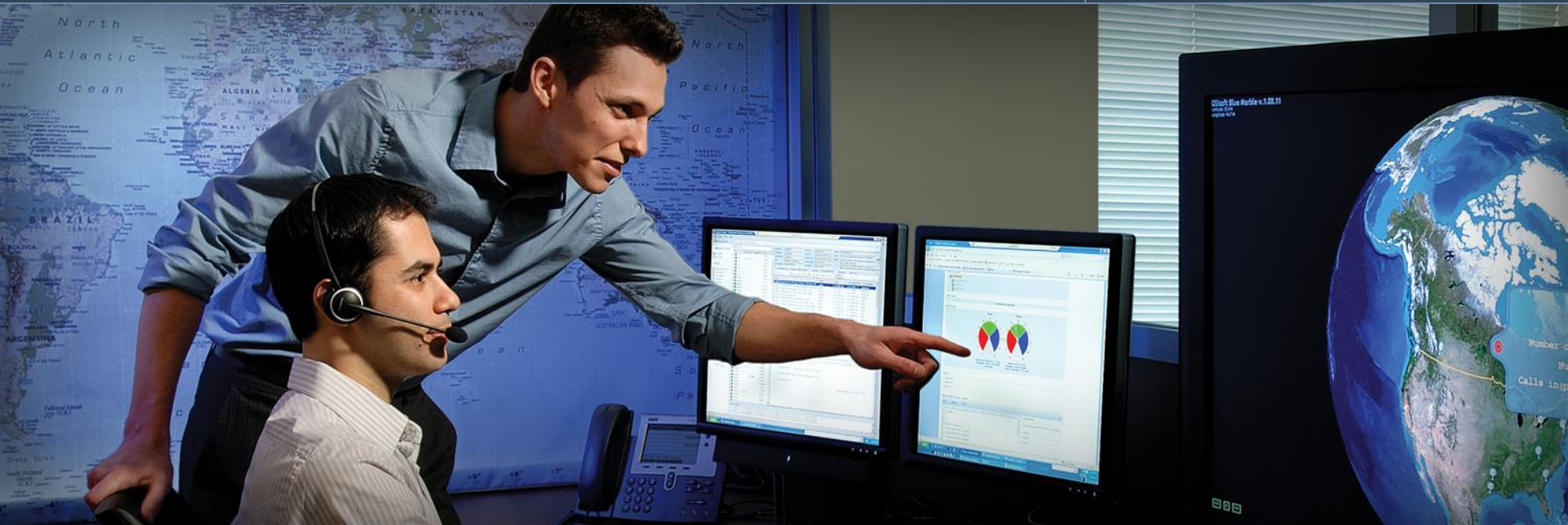




Regional Seminar Series



## Gaining Advanced Insight from PI Data Using New Self-Service BI Technologies

Curt Hertler  
Marketing Manager  
OSIsoft, LLC

November 2-7, 2010

Empowering Business in Real Time.

© Copyright 2010, OSIsoft LLC. All rights Reserved.

- Business Intelligence (BI) Technologies
  - Multidimensional Data Analysis
  - Manufacturing Intelligence
- Introduction to “Self-service BI”
  - BI for Office 2010
    - BI OLEDB Enterprise 2010
  - Microsoft PowerPivot for Excel 2010
  - Microsoft SharePoint 2010
- Example Walk Through
- Additional Information

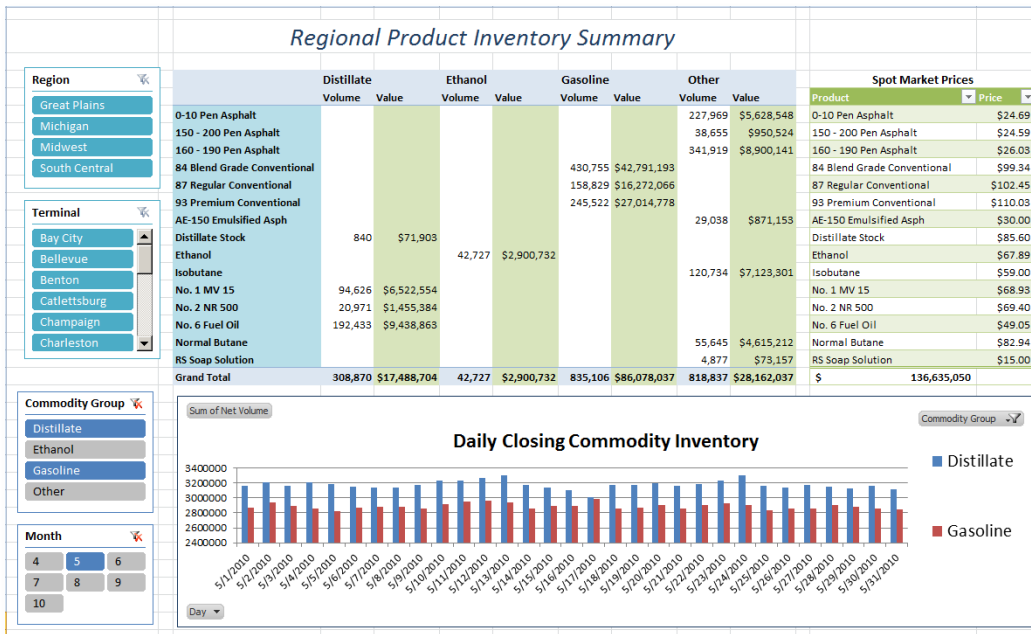
# Business Intelligence (BI) Technologies



OSIsoft HVAC Power Profile - San Leandro Office

Month	Power Consumed	-20 - -15	-15 - -10	-10 - -5	-5 - 0	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	Grand Total
May 2010	12:00:00 AM	170	2,825	13,073	2,117	111	202	251						18,750
June 2010	1:00:00 AM	170	3,318	12,641	2,088	202	245							18,663
July 2010	2:00:00 AM	255	3,773	12,387	1,655	203	54	169						18,497
August 2010	3:00:00 AM	474	4,125	11,664	1,753	201	220							18,436
	4:00:00 AM	429	5,022	10,676	1,833	199	217							18,376
	5:00:00 AM	341	5,672	10,002	2,114	49	217							18,395
	6:00:00 AM	526	5,702	10,097	1,923	358								18,606
	7:00:00 AM	172	4,345	12,529	2,483	335	322							20,187
Sunday	8:00:00 AM		2,009	13,948	3,946	1,160	427	305						21,796
Monday	9:00:00 AM	244	12,544	6,107	3,243	760	664	150						22,812
Tuesday	10:00:00 AM	62	8,570	9,147	3,243	1,878	466	835						24,200
Wednesday	11:00:00 AM	246	4,600	10,653	5,066	2,088	1,538	750	378					25,318
Thursday	12:00:00 PM	62	2,154	8,224	8,880	3,132	1,755	1,074	926					26,208
Friday	1:00:00 PM		1,305	6,570	9,572	4,572	2,031	1,251	881	385				26,567
Saturday	2:00:00 PM		1,042	4,725	10,133	6,160	2,099	1,388	585	266	384			26,781
	3:00:00 PM		1,180	3,439	10,807	6,362	2,148	1,537	528	359	86	256		26,704
	4:00:00 PM		1,230	4,997	9,441	5,897	2,560	1,098	556	360		335		26,474
	5:00:00 PM		1,556	7,452	9,039	3,581	2,149	624	789	88	163	165		25,606
	6:00:00 PM	92	2,341	10,130	7,165	2,817	997	207	725		340			24,814
	7:00:00 PM	235	5,798	9,609	3,913	1,962	338	589	145	362				22,951
Off-Peak	8:00:00 PM	468	11,568	5,928	1,770	692	433	127	356					21,343
Partial-Peak	9:00:00 PM	978	13,494	3,606	1,099	293	227	171	177					20,047
Peak	10:00:00 PM		1,459	14,182	2,281	667	383	295						19,267
	11:00:00 PM	85	2,167	13,720	1,832	435	205	192	68					18,704
<b>Grand Total</b>		<b>2,622</b>	<b>42,805</b>	<b>202,301</b>	<b>114,613</b>	<b>86,391</b>	<b>42,441</b>	<b>18,567</b>	<b>10,164</b>	<b>6,047</b>	<b>1,820</b>	<b>973</b>	<b>756</b>	<b>529,501</b>

Quick, ad-hoc, aggregation of large amounts of interesting data (facts), based on user-selected criteria (dimensions), to identify opportunities for improvement.




## Critical HX Monitoring

Exchanger	Water		CW Flow GPM	U-Value BTU/(hr/ft <sup>2</sup> /deg F)	Heat	
	Velocity Feet/Sec	Skin Temp Deg. F			Load MMBTU	Heat Flux BTU/hr/ft <sup>2</sup>
E-163-A	3.70	77	2237	45.5	5.1	352.1
E-163-C	3.80	78	2298	48.0	5.8	401.1
E-191-A	2.31	101	4360	62.8	36.6	2782.4
E-191-B	3.08	80	4360	52.1	13.7	1027.2
E-256-A	2.46	97	1726	117.8	6.4	1082.2
E-256-B	2.47	89	1732	130.8	5.4	911.8
E-256-C	2.46	84	1728	141.9	8.0	1362.3
E-271	4.43	132	1930	153.3	40.9	9922.5
E-343	1.79	97	249	63.3	2.6	2443.0
E-38-A	1.81	105	3752	50.9	34.2	2378.9
E-38-B	1.95	82	3731	48.6	13.1	980.1
E-77-A	2.23	105	4204	61.8	36.4	2768.5
E-77-B	2.16	84	4246	57.1	19.0	1391.1
E-98-A	1.58	108	2986	47.3	29.3	2227.0
E-98-B	1.54	86	3013	45.3	15.6	1141.8

- Optimized, memory-resident data “cubes”
- Scorecards, pivot tables, and charts
- Traditionally, a server-based, IT project
- Now, self-service BI for the Information Worker
- Enables Manufacturing Intelligence

## Corporate Fuel Gas Consumption


**Shift** 

Shift 1

**Shift 2**

Shift 3

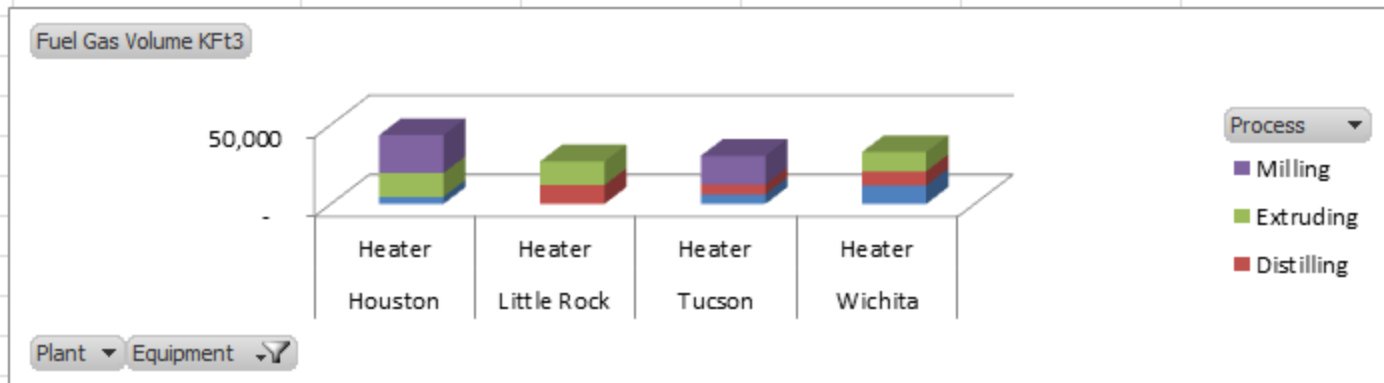
---

**Equipment** 

Boiler

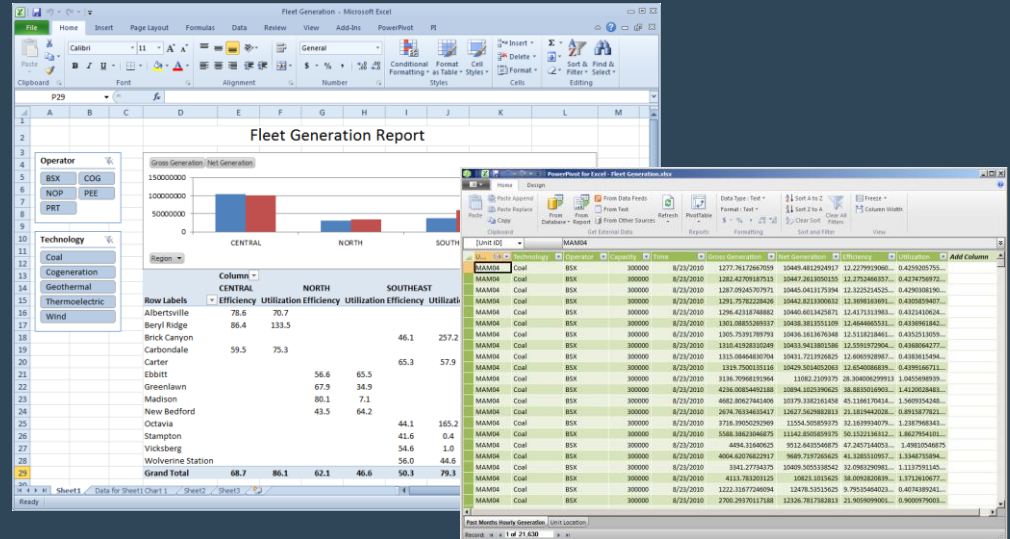
**Heater**

Fuel Gas Volume Kft3	Column Labels	Cracking	Distilling	Extruding	Milling	Grand Total
<b>Houston</b>		4,564		14,964	23,918	43,446
Heater		4,564		14,964	23,918	43,446
<b>Little Rock</b>			11,858	14,964		26,822
Heater			11,858	14,964		26,822
<b>Tucson</b>		6,039	6,298		18,096	30,433
Heater		6,039	6,298		18,096	30,433
<b>Wichita</b>		11,622	8,999	12,057		32,678
Heater		11,622	8,999	12,057		32,678
<b>Grand Total</b>		22,225	27,155	41,985	42,014	133,379





# Introduction to “Self-Service” BI





Microsoft®  
**SharePoint®** 2010



Microsoft®  
**Excel®** 2010



Microsoft®  
**SQL Server®** 2008 R2



**OSIsoft™**

PI for Office 2010



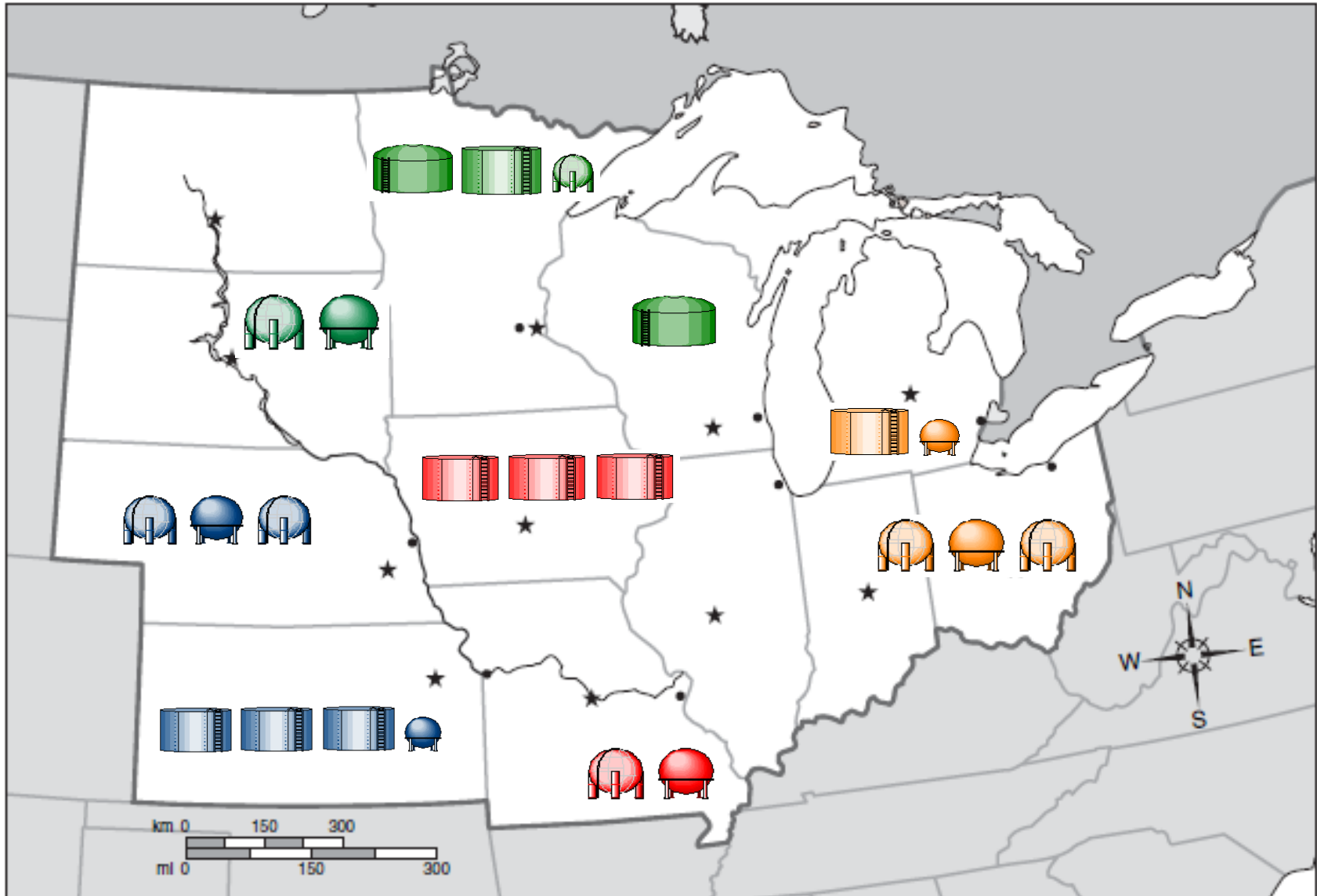
**OSIsoft™**

PI System 2010



- **Facts and Dimensions**
  - PI Asset Framework (PI System 2010)
- **Datasets for BI Data Extraction**
  - PI OLEDB Enterprise 2010 (PI for Office 2010)
- **Desktop Analysis and Cube Configuration**
  - Microsoft PowerPivot for Excel 2010
- **Enterprise Accountability**
  - Microsoft PowerPivot for SharePoint 2010
  - Microsoft SharePoint 2010
  - Microsoft SQL Server 2008 R2

# Example: Product Terminal Inventories



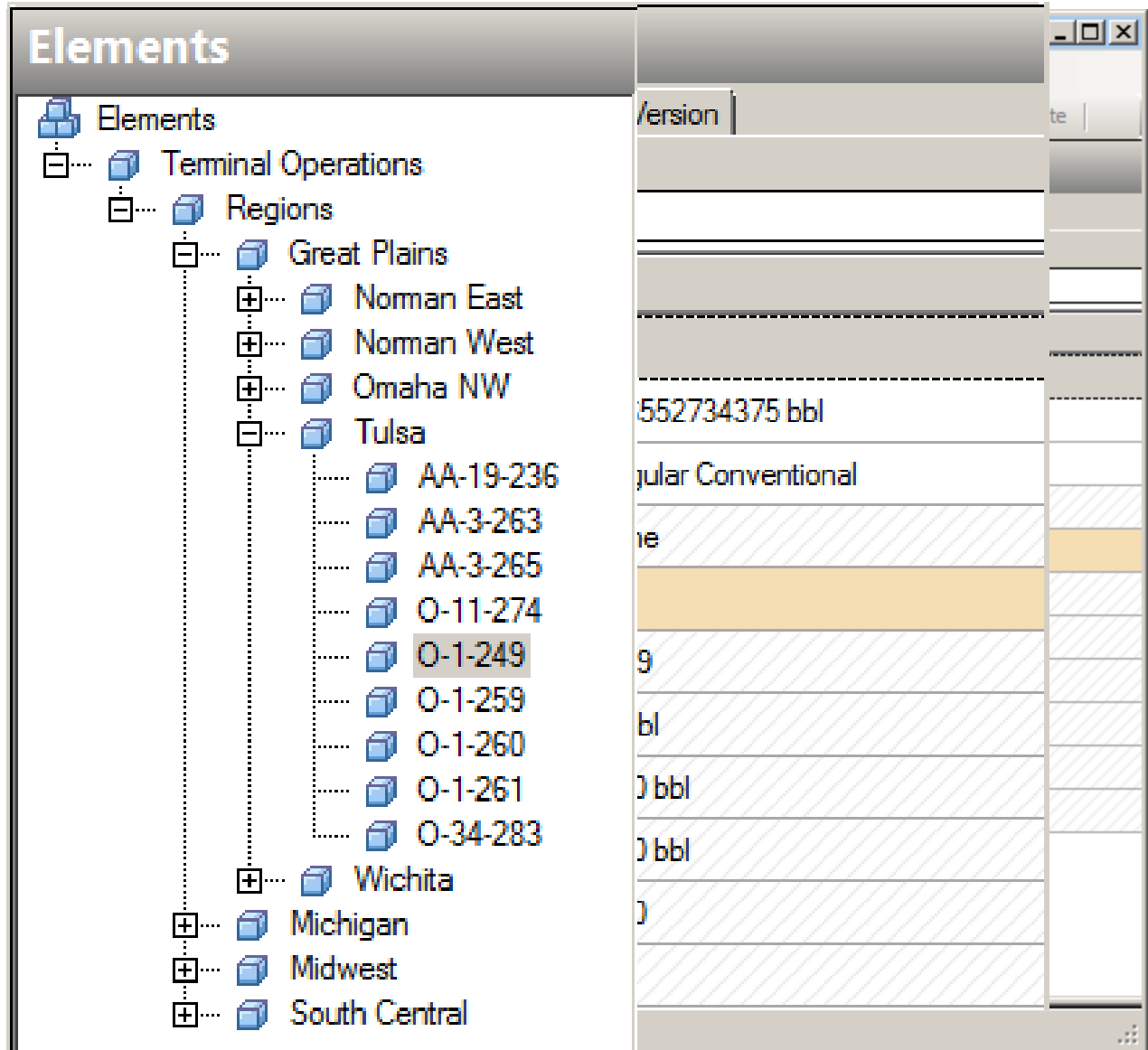
## Facts

Attributes  
Dimensions  
AF Attributes

- Region
- Product
- Product Group

## Dimensions

Hierarchy  
Templates  
Categories



The screenshot shows the 'Elements' tree on the left and a data table on the right. The tree is expanded to show the following hierarchy:

- Elements
  - Terminal Operations
    - Regions
      - Great Plains
        - Norman East
        - Norman West
        - Omaha NW
        - Tulsa
          - AA-19-236
          - AA-3-263
          - AA-3-265
          - O-11-274
          - O-1-249
          - O-1-259
          - O-1-260
          - O-1-261
          - O-34-283
        - Wichita
      - Michigan
      - Midwest
      - South Central

The data table on the right shows the following values for the selected element (O-1-249):

Version	Value
1	552734375 bbl
2	Regular Conventional
3	ie
4	9
5	bl
6	0 bbl
7	0 bbl
8	0

## PI OLEDB Enterprise 2010 Products Control Hierarchy

	Tank ID	Time	Net Volume	Product	Product Group	Heel	Nominal Volume
000001	T-14	9/20/2010 5:58:...	1491.837437220...	No. 6 Fuel Oil	Distillate	500	50250
000002	T-14	9/20/2010 6:58:...	1442.448047871...	No. 6 Fuel Oil	Distillate	500	50250
000003	T-14	9/20/2010 7:58:...	1393.058658522...	No. 6 Fuel Oil	Distillate	500	50250
000004	T-14	9/20/2010 8:58:...	1343.669269172...	No. 6 Fuel Oil	Distillate	500	50250
000005	T-14	9/20/2010 9:58:...	1294.279879823...	No. 6 Fuel Oil	Distillate	500	50250
000006	T-14	9/20/2010 10:58...	1244.890490473...	No. 6 Fuel Oil	Distillate	500	50250
▶ 000007	T-14	9/20/2010 11:58...	1195.501101124...	No. 6 Fuel Oil	Distillate	500	50250
000008	T-14	9/21/2010 12:58...	1146.111711774...	No. 6 Fuel Oil	Distillate	500	50250
000009	T-14	9/21/2010 1:58:...	1096.722322425...	No. 6 Fuel Oil	Distillate	500	50250
000010	T-14	9/21/2010 2:58:...	1047.332933075...	No. 6 Fuel Oil	Distillate	500	50250
000011	T-14	9/21/2010 3:58:...	997.9435437260...	No. 6 Fuel Oil	Distillate	500	50250
000012	T-14	9/21/2010 4:58:...	948.5541543765...	No. 6 Fuel Oil	Distillate	500	50250
000013	T-14	9/21/2010 5:58:...	899.1647650271...	No. 6 Fuel Oil	Distillate	500	50250
000014	T-14	9/21/2010 6:58:...	849.7753756776...	No. 6 Fuel Oil	Distillate	500	50250
000015	T-14	9/21/2010 7:58:...	800.3859863281...	No. 6 Fuel Oil	Distillate	500	50250
000016	T-14	9/21/2010 8:58:...	750.9965969786...	No. 6 Fuel Oil	Distillate	500	50250
000017	T-14	9/21/2010 9:58:...	2290.082771301...	No. 6 Fuel Oil	Distillate	500	50250
000018	T-14	9/21/2010 10:58...	3772.547088623...	No. 6 Fuel Oil	Distillate	500	50250

Ready | 001 | 0011 | Tank | Midwest | Campaign | Ch 1 | INS

## Democratizing Business Intelligence

Improving organizations by providing business insights to **all** employees leading to better, faster, and more relevant decisions.

Delivered through a familiar environment

Integrated into business productivity infrastructure

Built on a trusted and extensible platform



# Microsoft PowerPivot for Excel 2010



- Add-In for Excel 2010. Accessible

- Supports very large datasets from a variety of sources. Scalable

- Relationships and calculations (DAX) are easily defined. Configurable

- Data cube created and stored with spreadsheet. Personal

- Analytical functionality supported in SharePoint 2010. Organizational

- Data refresh may be scheduled. Timely

The screenshot shows the Microsoft Excel 2010 interface with the PowerPivot add-in. The main window displays a 'Regional Product Inventory Summary' table with columns for Region, Distillate, Ethanol, Gasoline, and Other. A 'Daily Closing Commodity Inventory' bar chart is visible below. A 3D data cube is overlaid on the data. A smaller window shows a detailed view of a data table with columns for Product, Volume, and Value. A 'Data Sources' section at the bottom lists PI, RDB, SAS Cubes, and Spreadsheet.

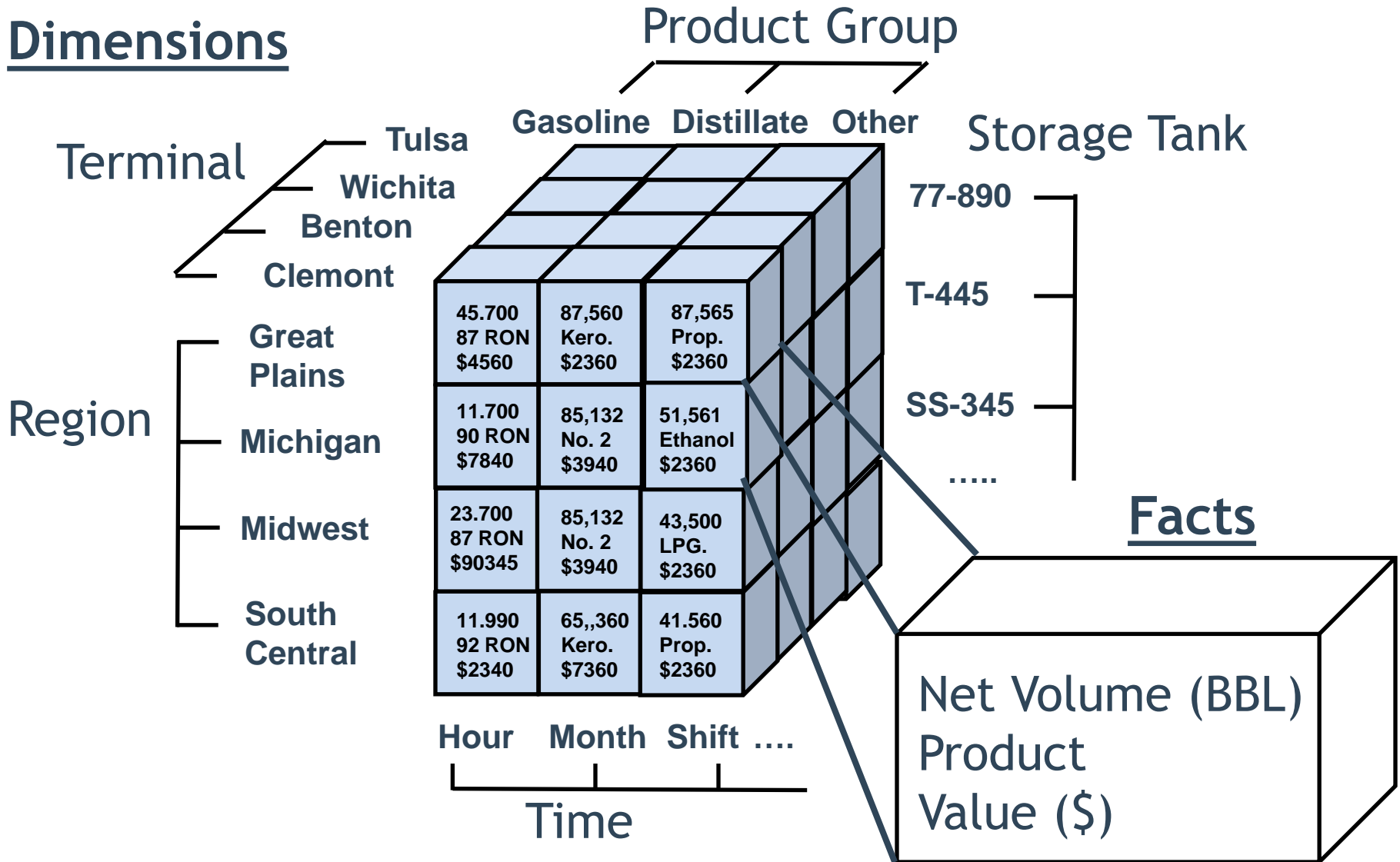
1. Data Analysis Expression Language

Data Sources: PI, RDB, SAS Cubes, Spreadsheet



# Multidimensional Data “Cube”

## Dimensions



# Example Walk Through



Region	Distillate		Ethanol		Gasoline		Other	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value
0-10 Pen Asphalt							227,969	\$5,628,548
150 - 200 Pen Asphalt							38,655	\$950,524
160 - 190 Pen Asphalt							341,919	\$8,900,141
84 Blend Grade Conventional					430,755	\$42,791,193		
87 Regular Conventional					158,829	\$16,272,066		
93 Premium Conventional					245,522	\$27,014,778		
AE-150 Emulsified Asph							29,038	\$871,153
Distillate Stock	840	\$71,903						
Ethanol			42,727	\$2,900,732				
Isobutane							120,734	\$7,123,301
No. 1 MV 15	94,626	\$6,522,554						
No. 2 NR 500	20,971	\$1,455,384						
No. 6 Fuel Oil	192,433	\$9,438,863						
Normal Butane							55,645	\$4,615,212
RS Soap Solution							4,877	\$73,157
<b>Grand Total</b>	<b>308,870</b>	<b>\$17,488,704</b>	<b>42,727</b>	<b>\$2,900,732</b>	<b>835,106</b>	<b>\$86,078,037</b>	<b>818,837</b>	<b>\$28,162,037</b>

# Product Inventories



## Regional Product Inventory Summary

*"Slicers"*  
filter data shown  
in PowerPivot  
Tables and  
Charts

- Region**
- Great Plains
  - Michigan
  - Midwest
  - South Central

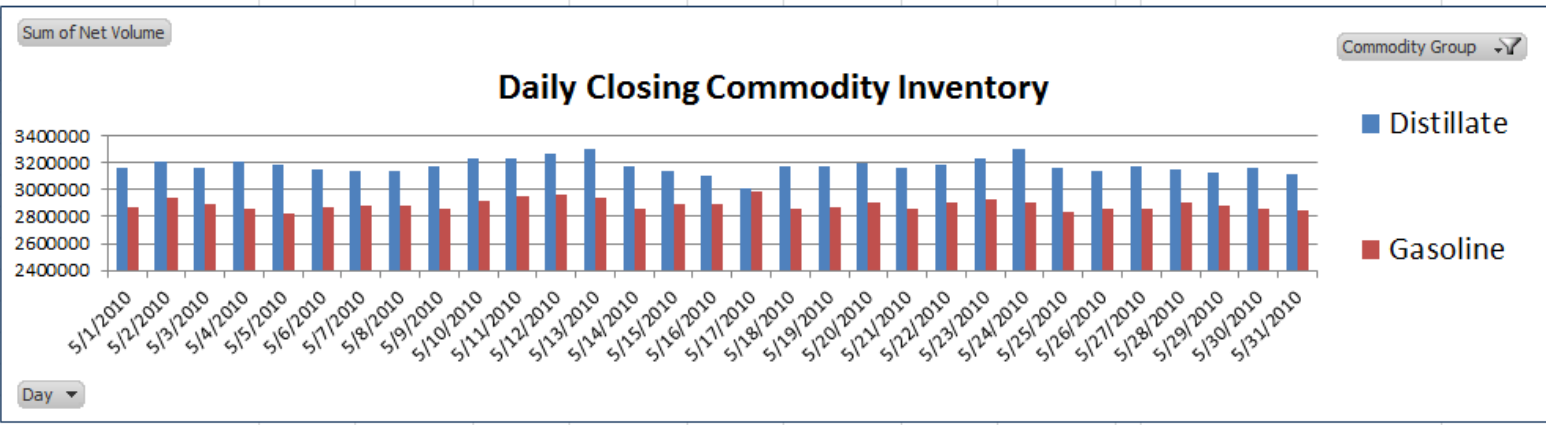
- Terminal**
- Bay City
  - Bellevue
  - Benton
  - Catlettsburg
  - Champaign
  - Charleston

- Commodity Group**
- Distillate
  - Ethanol
  - Gasoline
  - Other

- Month**
- 4
  - 5
  - 6
  - 7
  - 8
  - 9
  - 10

	Gasoline		Other	
	Volume	Value	Volume	Value
0-10 Pen Asphalt			227,969	\$5,628,548
150 - 200 Pen Asphalt			38,655	\$950,524
160 - 190 Pen Asphalt			341,919	\$8,900,141
84 Blend Grade Conventional	430,755	\$42,791,193		
87 Regular Conventional	158,829	\$16,272,066		
93 Premium Conventional	245,522	\$27,014,778		
AE-150 Emulsified Asph			29,038	\$871,153
Distillate Stock				
Ethanol		100,732		
Isobutane			120,734	\$7,123,301
No. 1 MV 15	94,626	\$6,522,554		
No. 2 NR 500	20,971	\$1,455,384		
No. 6 Fuel Oil	192,433	\$9,438,863		
Normal Butane			55,645	\$4,615,212
RS Soap Solution			4,877	\$73,157
<b>Grand Total</b>	<b>308,870</b>	<b>\$17,488,704</b>	<b>818,837</b>	<b>\$28,162,037</b>

Spot Market Prices	
Product	Price
0-10 Pen Asphalt	\$24.69
150 - 200 Pen Asphalt	\$24.59
160 - 190 Pen Asphalt	\$26.03
84 Blend Grade Conventional	\$99.34
87 Regular Conventional	\$102.45
93 Premium Conventional	\$110.03
AE-150 Emulsified Asph	\$30.00
Distillate Stock	\$85.60
Ethanol	\$67.89
Isobutane	\$59.00
No. 1 MV 15	\$68.93
No. 2 NR 500	\$69.40
No. 6 Fuel Oil	\$49.05
Normal Butane	\$82.94
RS Soap Solution	\$15.00
<b>\$</b>	<b>136,635,050</b>



# Product Inventories



## Regional Product Inventory Summary

**Region**

- Great Plains
- Michigan
- Midwest
- South Central

**Terminal**

- Bay City
- Bellevue
- Benton
- Catlettsburg
- Champaign
- Charleston

	Distillate		Ethanol		Gasoline		Other	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value
0-10 Pen Asphalt							227,969	\$5,628,548
150 - 200 Pen Asphalt							38,655	\$950,524
160 - 190 Pen Asphalt							341,919	\$8,900,141
84 Blend Grade Conventional					430,755	\$42,791,193		
87 Regular Conventional					158,829	\$16,272,066		
93 Premium Conventional					245,522	\$27,014,778		
AE-150 Emulsified Asph							29,038	\$871,153
Distillate Stock	840	\$71,903						
Ethanol			42,727	\$2,900,732				
Isobutane							120,734	\$7,123,301
No. 1 MV 15	94,626	\$6,522,554						
No. 2 NR 500	20,971	\$1,455,384						
No. 6 Fuel Oil	192,433	\$9,438,863						
Normal Butane							55,645	\$4,615,212
RS Soap Solution							4,877	\$73,157
<b>Grand Total</b>	<b>308,870</b>	<b>\$17,488,704</b>	<b>42,727</b>	<b>\$2,900,732</b>	<b>835,106</b>	<b>\$86,078,037</b>	<b>818,837</b>	<b>\$28,162,037</b>

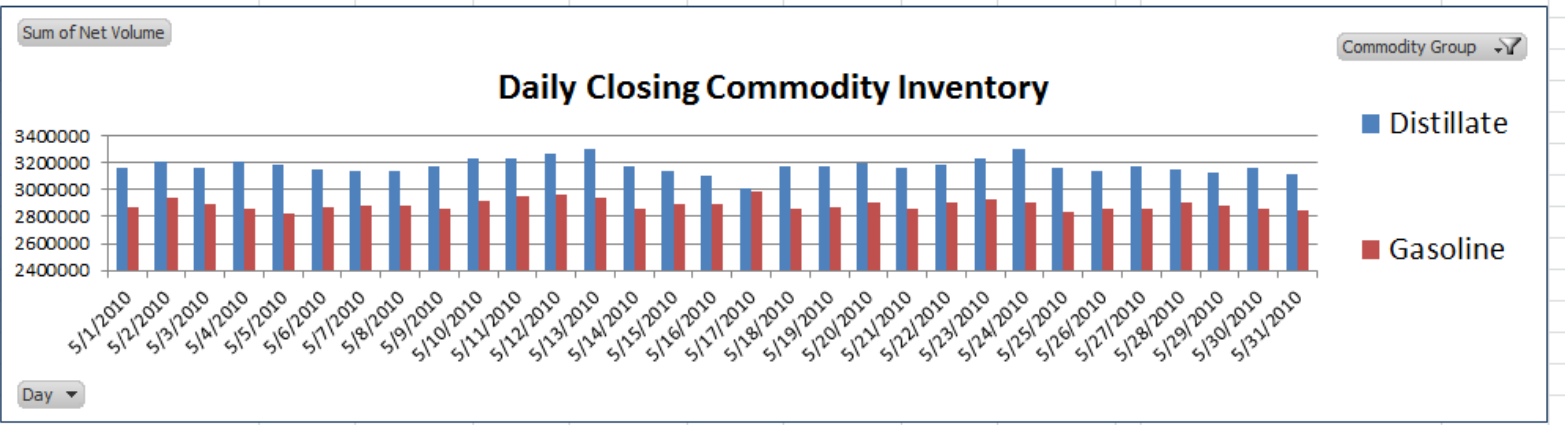
Spot Market Prices	
Product	Price
0-10 Pen Asphalt	\$24.69
150 - 200 Pen Asphalt	\$24.59
160 - 190 Pen Asphalt	\$26.03
84 Blend Grade Conventional	\$99.34
87 Regular Conventional	\$102.45
93 Premium Conventional	\$110.03
AE-150 Emulsified Asph	\$30.00
Distillate Stock	\$85.60
Ethanol	\$67.89
Isobutane	\$59.00
No. 1 MV 15	\$68.93
No. 2 NR 500	\$69.40
No. 6 Fuel Oil	\$49.05
Normal Butane	\$82.94
RS Soap Solution	\$15.00
<b>\$</b>	<b>136,635,050</b>

**Commodity Group**

- Distillate
- Ethanol
- Gasoline
- Other

**Month**

- 4
- 5
- 6
- 7
- 8
- 9
- 10



# Product Inventories



## Regional Product Inventory Summary

**Region**

- Great Plains
- Michigan
- Midwest
- South Central

**Terminal**

- Norman East
- Norman West
- Omaha NW
- Tulsa
- Wichita
- Bay City

	Distillate		Ethanol		Gasoline		Other	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value
0-10 Pen Asphalt							6,409	\$158,234
150 - 200 Pen Asphalt							9,970	\$245,154
160 - 190 Pen Asphalt							15,884	\$413,457
84 Blend Grade Conventional					5,882	\$584,359		
87 Regular Conventional					23,159	\$2,372,672		
93 Premium Conventional					15,078	\$1,659,028		
AE-150 Emulsified Asph								
Distillate Stock								
Ethanol			10,940	\$742,691				
Isobutane							103,641	\$6,114,800
No. 1 MV 15								
No. 2 NR 500								
No. 6 Fuel Oil	77,687	\$3,810,562						
Normal Butane								
RS Soap Solution								
<b>Grand Total</b>	<b>77,687</b>	<b>\$3,810,562</b>	<b>10,940</b>	<b>\$742,691</b>	<b>44,120</b>	<b>\$4,616,060</b>	<b>135,903</b>	<b>\$6,931,645</b>

**Spot Market Prices**

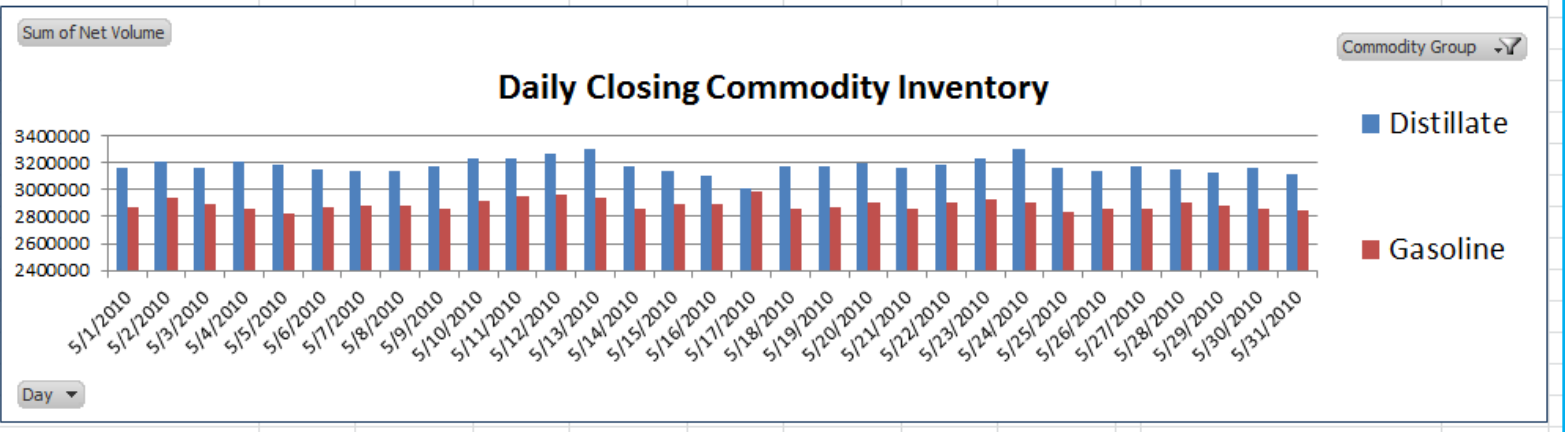
Product	Price
0-10 Pen Asphalt	\$24.69
150 - 200 Pen Asphalt	\$24.59
160 - 190 Pen Asphalt	\$26.03
84 Blend Grade Conventional	\$99.34
87 Regular Conventional	\$102.45
93 Premium Conventional	\$110.03
AE-150 Emulsified Asph	\$30.00
Distillate Stock	\$85.60
Ethanol	\$67.89
Isobutane	\$59.00
No. 1 MV 15	\$68.93
No. 2 NR 500	\$69.40
No. 6 Fuel Oil	\$49.05
Normal Butane	\$82.94
RS Soap Solution	\$15.00
<b>\$</b>	<b>16,369,608</b>

**Commodity Group**

- Distillate
- Ethanol
- Gasoline
- Other

**Month**

- 4
- 5
- 6
- 7
- 8
- 9
- 10



# Product Inventories



## Regional Product Inventory Summary

**Region**

- Great Plains
- Michigan
- Midwest
- South Central

**Terminal**

- Norman East
- Norman West
- Omaha NW
- Tulsa
- Wichita
- Bay City

**Commodity Group**

- Distillate
- Ethanol
- Gasoline
- Other

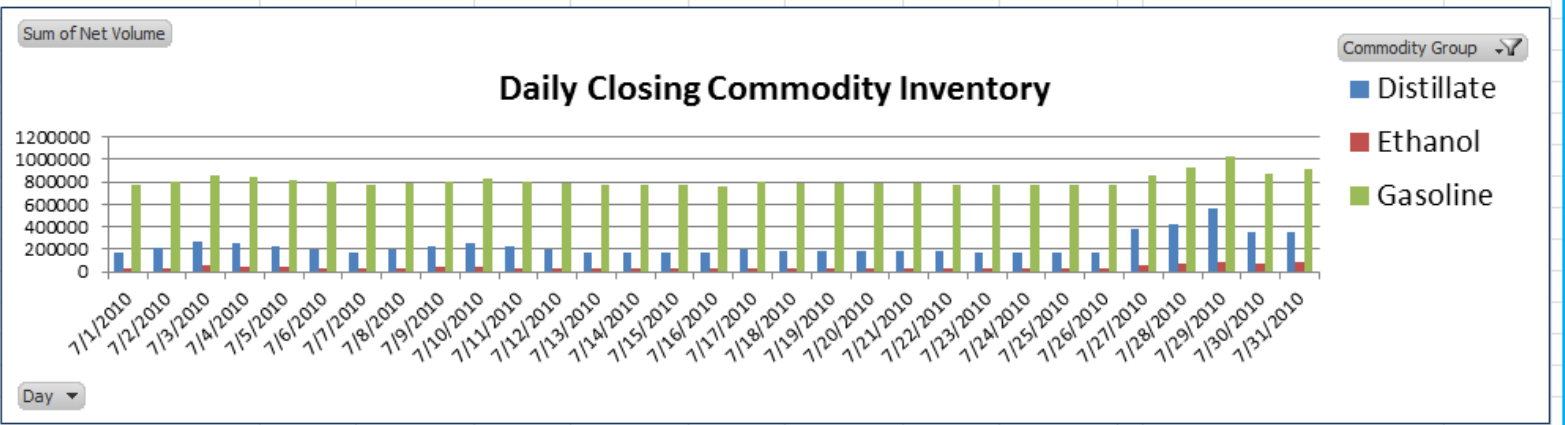
**Month**

- 4
- 5
- 6
- 7
- 8
- 9
- 10

	Distillate		Ethanol		Gasoline		Other	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value
0-10 Pen Asphalt							6,409	\$158,234
150 - 200 Pen Asphalt							9,970	\$245,154
160 - 190 Pen Asphalt							15,884	\$413,457
84 Blend Grade Conventional					5,882	\$584,359		
87 Regular Conventional					23,159	\$2,372,672		
93 Premium Conventional					15,078	\$1,659,028		
AE-150 Emulsified Asph								
Distillate Stock								
Ethanol			10,940	\$742,691				
Isobutane							103,641	\$6,114,800
No. 1 MV 15								
No. 2 NR 500								
No. 6 Fuel Oil	77,687	\$3,810,562						
Normal Butane								
RS Soap Solution								
<b>Grand Total</b>	<b>77,687</b>	<b>\$3,810,562</b>	<b>10,940</b>	<b>\$742,691</b>	<b>44,120</b>	<b>\$4,616,060</b>	<b>135,903</b>	<b>\$6,931,645</b>

**Spot Market Prices**

Product	Price
0-10 Pen Asphalt	\$24.69
150 - 200 Pen Asphalt	\$24.59
160 - 190 Pen Asphalt	\$26.03
84 Blend Grade Conventional	\$99.34
87 Regular Conventional	\$102.45
93 Premium Conventional	\$110.03
AE-150 Emulsified Asph	\$30.00
Distillate Stock	\$85.60
Ethanol	\$67.89
Isobutane	\$59.00
No. 1 MV 15	\$68.93
No. 2 NR 500	\$69.40
No. 6 Fuel Oil	\$49.05
Normal Butane	\$82.94
RS Soap Solution	\$15.00
<b>\$</b>	<b>16,369,608</b>





# Product Inventories



## Regional Product Inventory Summary

**Region**

- Great Plains
- Michigan
- Midwest
- South Central

**Terminal**

- Norman East
- Norman West
- Omaha NW
- Tulsa
- Wichita
- Bay City

**Commodity Group**

- Distillate
- Ethanol
- Gasoline
- Other

**Month**

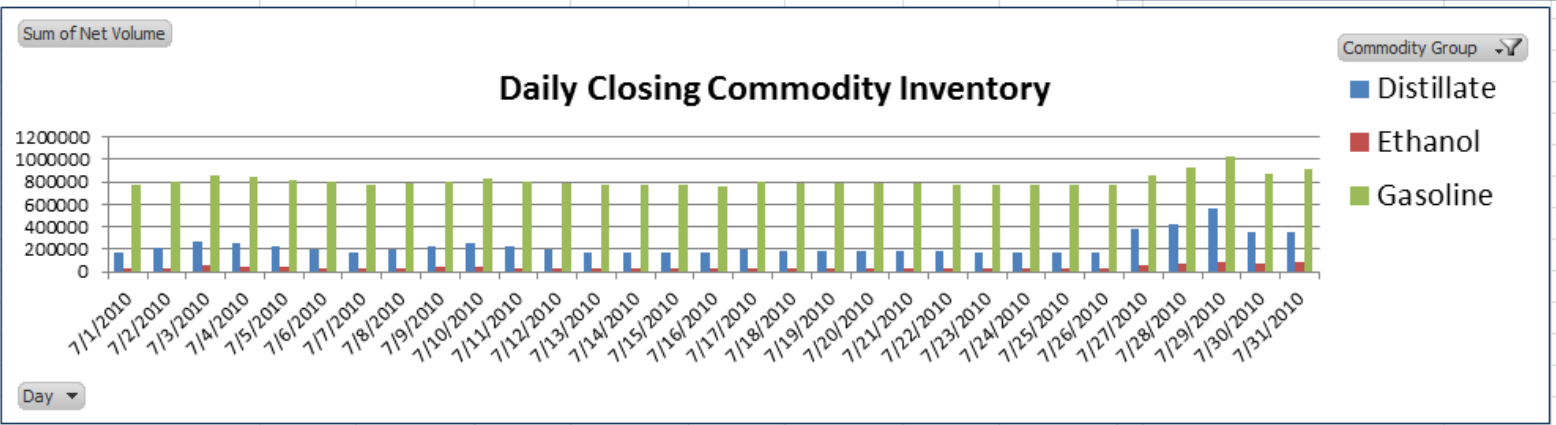
- 4
- 5
- 6
- 7
- 8
- 9
- 10

	Distillate		Ethanol		Gasoline		Other	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value
0-10 Pen Asphalt							6,409	\$158,234
150 - 200 Pen Asphalt							9,970	\$245,154
160 - 190 Pen Asphalt							15,884	\$413,457
84 Blend Grade Conventional								
87 Regular Conventional								
93 Premium Conventional								
AE-150 Emulsified Asph								
Distillate Stock							105,641	14,800
Ethanol								
Isobutane								
No. 1 MV 15								
No. 2 NR 500								
No. 6 Fuel Oil	77,687	\$3,810,562						
Normal Butane								
RS Soap Solution								
<b>Grand Total</b>	<b>77,687</b>	<b>\$3,810,562</b>	<b>10,940</b>	<b>\$742,691</b>	<b>44,120</b>	<b>\$4,616,060</b>	<b>135,903</b>	<b>\$6,931,645</b>

*Linked Tables*  
Manual entry of data into PowerPivot cube for "What-If" analysis

**Spot Market Prices**

Product	Price
0-10 Pen Asphalt	\$24.69
150 - 200 Pen Asphalt	\$24.59
160 - 190 Pen Asphalt	\$26.03
84 Blend Grade Conventional	\$99.34
87 Regular Conventional	\$102.45
93 Premium Conventional	\$110.03
AE-150 Emulsified Asph	\$30.00
Distillate Stock	\$85.60
Ethanol	\$67.89
Isobutane	\$59.00
No. 1 MV 15	\$68.93
No. 2 NR 500	\$69.40
No. 6 Fuel Oil	\$49.05
Normal Butane	\$82.94
RS Soap Solution	\$15.00
<b>\$</b>	<b>16,369,608</b>



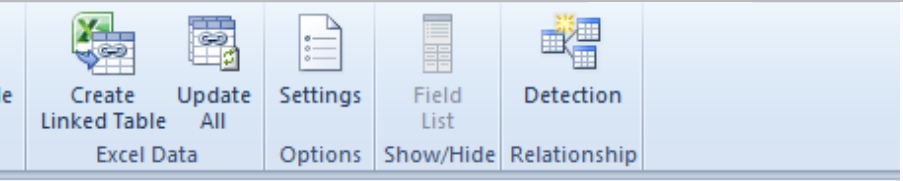
# Import Data into PowerPivot



```
='Current Product Inventories'[Net Volume]*RELATED(Product_Prices[Price])
```

Add-In for Excel 2010

Value
\$152,661.44
\$226,440.90
\$84,130.78
\$126,491.38
\$863,093.15
\$180,081.09
\$107,543.63
\$112,970.57
\$290,407.91
\$442,314.19
\$205,521.74
\$405,515.56
\$63,987.56
\$1,266,947.89



**Current Product Inventories**  
PI OLEDB Enterprise 2010

**Six Months Daily Inventories**  
PI OLEDB Enterprise 2010

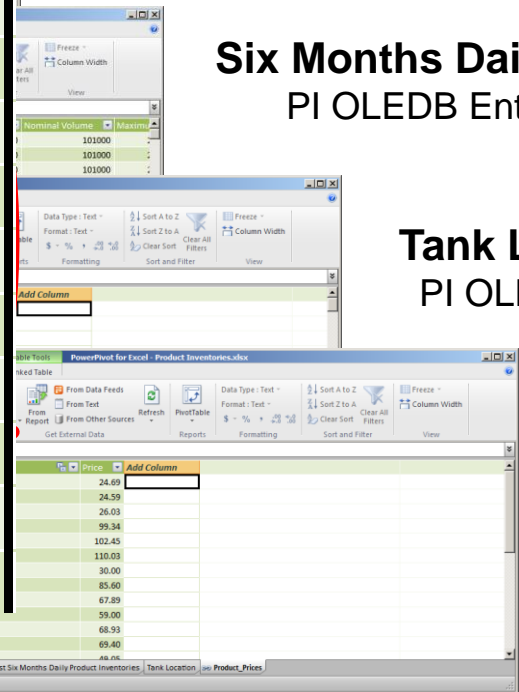
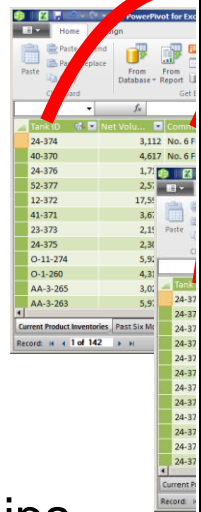
**Tank Location**  
PI OLEDB Enterprise 2010

**Commodity Prices**  
Excel Linked Table

Configure Relationships

Add Calculations Using DAX<sup>1</sup>

1. Data Analysis Expression Language



# Build PowerPivot Tables and Charts



The screenshot displays the Microsoft Excel interface with a PowerPivot PivotTable. The PivotTable is configured as follows:

- Slicers Vertical:** Region, Terminal
- Slicers Horizontal:** (Empty)
- Report Filter:** (Empty)
- Column Labels:** Commodity Group
- Row Labels:** Commodity
- Values:** Sum of Nominal Volume

The PivotTable Field List on the right shows the following fields:

- Current Product Inventories
  - Tank ID
  - Net Volume
  - Commodity
  - Commodity Group
  - Heel
  - Nominal Volume
  - Maximum
  - Available Volume
  - Value
- Tank Location
  - Type
- Region
- Terminal
- Past Six Months Daily Product Inventories
  - Product\_Prices

# Additional Information



**Microsoft** | PowerPivot

Microsoft Home | All Microsoft Sites | Download Silverlight

Search the web 

[Home](#) [Learn](#) [Explore](#) [Download](#)

**Download PowerPivot Now!**

Microsoft PowerPivot for Excel 2010, formerly known as Project "Gemini", is a data analysis add-in that delivers unmatched computational power directly within Microsoft Excel 2010. [more info....](#)

- Resources on OSIsoft vCampus
  - SQL Development Forum
  - Recorded Presentations
    - “Personal BI with PI DataLink and Office 2010”
    - “Building a BI Infrastructure Part 1: Warehousing, ETL, and Cube Building”
    - “Building a BI Infrastructure Part 2: Visualization, Analysis, and Personalization”
  - Prescriptive Architecture Guides
- Resources from Microsoft
  - PowerPivot ([www.PowerPivot.com](http://www.PowerPivot.com))
  - CFE Case Study ([www.microsoft.com/casestudies/Microsoft-Sharepoint-Server-2010/Comisi-n-Federal-de-Electricidad-CFE/Mexico-s-Electrical-Utility-Sees-Saving-Millions-of-Dollars-through-Collaborative-BI/4000007996](http://www.microsoft.com/casestudies/Microsoft-Sharepoint-Server-2010/Comisi-n-Federal-de-Electricidad-CFE/Mexico-s-Electrical-Utility-Sees-Saving-Millions-of-Dollars-through-Collaborative-BI/4000007996))
  - Windows Azure Marketplace DataMart (<https://datamarket.azure.com/>)



Thank you

© Copyright 2010 OSIsoft, LLC.

777 Davis St., Suite 250 San Leandro, CA 94577