



# **Energy Metric Tracking**

**WNY Sustainable Roundtable – 12/3/14**

# Who is Greif?

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- **Global Producer of Industrial Packaging**



- **42 RIPS-NA Facilities**

# Energy Goals

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- **2015 Objective: To Reduce our Energy Consumption by 15%/unit from our 2008 baseline**
- **How Did We Do It?**
  - **Energy Audits**
  - **Solar Panels**
  - **Compressed Air Upgrades**
  - **Incinerator and oven projects**
  - **Employee Awareness**

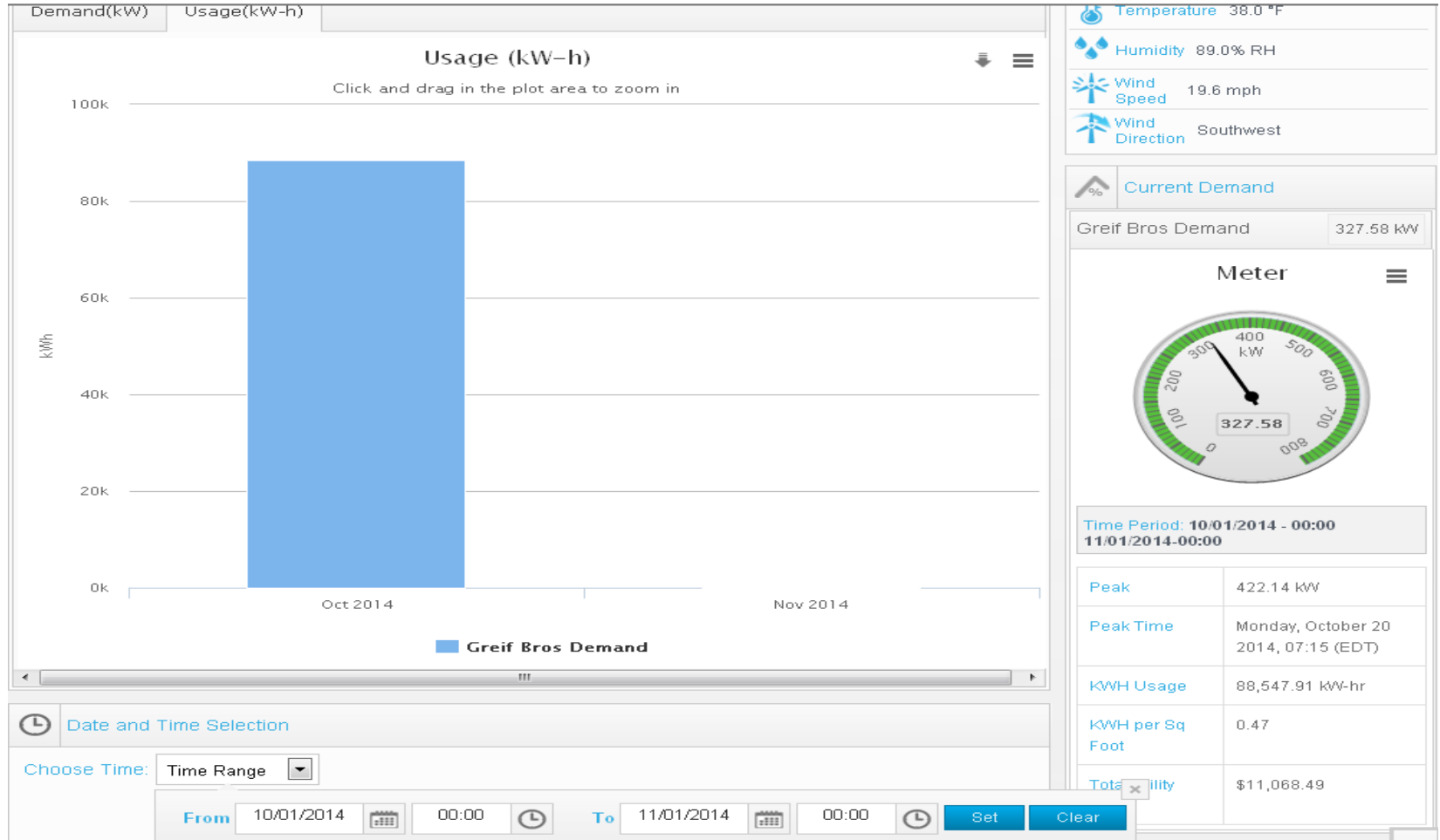
# Data Recording

## ➤ Stratum – Internal Metric Tracking Program

Plant Desc	Finance Product Line	Year	Month	Production Hours Worked	SGA Hours Worked	OEE Percent	Electric		Water Used (liters)	Tonnes Processed Steel	Scrap - Steel (Kilos)	Tonnes Processed Plastic	Scrap - Plastic (Kilos)
							Used (kWh)	Fuel Used (kWh)					
Tonawanda	FIBRE	2014	November	0	0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Tonawanda	FIBRE	2014	December	0	0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Tonawanda	FIBRE	2015	January	0	0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Tonawanda	FIBRE	2015	February	0	0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Tonawanda	FIBRE	2015	March	0	0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Tonawanda	FIBRE	2015	April	0	0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Tonawanda	FIBRE	2015	May	0	0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Tonawanda	FIBRE	2015	June	0	0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Tonawanda	FIBRE	2015	July	0	0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Tonawanda	FIBRE	2015	August	0	0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Tonawanda	FIBRE	2015	September	0	0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Tonawanda	FIBRE	2015	October	0	0	0.00	0	0.00	0	0.0	0.0	0.0	0.0

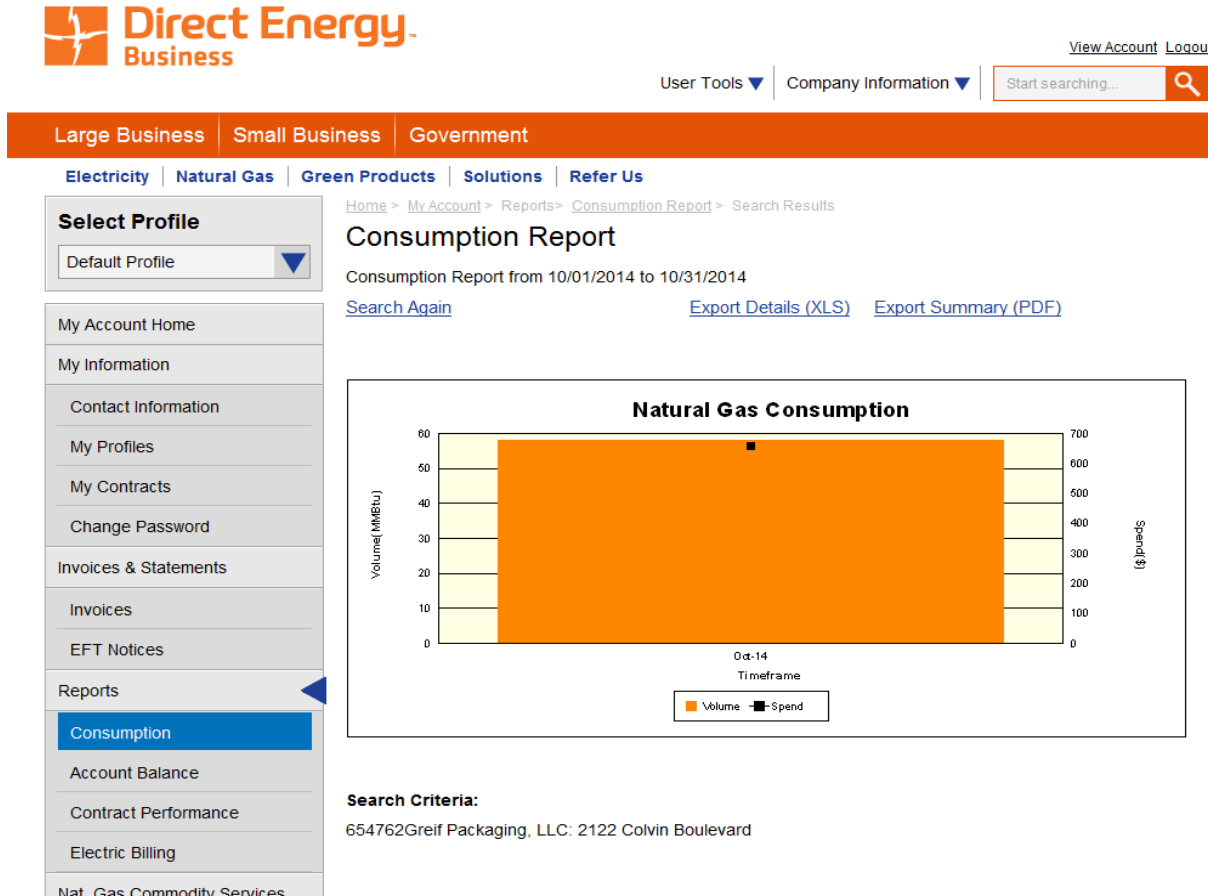
# Electrical Meter

## ➤ Real-time on line Meter provided by ECS



# Gas and Water

- Both of these are bill based: one-month lagging metric



# Production Metrics

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- **Production Metrics are generated through several methods**
  - **ShopLogix**
  - **Kronos**
  - **Internal CMS system**
- **Scrap weights are sent directly from our recyclers**

# Feedback

## ➤ Stratum creates Best in Class

Plant: Tonawanda

Product Group: Mechanical Line

Currency: US Dollars

KPI	Trailing 12 Months As Of October 2014				Trailing 3 Months As Of October 2014					
	Actual	Potential Savings Target (in 000's)	Potential Savings* BIC (in 000's)		Actual	Potential Savings Target (in 000's)	Potential Savings* BIC (in 000's)			
<b>Productivity</b>										
Units Per Man Hour	8.4	8.1	0	8.5	26	9.1	8.1	0	8.5	0
OEE Line 1	68.4%	67.6%		80.0%		69.6%	67.6%		80.0%	
<b>Materials</b>										
Fibre Scrap %	8.4%	8.7%	0	3.8%	79	8.4%	8.7%	0	3.8%	79
<b>Energy/Utilities</b>										
Electric-kWh/Unit	1.0	1.3	0	.8	23	1.0	1.3	0	.8	24
Fuel-kWh/Unit	2.9	3.1	0	.2	49	.1	3.1	0	.2	0
Water - Units per Liter	.3	.6	2	.7	2	.5	.6	0	.7	1
<b>Total Potential Savings</b>			<b>2</b>		<b>179</b>			<b>0</b>		<b>104</b>



# Quarterly Corporate Tracking

Tonawanda	Baseline FY08	T12 Through October 2014	T12 B(W) Baseline
Units	1,263,692	910,285	
kWh (Fuel & Electric)	6,478,719	3,563,869	
kWh / Units	5.1	3.9	24%

## RIPS NA

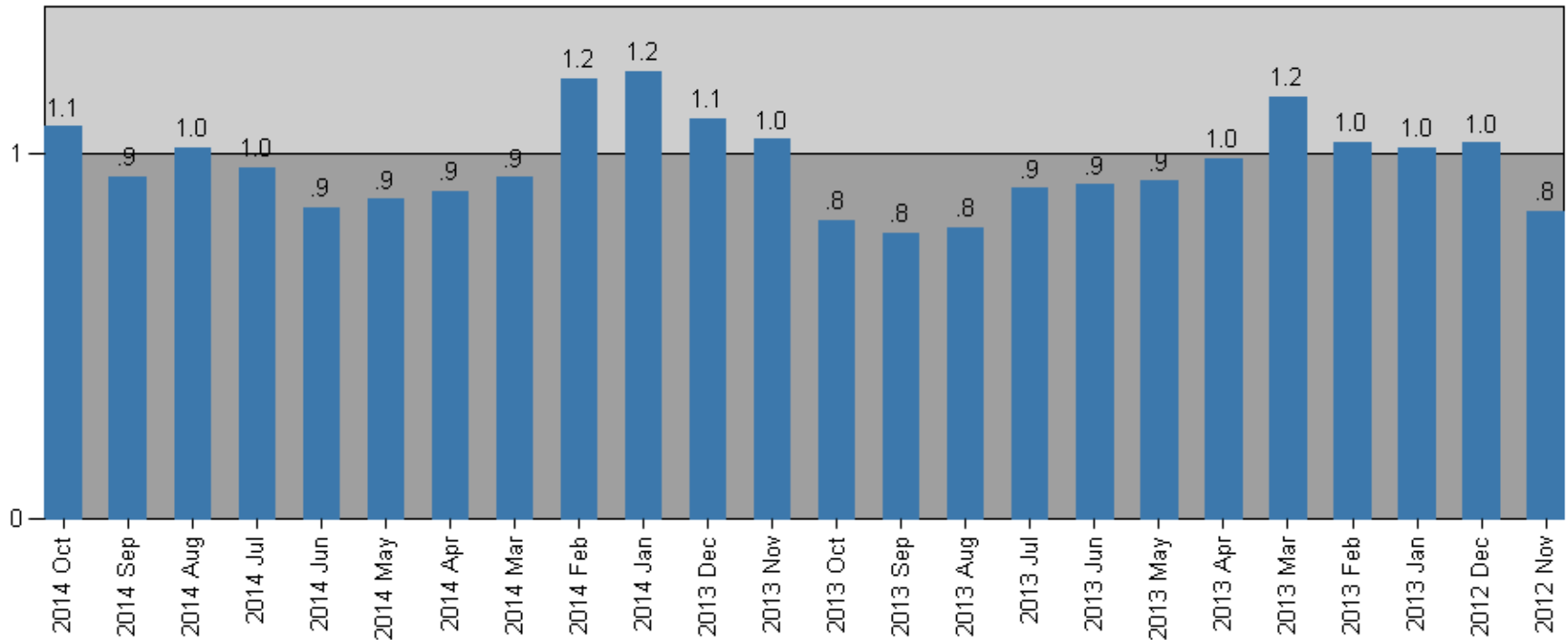
Thru Oct 2014

Product		Baseline			Current Trailing 12 Months			Baseline kWh/Unit	Current kWh/Unit	Current		Target 2014 FY Average
		Units Produced	Fuel & Elec (kWh)	Fuel & Electric %	Units Produced	Fuel & Elec (kWh)	Fuel & Electric %			B/(W) Baseline	July	
Alsip	Large Steel	1,636,440	57,716,853	14.6%	1,794,382	41,249,516	13.9%	35.3	23.0	35%	31%	30.0
HS1	Large Steel	1,835,525	45,486,248	11.5%	2,138,773	30,614,088	10.3%	24.8	14.3	42%	44%	21.1
Warminster	Large Steel	1,482,143	25,697,434	6.5%	1,599,088	25,814,242	8.7%	17.3	16.1	7%	6%	14.7
HS2	Large Steel	1,478,005	17,090,713	4.3%	1,714,119	23,602,394	8.0%	11.6	13.8	-19%	-23%	9.8
Florence	Large Steel	1,583,066	19,759,454	5.0%	1,025,112	20,958,723	7.1%	12.5	20.4	-64%	-55%	10.6
Van Wert	Fibre	2,090,776	18,017,946	4.6%	1,730,684	15,032,389	5.1%	8.6	8.7	-1%	-2%	7.3
Merced	Large Steel	701,799	14,801,470	3.8%	478,671	10,799,108	3.6%	21.1	22.6	-7%	-11%	17.9
Fenton	Large Steel	1,000,357	19,120,669	4.9%	657,905	10,481,651	3.5%	19.1	15.9	17%	13%	16.2
Lockport	Large Blowmould	1,571,427	11,850,472	3.0%	1,658,942	10,328,009	3.5%	7.5	6.2	17%	16%	6.4
Houston	Large Blowmould	1,052,011	9,482,409	2.4%	1,126,797	8,881,940	3.0%	9.0	7.9	13%	13%	7.7
New Orleans	Large Steel	1,732,272	18,373,761	4.7%	706,958	8,699,050	2.9%	10.6	12.3	-16%	-14%	9.0
Lavonia IBC	IBC	178,440	6,989,068	1.8%	226,990	7,464,460	2.5%	39.2	32.9	16%	10%	33.3
Mt. Sterling	Large Blowmould	900,226	7,553,337	1.9%	727,127	7,315,677	2.5%	8.4	10.1	-20%	-22%	7.1
Hazleton	Large Blowmould	665,309	5,740,717	1.5%	850,413	6,806,313	2.3%	8.6	8.0	7%	3%	7.3
Belleville	Large Blowmould	376,435	7,158,634	1.8%	368,820	5,988,602	2.0%	19.0	16.2	15%	16%	16.2
Oakville	Large Steel	268,071	5,667,327	1.4%	288,691	5,780,874	2.0%	21.1	20.0	5%	6%	18.0
Stoney Creek	Large Steel	613,220	6,567,791	1.7%	331,646	5,170,207	1.7%	10.7	15.6	-46%	-31%	9.1
Fontana	Large Steel	420,121	5,041,795	1.3%	465,848	4,609,147	1.6%	12.0	9.9	18%	17%	10.2
Winfield	Large Steel	563,197	5,001,782	1.3%	458,339	4,346,244	1.5%	8.9	9.5	-7%	-10%	7.5
Bradley NexDrun	Large Blowmould	238,882	4,255,746	1.1%	230,719	4,127,911	1.4%	17.8	17.9	0%	-2%	15.1
Naperville	Fibre	2,888,557	4,157,501	1.1%	2,324,327	3,634,001	1.3%	1.4	1.6	-15%	-12%	1.2
<b>Tonawanda</b>	<b>Fibre</b>	<b>1,263,692</b>	<b>6,478,719</b>	<b>1.6%</b>	<b>910,285</b>	<b>3,563,869</b>	<b>1.2%</b>	<b>5.1</b>	<b>3.9</b>	<b>24%</b>		<b>4.4</b>
Houston	Fibre	903,756	3,414,904	0.9%	730,230	3,553,661	1.2%	3.8	4.9	-29%	-37%	3.2
Windsor Locks	Fibre	1,285,826	3,005,940	0.8%	1,427,512	2,797,829	0.9%	2.3	2.0	16%	17%	2.0
Lavonia	Large Blowmould	254,650	1,927,837	0.5%	455,382	2,693,924	0.9%	7.6	5.9	22%	21%	6.4
Wright City	Fibre	1,252,487	2,304,590	0.6%	1,308,564	2,581,254	0.9%	1.8	2.0	-7%	-8%	1.6
Laminator	Parts	27,168,617	2,741,252	0.7%	17,896,872	2,272,235	0.8%	0.10	0.13	-26%	-26%	0.09
Lithonia	Fibre	1,371,961	4,135,763	1.0%	1,286,901	2,176,865	0.7%	3.0	1.7	44%	42%	2.6
Morgan Hill	Fibre	997,790	1,849,800	0.5%	756,384	2,181,837	0.7%	1.9	2.9	-56%	-58%	1.6
Englishtown	Fibre	1,372,710	1,632,365	0.4%	1,108,776	1,534,809	0.5%	1.2	1.4	-16%	-10%	1.0
Charlotte	Fibre	1,448,182	2,068,040	0.5%	1,282,268	1,516,527	0.5%	1.4	1.2	17%	18%	1.2
LaPalma	Large Blowmould	111,012	592,631	0.2%	187,607	936,833	0.3%	5.3	5.0	6%	4%	4.5
Ft Worth	Fibre	1,139,040	921,992	0.7%	584,259	807,187	0.3%	0.8	1.4	-71%	-69%	0.7

# Tracking Metrics

## Tonawanda Mechanical Line

Electric Used kWh per Unit



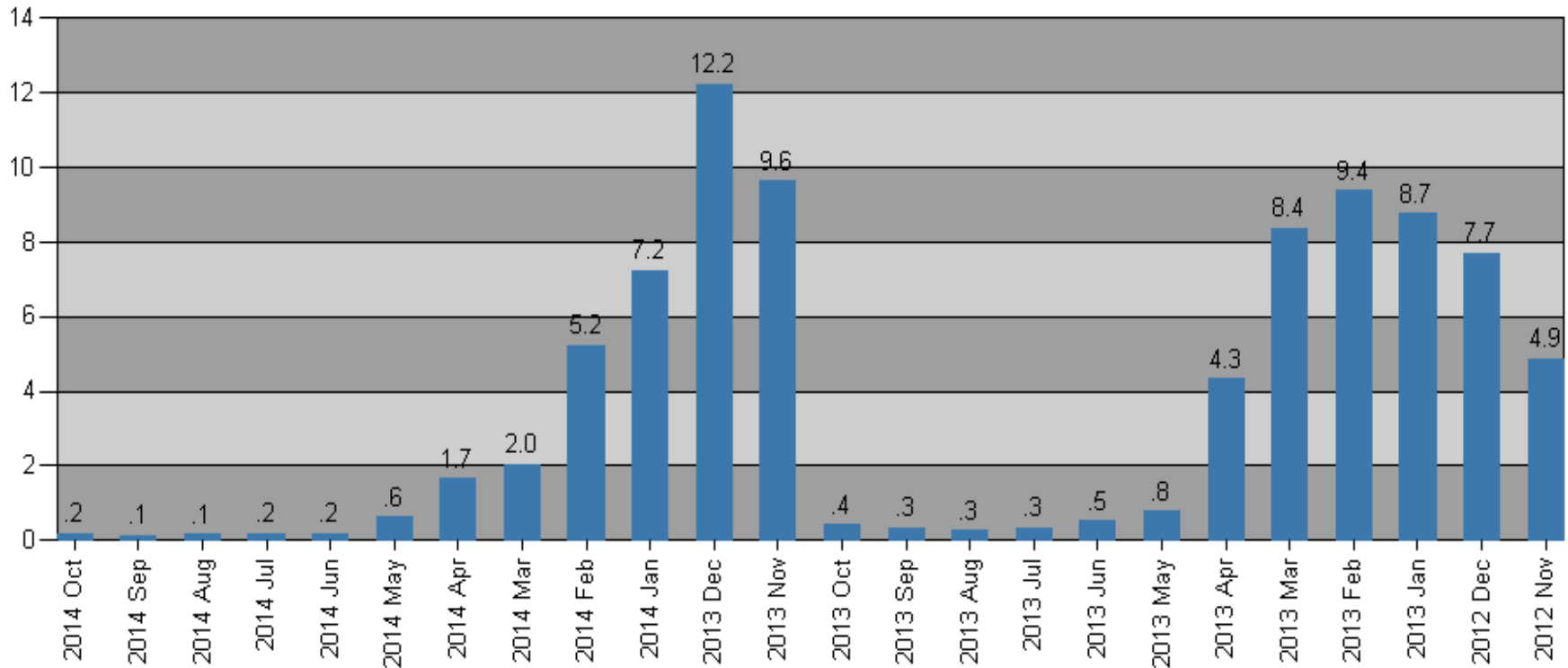
**Best: 0.9**

"Best" value is selected from previous 11 months

# Tracking Metrics

Tonawanda Mechanical Line

Fuel Used kWh per Unit



**Best: 0.1**

"Best" value is selected from previous 11 months

# Sustainability

- Use a Third-party waste stream management partner

- Track all of our waste streams
- Progress towards ZWTL – single stream

# Questions?

