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

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Curt Hertler, OSIsoft
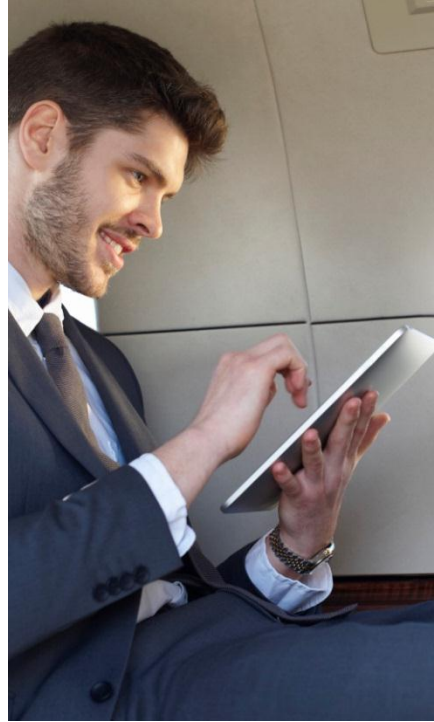
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Overview

- Microsoft's Strategy for Business Insight

  - "Microsoft SQL 2012 Self-Service Business Intelligence"

- OSIsoft's Infrastructure for Operational Insight

  - Business Analytics Toolkit

  - Example: "*Sustainability at Safeco Field*"

  - ***Coming soon!*** Excel 2013

  - Additional Resources

The Way People Experience Data

# MANAGED SELF-SERVICE BI
END USER-CREATED, IT MANAGED

Transform end user-created applications in PowerPivot into corporate-grade solutions

Import end user-created PowerPivot models into Analysis Services

Sanction applications for broad use

Publish for use as a corporate-grade solution

From **individual** or small group usage to **organization-wide** availability

End User-Created Application

IT Sanctioned

Organizational Adoption
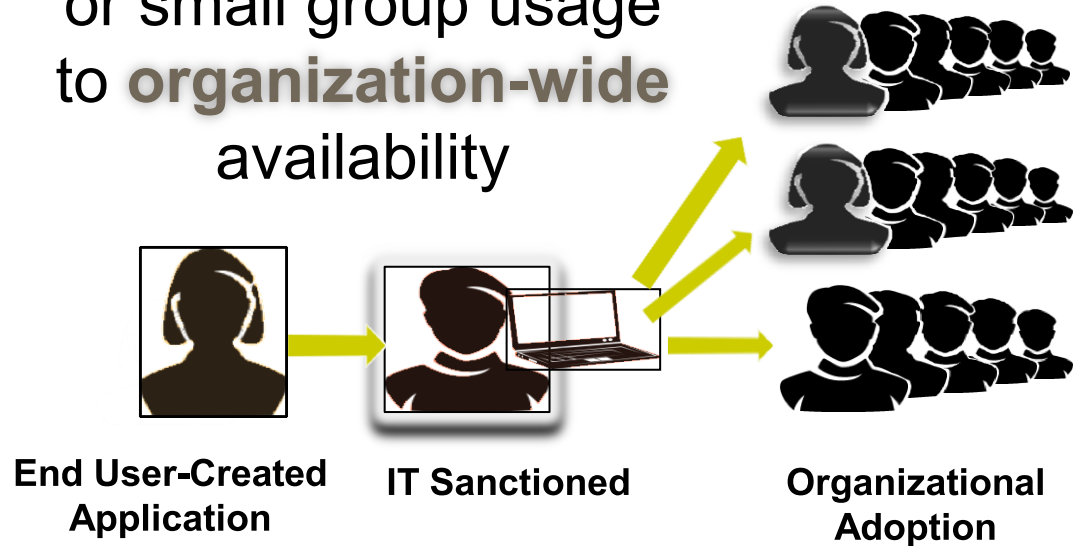
Evolution of Self-Service BI

Increasing BI functionality over the last decade

Microsoft® Excel 2013

Microsoft® SharePoint 2013 Enterprise

Microsoft® SQL Server 2012 BI Edition

Microsoft® Excel 2010

Microsoft® SharePoint 2010 Enterprise

Microsoft® SQL Server 2008 R2

Microsoft® Excel 2007

Microsoft® SharePoint 2007

Microsoft® SQL Server 2008

Microsoft® SQL Server 2005

SQL Server 2005
- Reporting Services
- Report Builder 1

SharePoint 2007 / SQL Server 2008
- Excel Services
- Reporting Services with SharePoint
- Report Builder 2

SQL Server 2008 R2
- PowerPivot for Excel
- PowerPivot for SharePoint
- Master Data Management
- Report Builder 3

SQL Server 2012 BI Edition
- Power View for SharePoint and Excel
- PowerPivot improvements in SharePoint and Excel
- BI Semantic Model

Seamless Transition Across BI Spectrum

Personal BI	Team BI	Organizational BI

Empowered ← → Aligned

My Context

BI solution created by user. Context is only for user & exists as document.

Our Context

BI Solution created by power user. Context is for a small team & it's managed on a server.

The Org's Context

BI Solution created by IT, Established corporate context & is reusable, scalable and backed up.

PowerPivot For Excel   PowerPivot For SharePoint   Analysis Services

PowerPivot

Powerful in-memory data mashup and data exploration tool providing analytical performance to process billions of rows.

PowerPivot for Excel
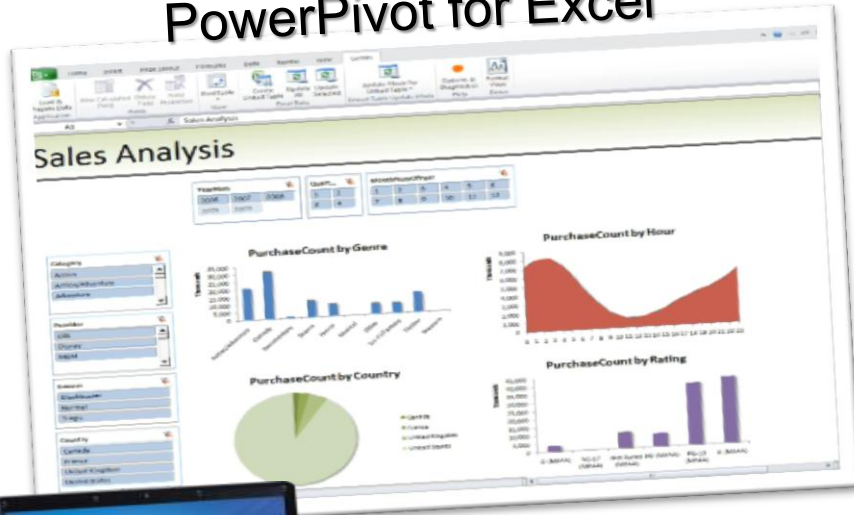
PowerPivot for SharePoint

Power View

Highly Visual Design Experience

- Interactive, web-based authoring and sharing of information
- Familiar Microsoft Office design patterns
- Powerful data layout with banding, callout, and small multiples visualizations

Rich metadata-driven interactivity

- Fully integrated with PowerPivot
- Drive greater insight through smart and powerful querying
- Zero configuration highlighting and filtering
- Animated trending and comparisons

Presentation-ready at all times

- Presentation and story board turn pervasive information into persuasive information
- Deliver and collaborate through SharePoint
- Interactive PowerPoint runtime

BI Semantic Model

One Model for All End User Experiences

Client Tools
Analytics, Reports, Scorecards,
Dashboards, Custom Apps

BI Semantic Model

Data Model

Business Logic
and Queries

Data Access

Data Sources
Databases, LOB Applications, OData Feeds,
Spreadsheets, Text Files

Personal BI
PowerPivot for
Excel

Team BI
PowerPivot for
SharePoint

Corporate BI
Analysis
Services
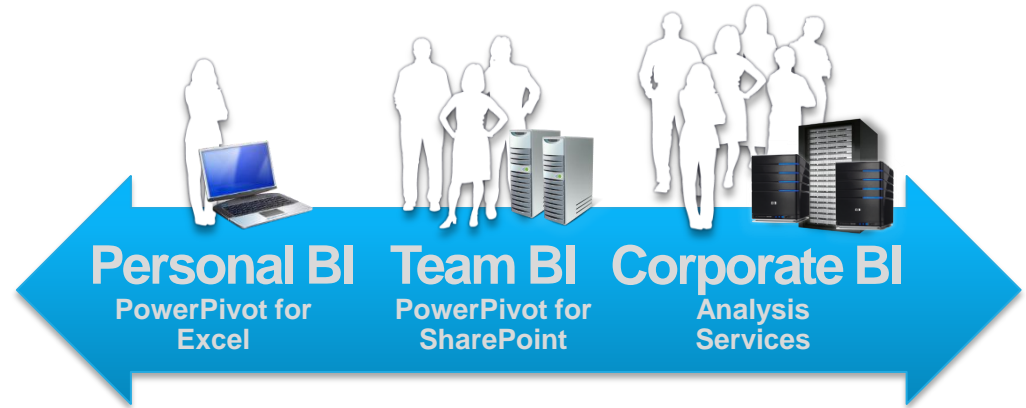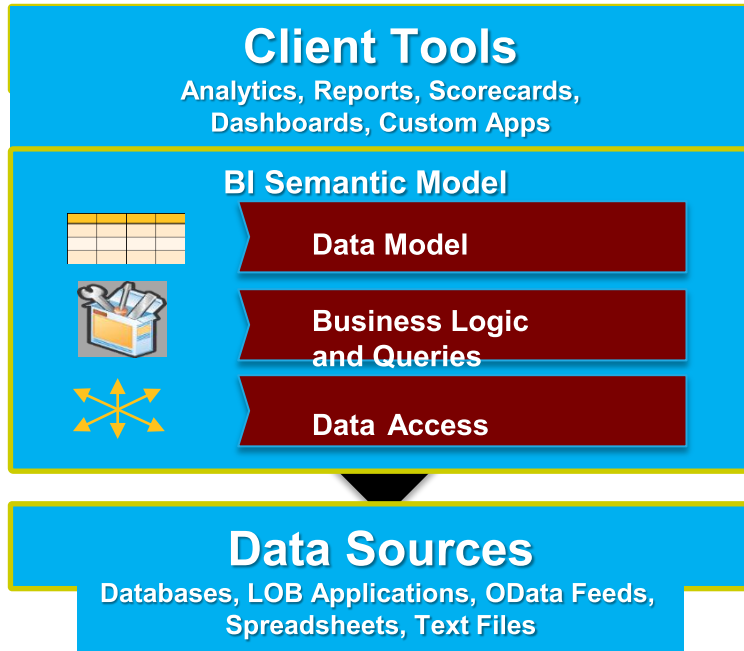
Office 2013 for BI

Power View in Excel 2013

- As Power View in SharePoint 2013
- Interactive data exploration, visualization, and presentation
- Interactive tables, matrices, maps, and a variety of charts

PowerPivot in Excel 2013

- The PowerPivot Add-In ships as an Excel feature
- Fully integrated engine, Data Model and Field List of Excel

Business Analytics Toolkit

PowerPivot for Excel 2010

PI Server
PI OLEDB Enterprise
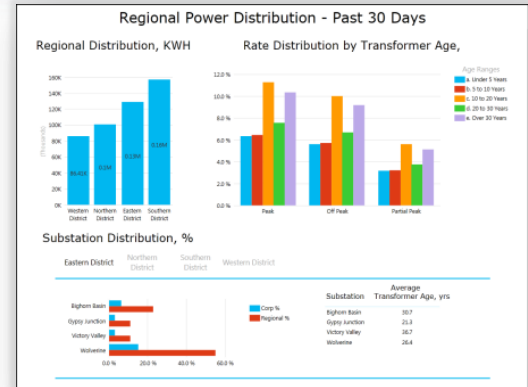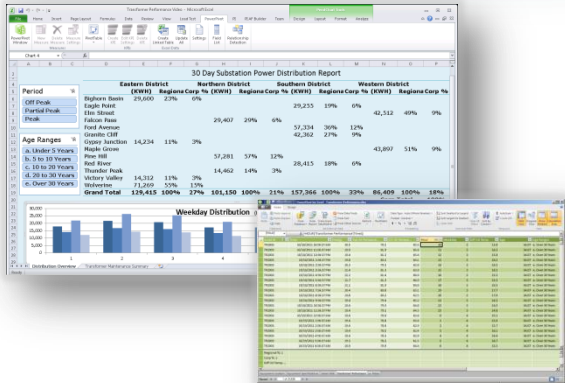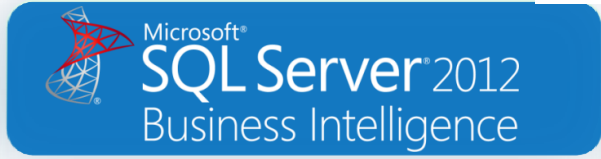
Power View

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

Real-time Visualization for Awareness

Now, how can we learn from our experience?

What affects game day power and water consumption?

AF Structure Required

Important Considerations

- Leverage structure used throughout the PI Infrastructure

- Correct aggregation of real-time events

- Scalable, driven from PI AF Structure

Other Required Information

Team Schedule
- Home or away
- Start time

Team Results
- Attendance
- Time of game
- Win or Loss

Other Required Information

Excel table linked to PowerPivot

PowerPivot Data Tables

PI System Data – utility meters

Internet data – game information

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
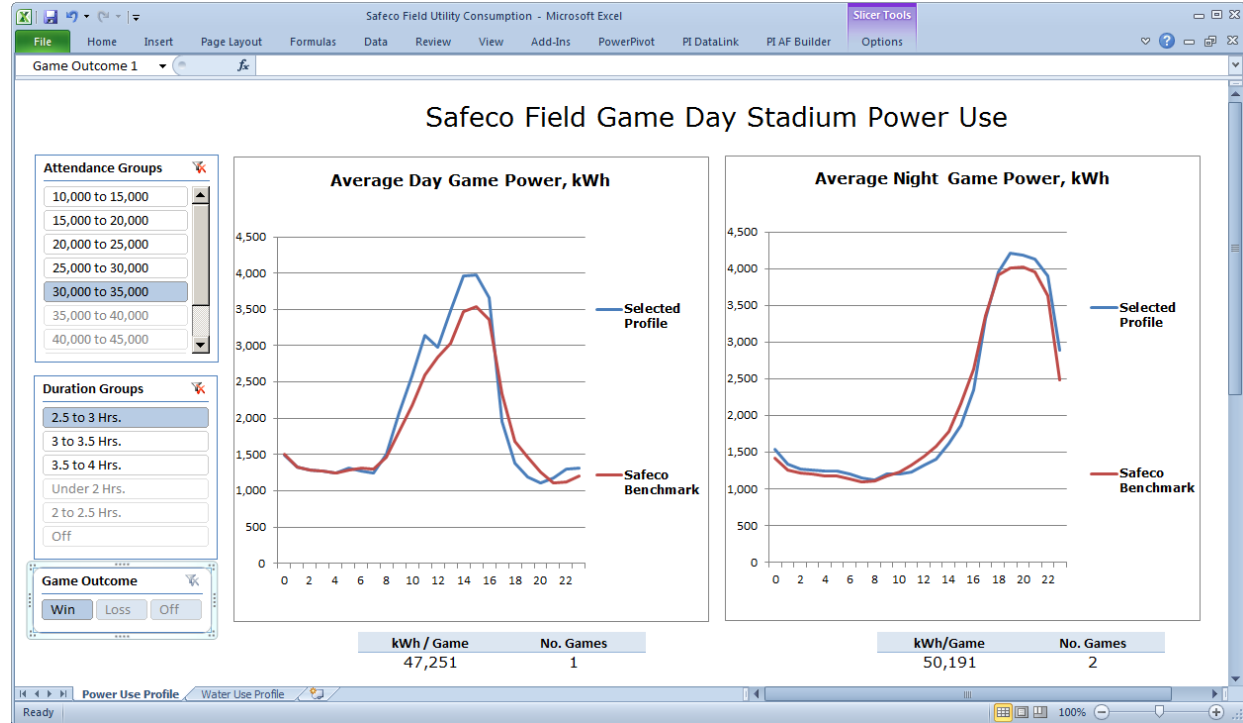
Season Utility Profiles – Power View

Use by month, time of game and elapsed game time.
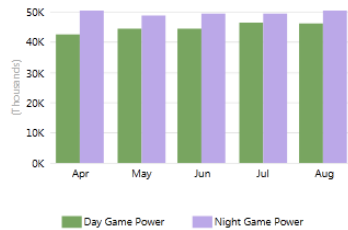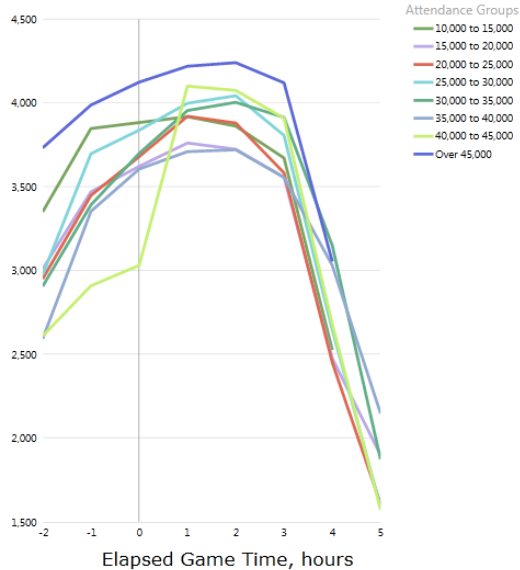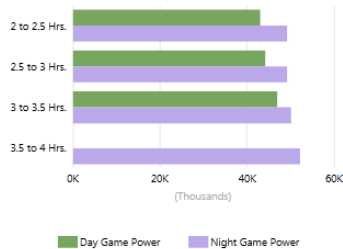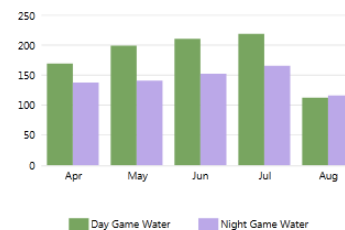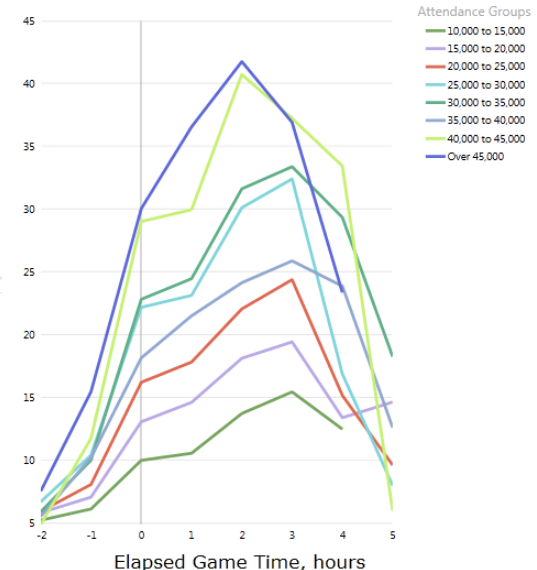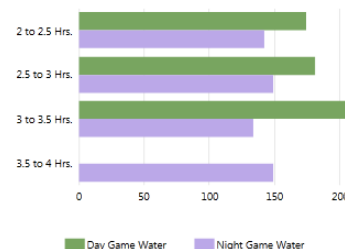
Season Utility Profile – Selected Conditions

Month of July

Attendance 25,000 to 30,000
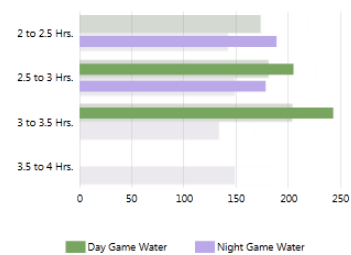
Season Utility Profile – Weather Impact
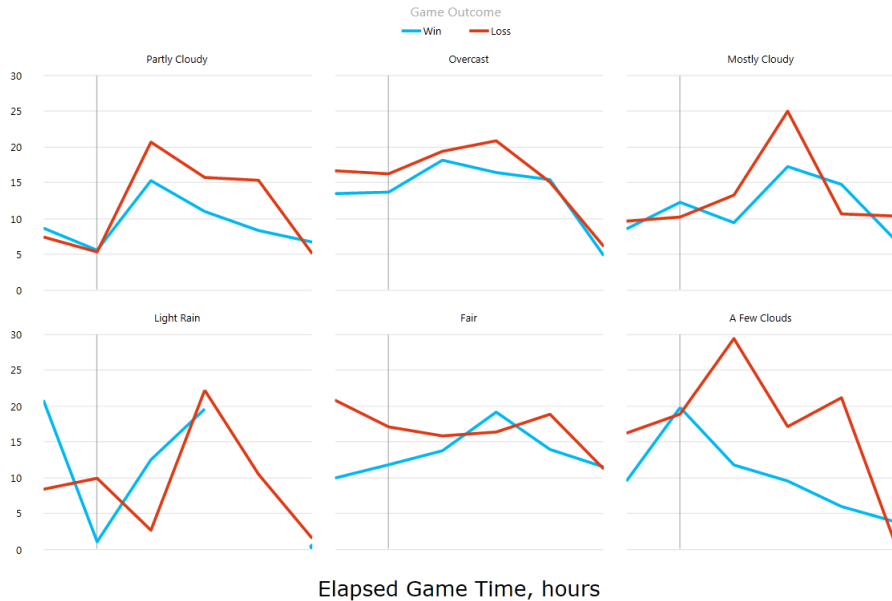
Elapsed Game Time, hrs.

Elapsed Game Time, min.
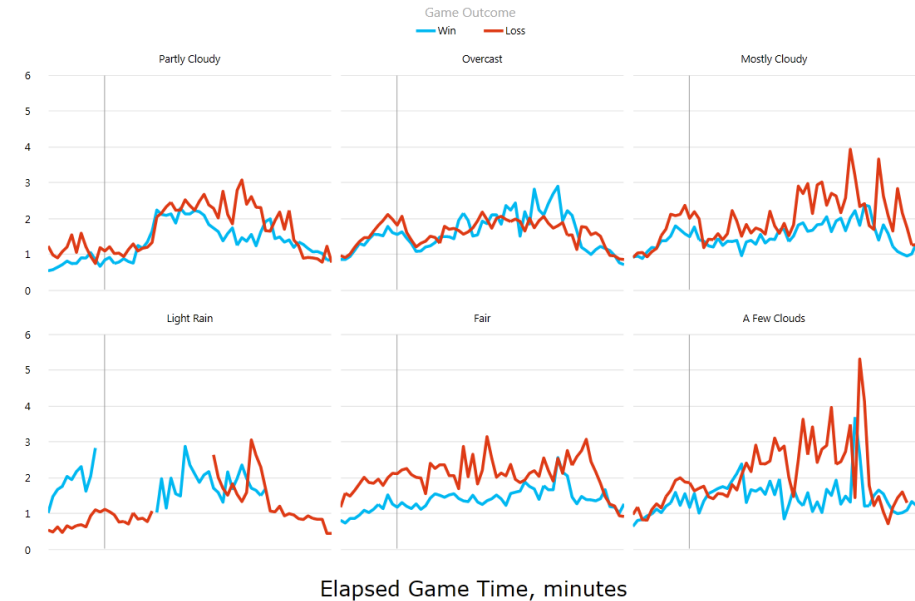
Power View in Excel 2013

Microsoft
Power View
Included with
Excel 2013
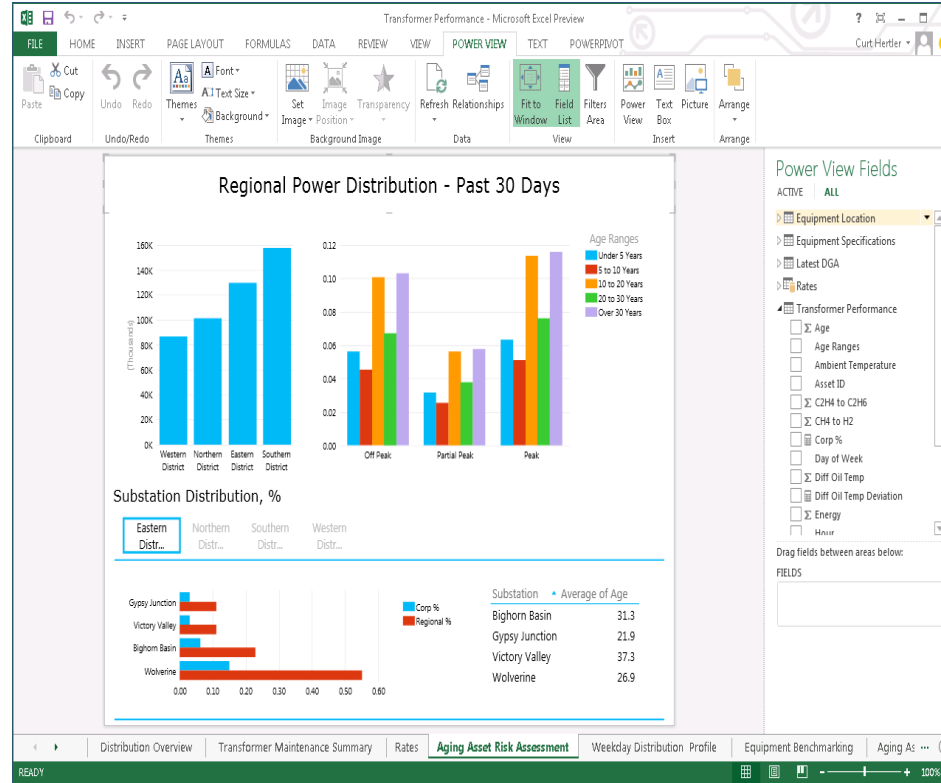
Power View in Excel 2013

Microsoft Power View <u>Included</u> with Excel 2013

Bing Map Integration

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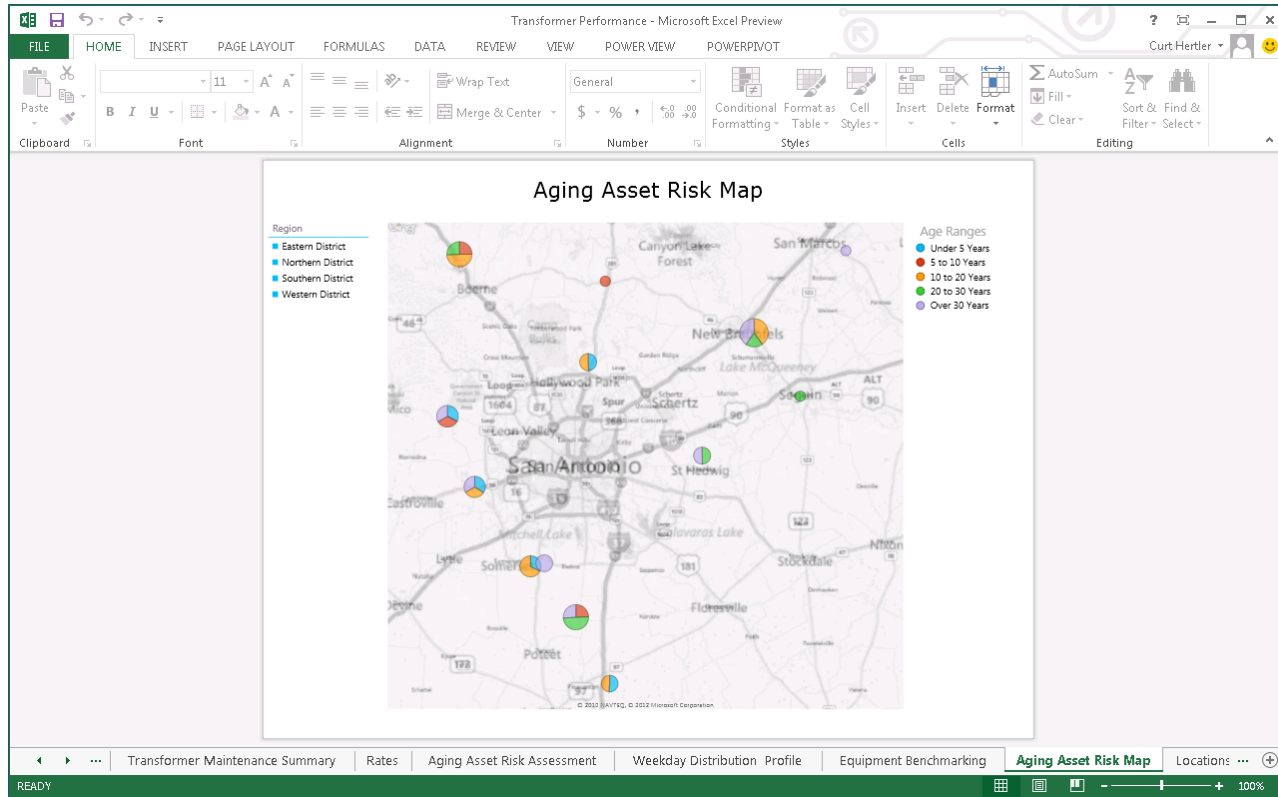
DEMO

Excel 2013 Power View

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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