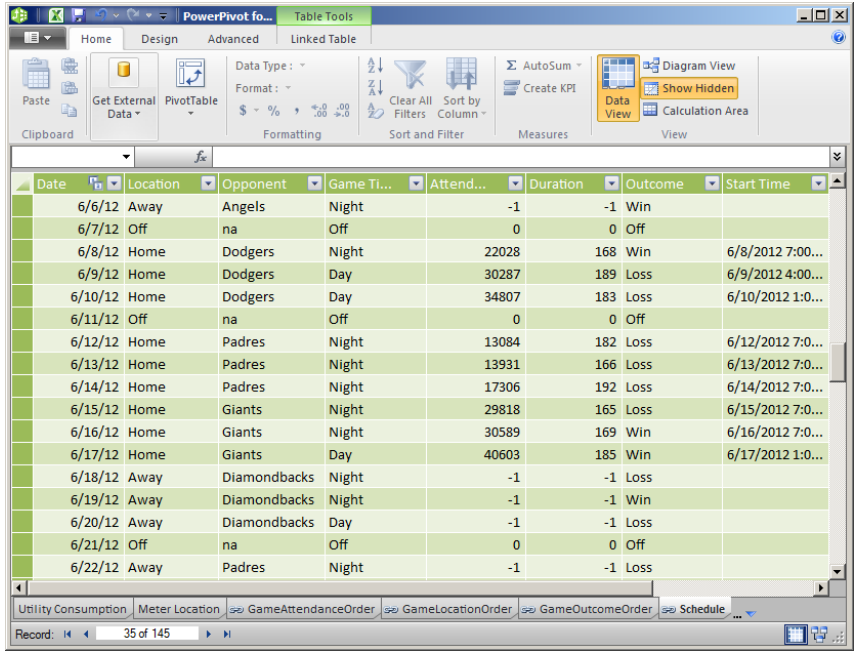
PowerPivot Data Tables



PI System Data – utility meters



Internet data – game information

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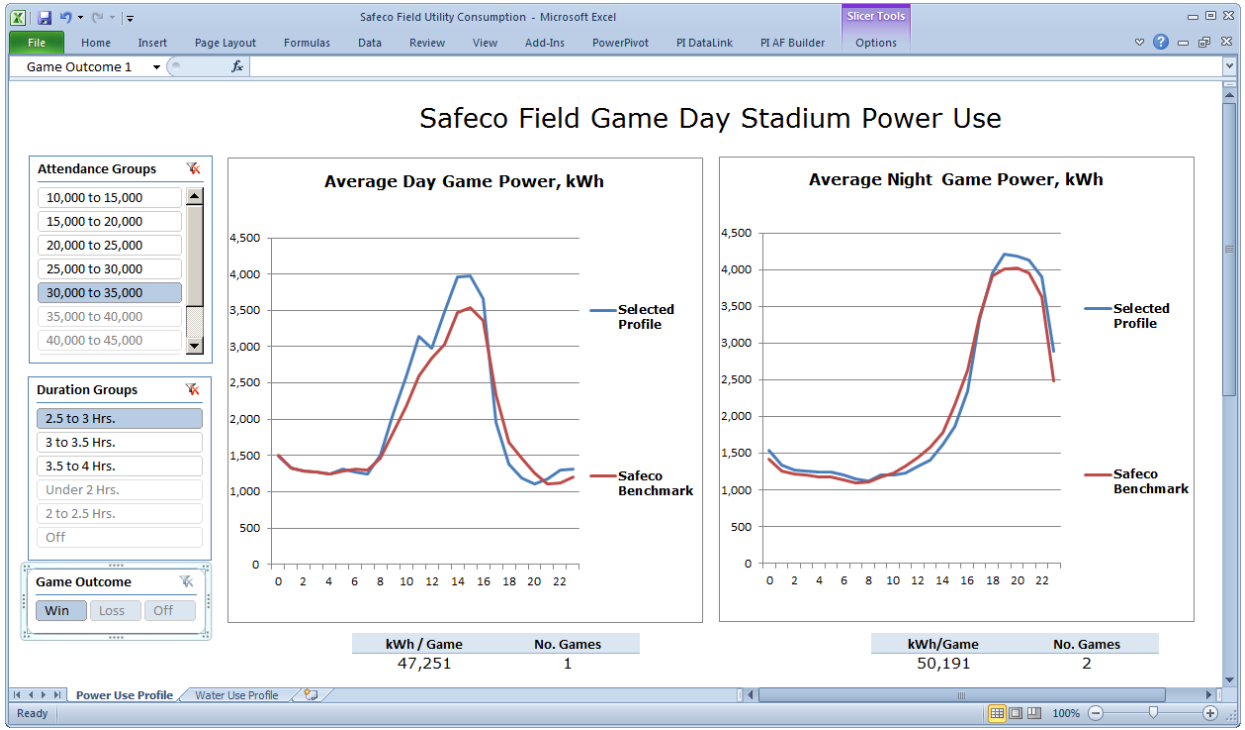
Utility Use Profile – PowerPivot for Excel 2010

Benchmarking

- Day and night game profiles
- Benchmark average of all day or night games
- Compare effects of attendance and game duration



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DEMO

PowerPivot for Excel 2010

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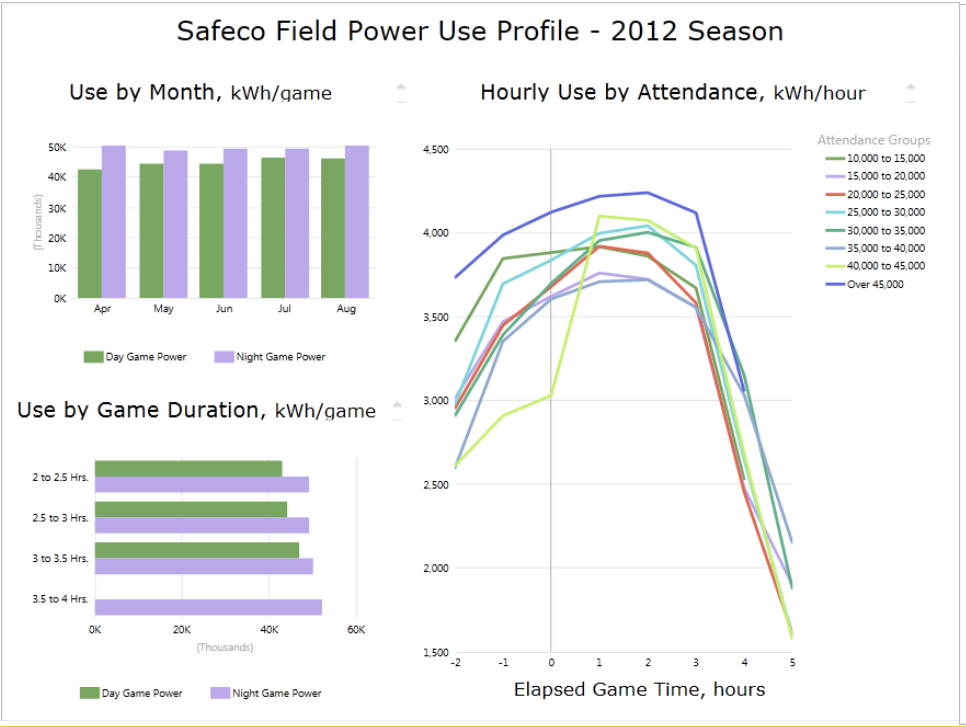
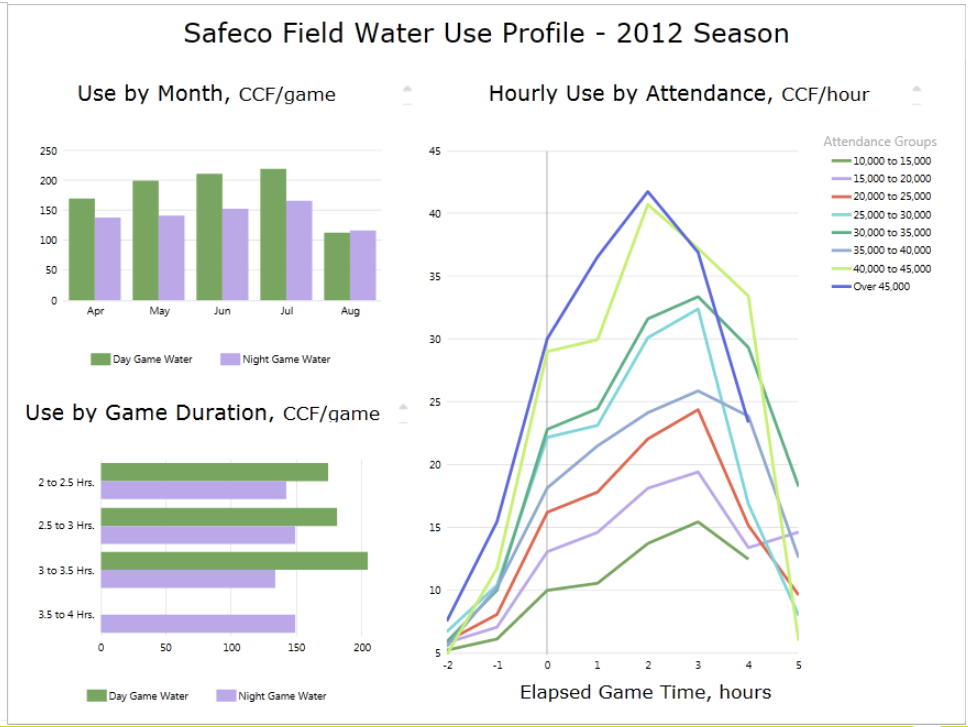
Season Utility Profiles – Power View

Use by month, time of game and elapsed game time.





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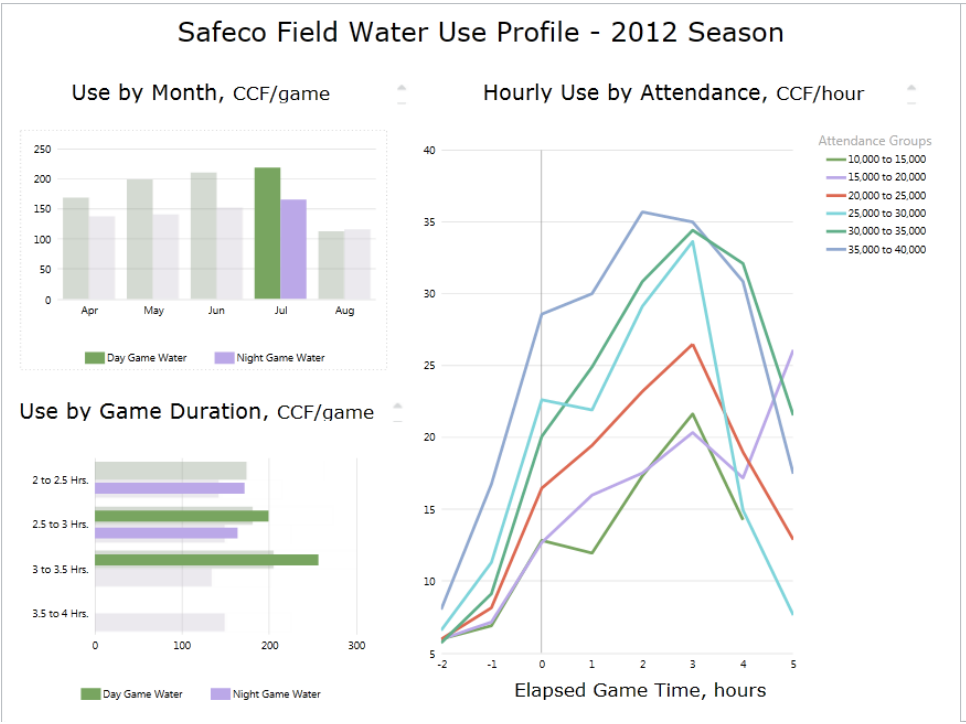
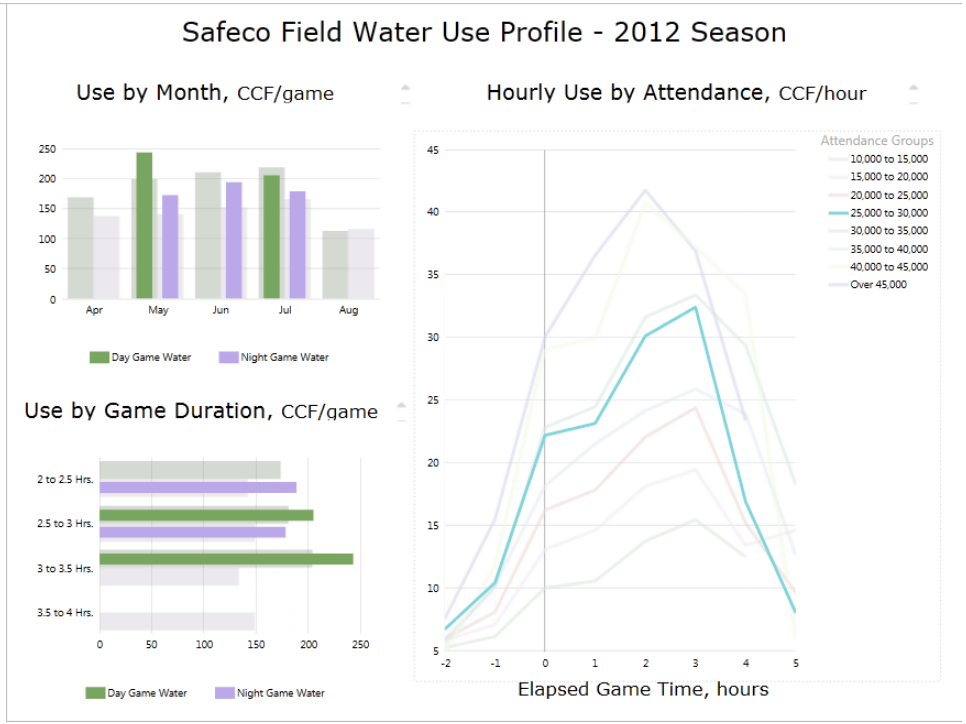
Season Utility Profile – Selected Conditions

Month of July



Attendance 25,000 to 30,000



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DEMO

Power View for SQL 2012

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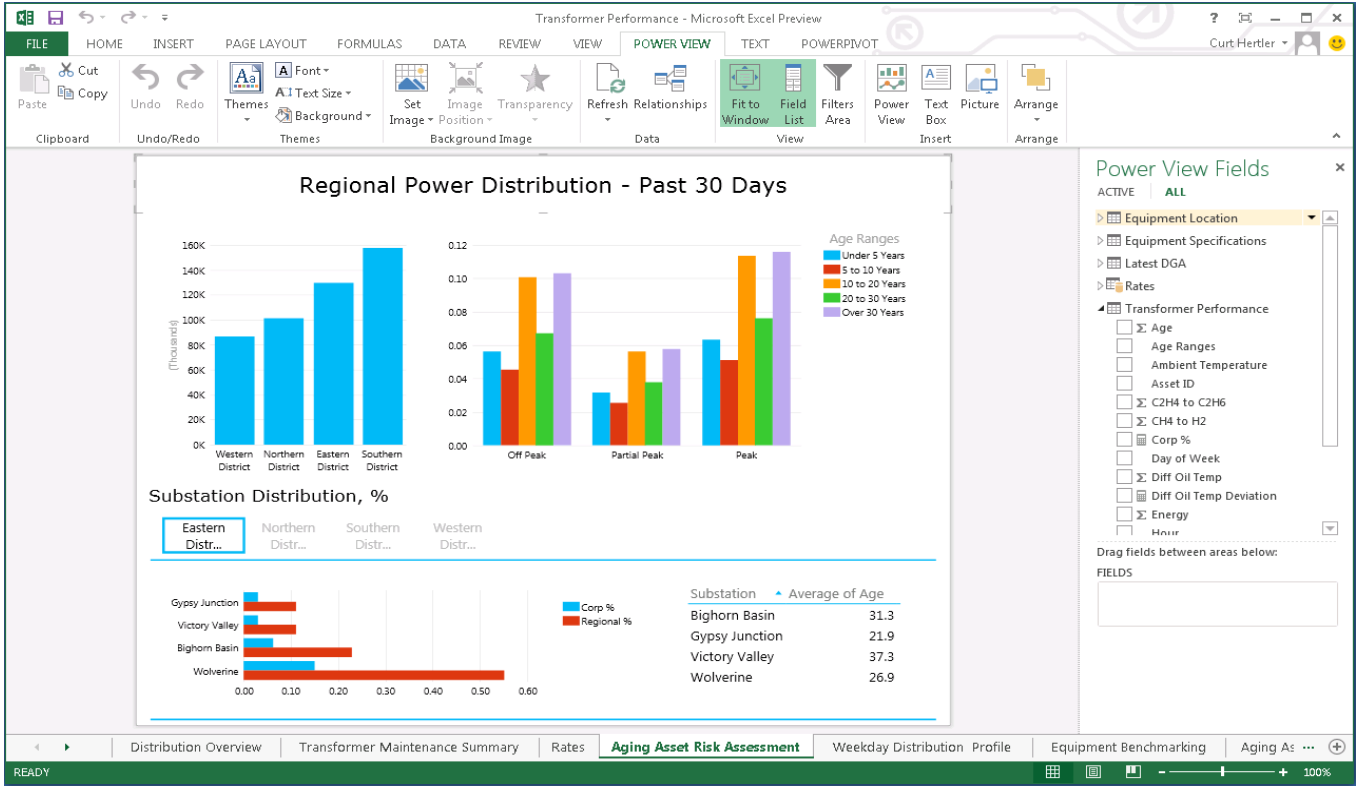
Power View in Excel 2013

Microsoft Power View Included with Excel 2013



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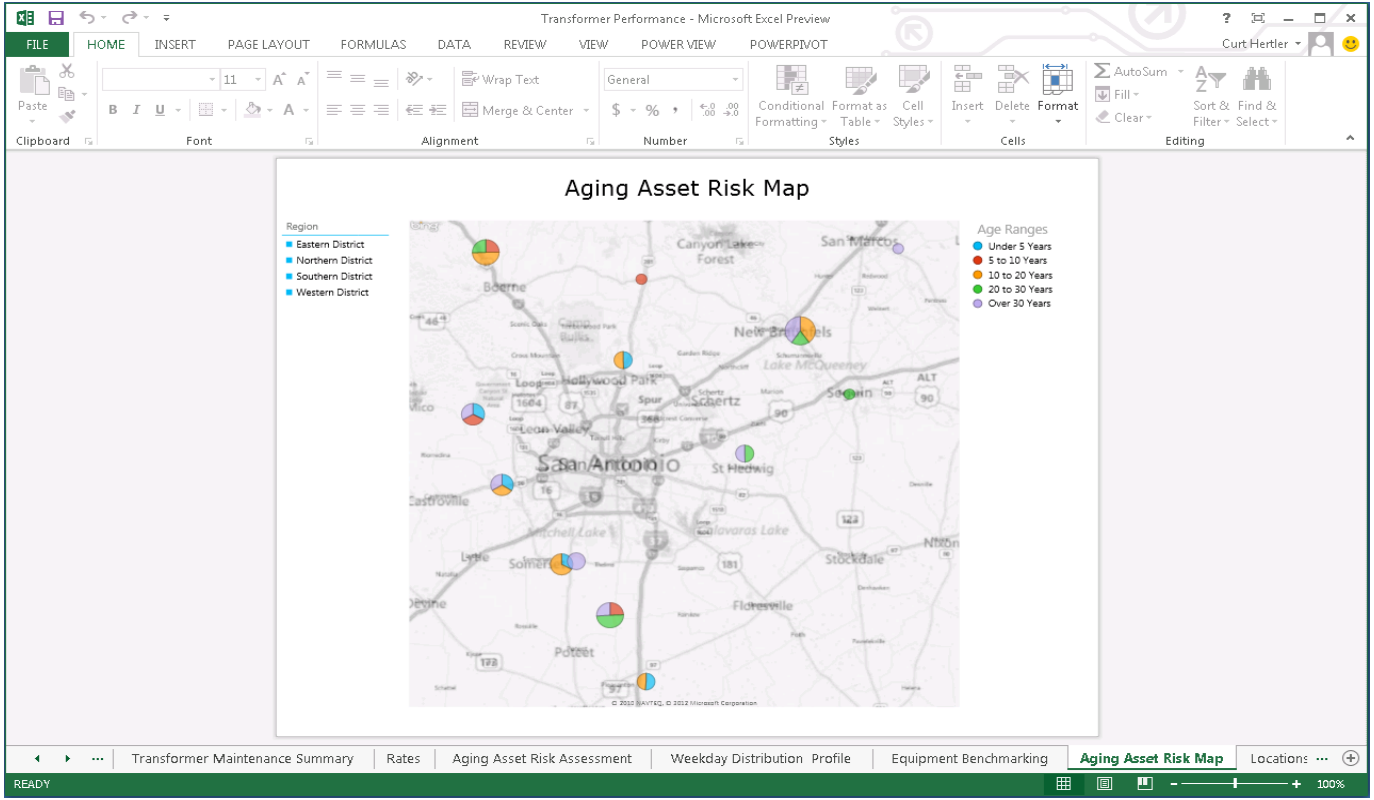
Power View in Excel 2013

Microsoft Power View Included with Excel 2013

Bing Map Integration

- Street Address
- Lat – Long
- Filtered Zoom and Pan



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Additional Information

OSIsoft Resources

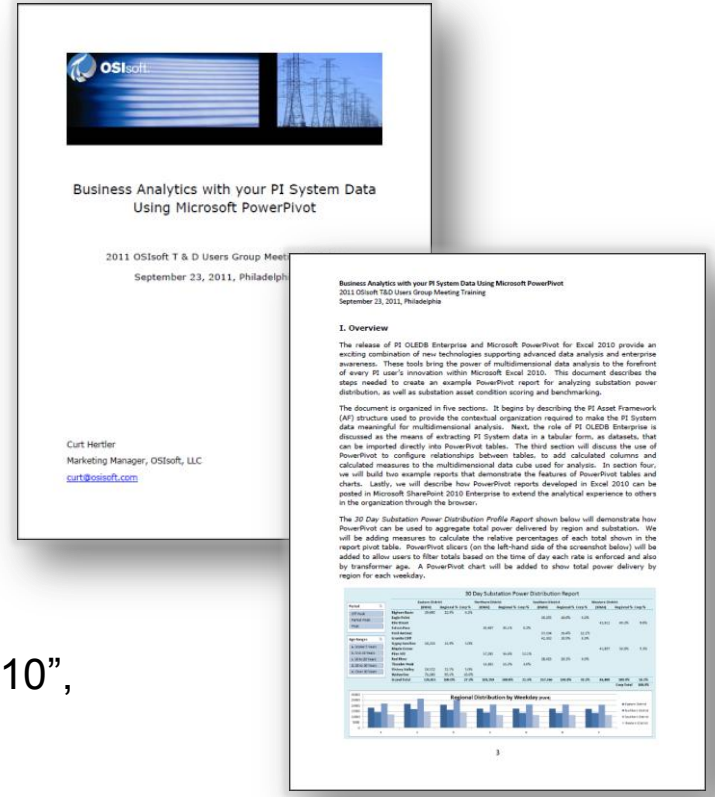
- "Business Analytics with your PI System Data using Microsoft PowerPivot"
- PI T&D Users Group Site extranet.osisoft.com
- OSIsoft vCampus vcampus.osisoft.com
- For SRP Customers learning.osisoft.com

Microsoft Resources

- www.microsoft.com/en-us/bi/powerpivot.aspx

Helpful Books

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



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Senior Business Architect

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