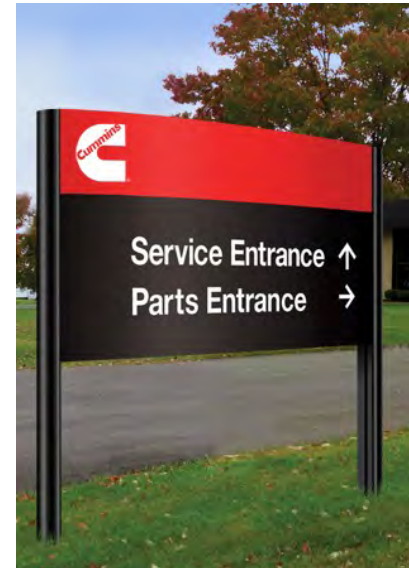




Cummins and Water Global Program - Local Results

Presented at the
16th Annual Indiana Pollution Prevention Conference and Trade Show
Plainfield, Indiana – September 2013

Todd Swingle, Director of Environmental Strategy



Who we are

Cummins Inc., a global power leader, is a corporation of complementary business units that design, manufacture, distribute and service engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems.



Engines



Power Generation

WORLD HEADQUARTERS

500 Jackson Street
Columbus, Ind., 47201

STOCK SYMBOL (traded on NYSE)

CMI

FOUNDED IN 1919

WEB SITE

www.cummins.com

SALES / EARNINGS

In 2012, Cummins earned **\$1.65 billion** on revenues of

\$17.3 billion.

FORTUNE 500 RANKING (2013)

160

EMPLOYEES

Worldwide, approximately

46,000 people.

More than 60 percent of the Company's employees are located outside the U.S.

CUSTOMERS

The Company's customers are located in approximately

190 countries

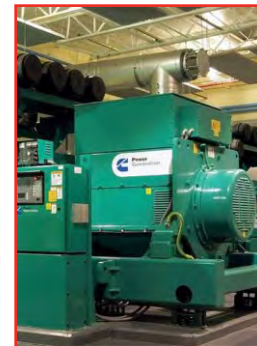
 and territories that

Cummins reaches through a network of more than

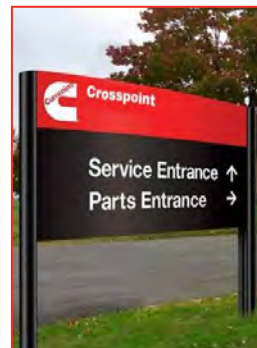
600

 company-owned and independent distributor

locations and approximately **6,500** dealer locations.



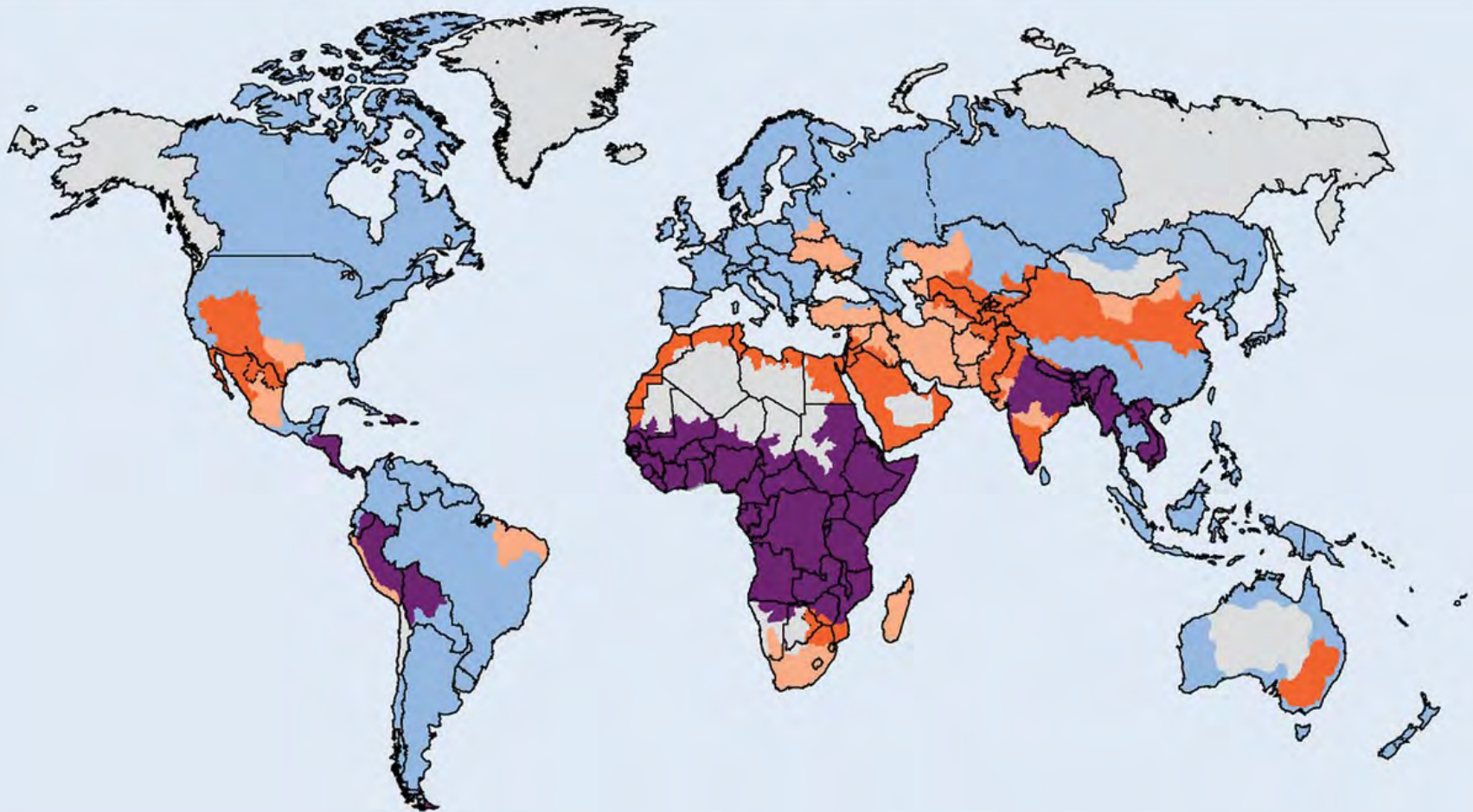
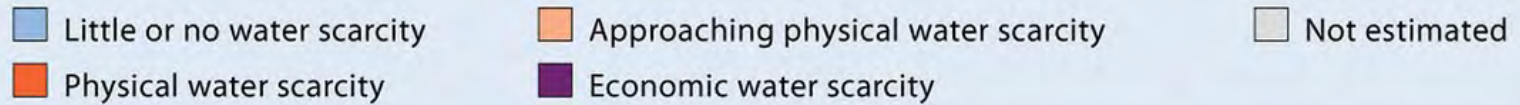
Components



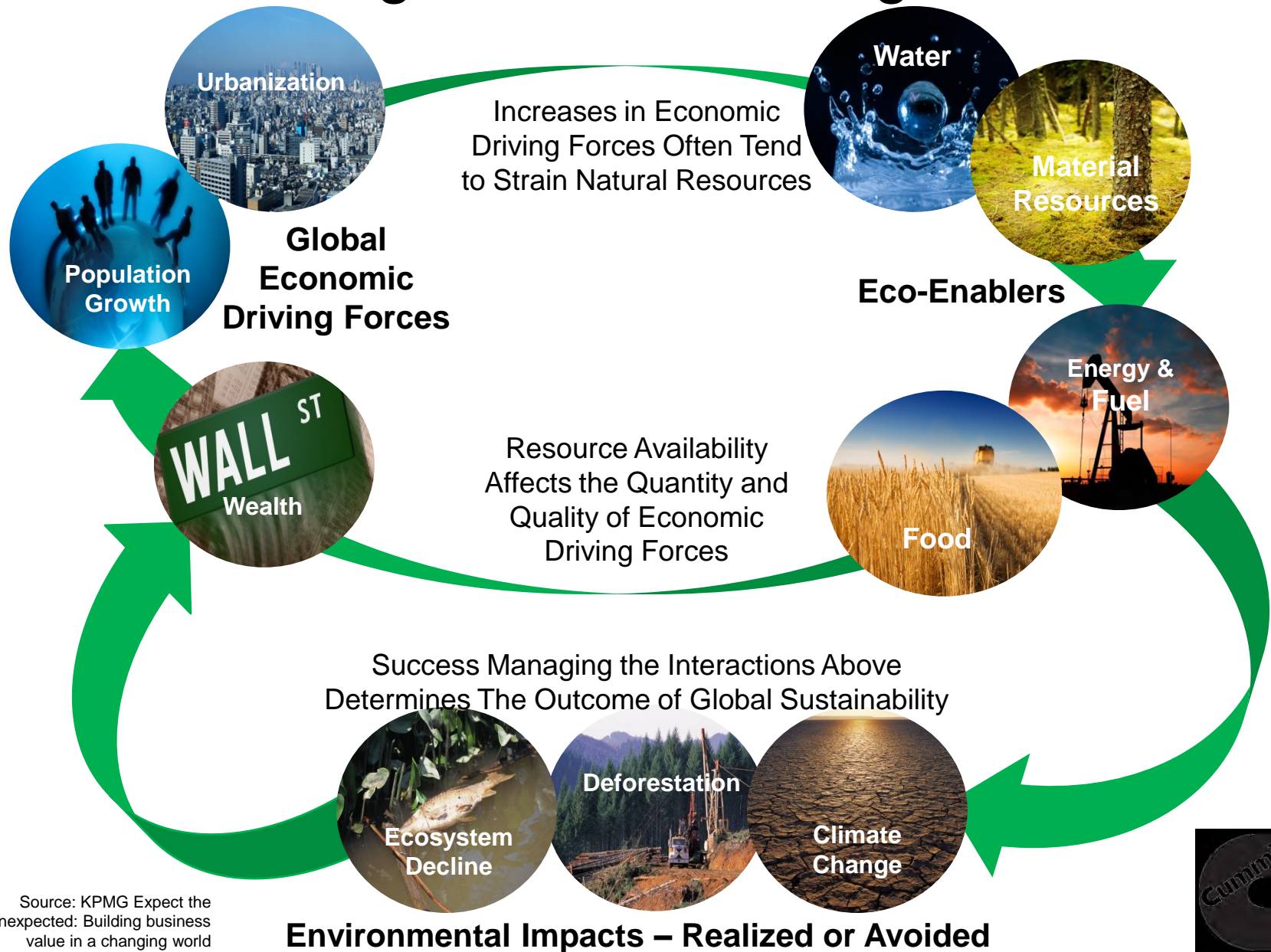
Distribution



Global Water Scarcity



The Big Picture - 10 Megatrends



Developing Cummins' Program



Past Success With Energy, But Water Is a Different Challenge



“Nearly every basic resource or product (oil, food, etc...) in the world today can be trucked, shipped, piped or flown to wherever it is needed. But not water. Consistently undervalued and expensive to transport, there is no global market and very little international exchange.”

- Professor Cluckie, University of Bristol



Framing Cummins' Water Actions

How *our facilities* source, use and discharge water

How we interact with the *communities and watersheds* within which we operate



our total value chain and *global footprint*



H₂



Look Forward Before You Look Back

Progress Assessment Classification	Water Use Intensity		
	Bottom Tier on Internal Peer Water Use Intensity	Middle Tier on Internal Peer Water Use Intensity	Top Tier on Internal Peer Water Use Intensity
No Ranking			
Basic			
Standard			
Benchmark			



A Comprehensive (and Growing) Tool Set



Water Tool - Cost And Results Page



Water Cost Information			
System / Service	Estimated % of Total Cost	Units	Comments / Notes
The estimated % of energy used for the facilities	(Select %)	kWh	
The estimated % of the total amount of fuel used to make	(Select %)	-	
The estimated % of total fuel used to make hot water from direct fired units (Note: Only answer if the user selected)	(Select %)	-	
The estimated % of chemicals used to treat water and/or	(Select %)	-	
The estimated % of maintenance that is used to treat water and/or wastewater	(Select %)	-	
The estimated % of kWh used to pump water and wastewater	(Select %)	kWh	

Facility Results					
Area	Water Cost	Units	Units	Units	Comments / Notes
Total cost for purchasing water	0.0	-	/1000	-	
Refrigeration recirculation cost	0.0	-	/1000	-	
Heating cost associated with steam production	0.0	-	/1000	-	
Heating direct fired cost	0.0	-	/1000	-	
Chemical cost associated with water	0.0	-	/1000	-	
Maintenance cost associated with water	0.0	-	/1000	-	
Pumping cost associated with water	0.0	-	/1000	-	
Total cost of water	0.0	-	/1000	-	

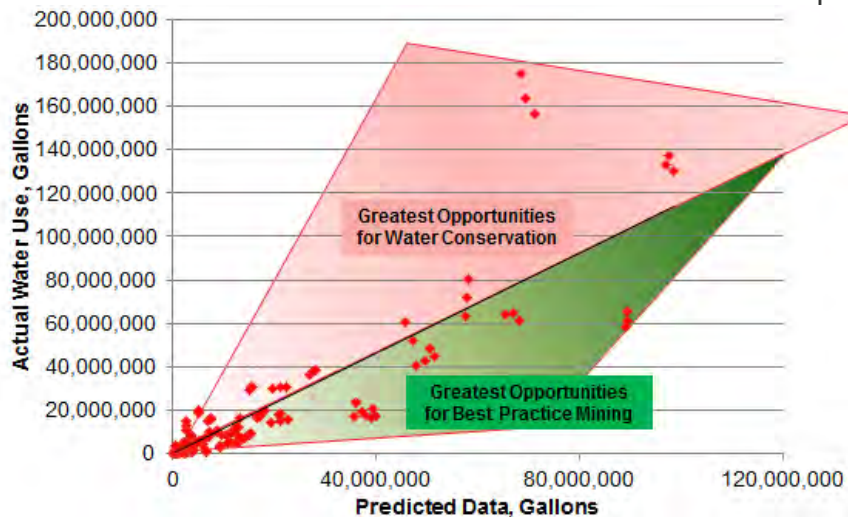
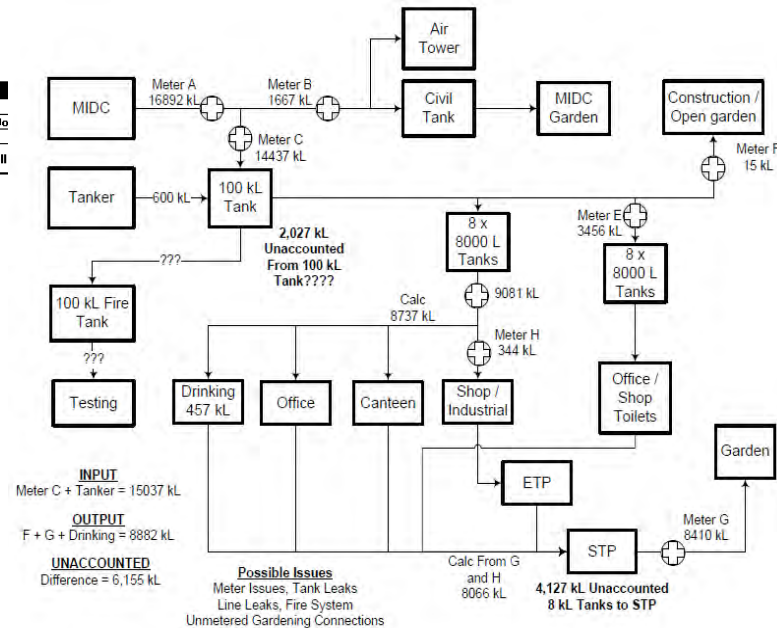
Project Analysis Calculations					
Analysis	Analysis Type	Estimated Volume of Water	Units	Select Affected Systems	Estimated Total Embedded Cost of Water
1	Enter Area Name	Enter Volume	-	<input type="checkbox"/> Refrigeration <input type="checkbox"/> Heating (Steam) <input type="checkbox"/> Heating (Direct Fired) <input type="checkbox"/> Chemical <input type="checkbox"/> Maintenance <input type="checkbox"/> Pumping	-

- Category Description
- Operator Input / Drop Down
- Calculated Value Cells
- Automatically Filled Cell

Go To Data Input

Go To Additional Calculations

Clear Water Cost Section

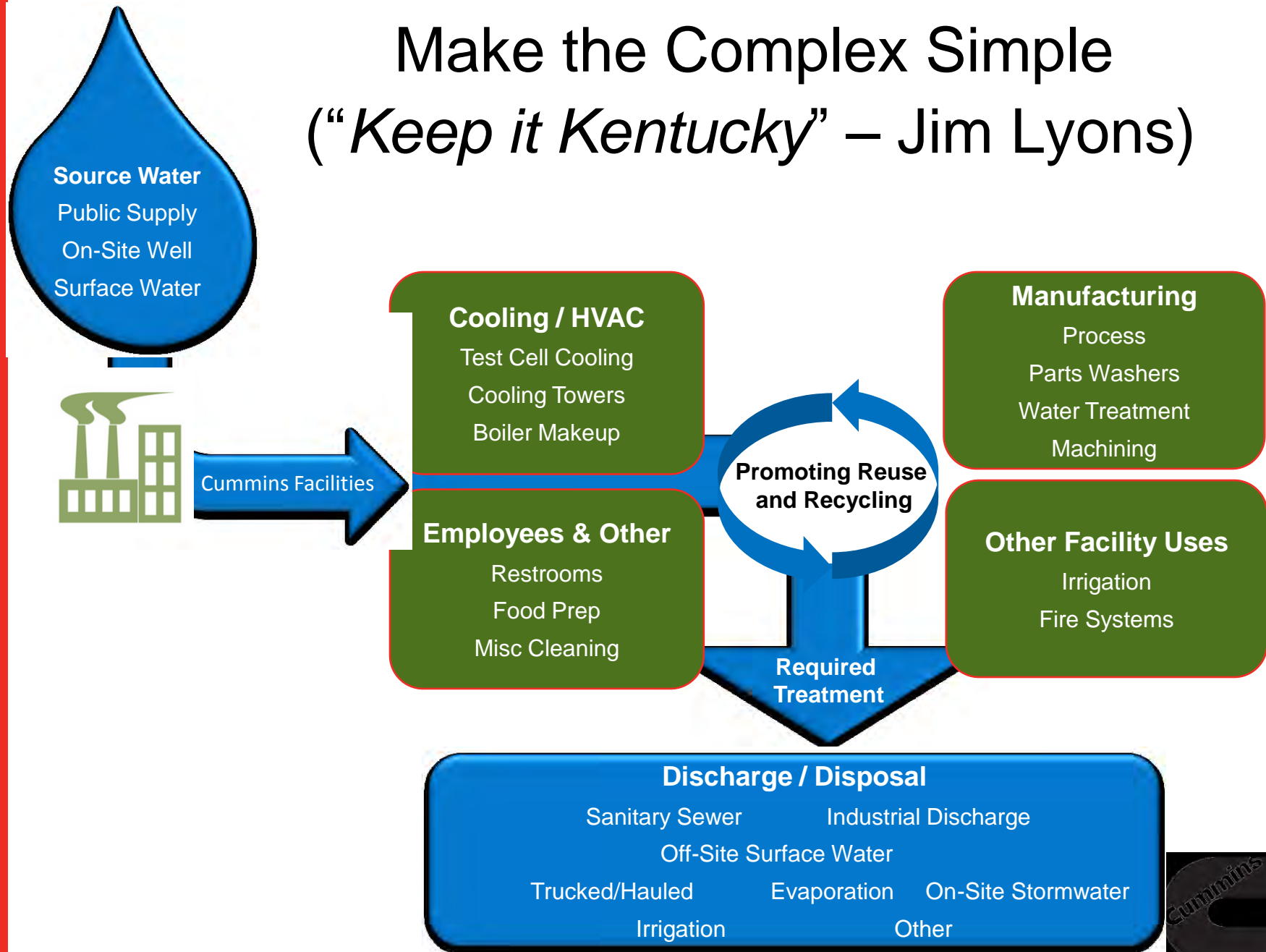


Water User	Water Source (Internal or External)							
	Source #1		Source #2		Source #3		Check Sources	
	Type	Volume	Type	Volume	Type	Volume	Error	OK
Water Users								
(List processes that use water or generate wastewater as part of their operation)								
Employees / Restrooms	Public Supply	450,000	On-Site Well	200,000				
Cooling Tower Make-up	On-Site Well	195,000						



Make the Complex Simple

(*"Keep it Kentucky"* – Jim Lyons)





Reduce Waste Water Generation at SEP

Site Name: Seymour Engine Plant (SEP)
Business Unit: Engine Business Unit
Project Team Leader: David Wehrkamp



Waste Water Pretreatment Facility



The facility, constructed in 1986, processes industrial waste water from manufacturing and research operations at SEP.



Controls Can Be Simple – But Important



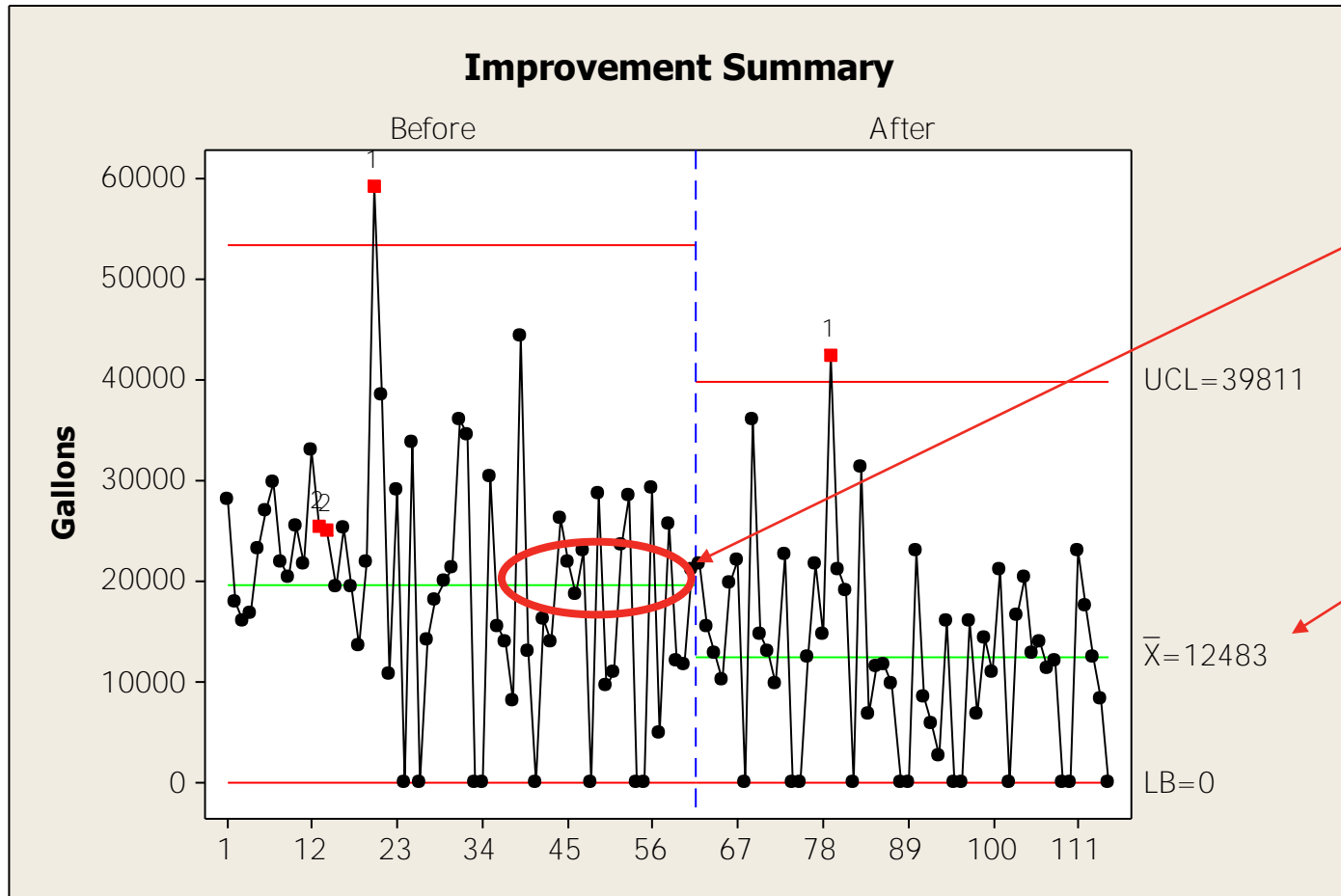
Before



After



Reduced – Water, Energy, Chemicals



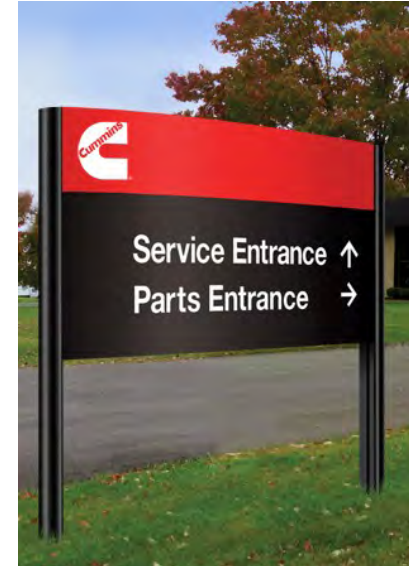
September – October, 2009

February – March, 2010





Cummins Inc. Application of High Efficiency Softening Zero Blowdown Technology Phil Devinney



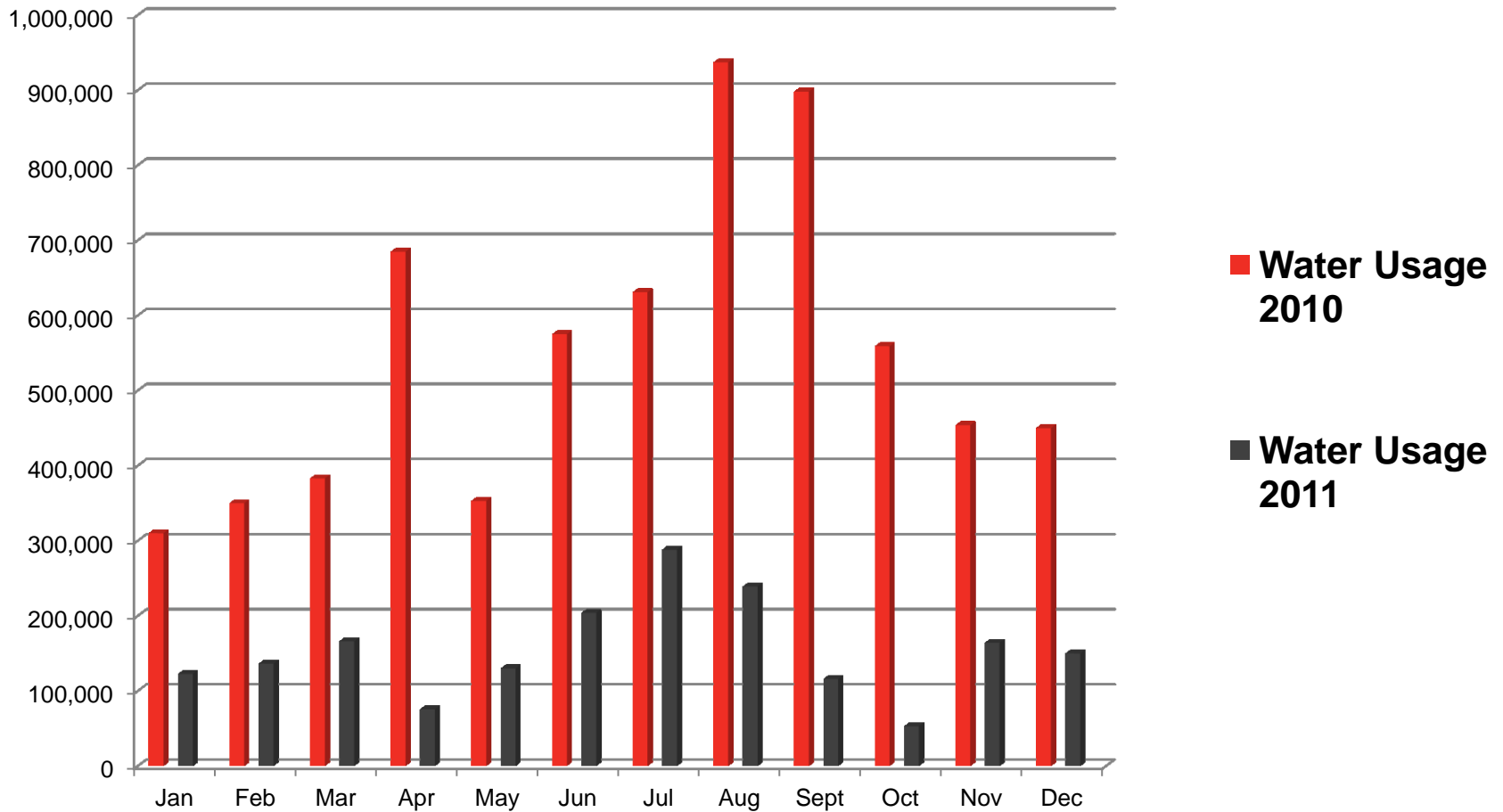
High Efficiency Softening Benefits

- Maximum Water Savings Verses Traditional Chemical Treatment. 80% reduction in Water and Sewer Cost At COB
- Simplified Process Eliminates Chemicals
- Unprecedented Low Corrosion Rates on all System metallurgies
- Remote Process Monitoring Assures Reliability
- Green Technology Provides LEED Points and Helps Lower Carbon Footprint Through Improved Heat Transfer

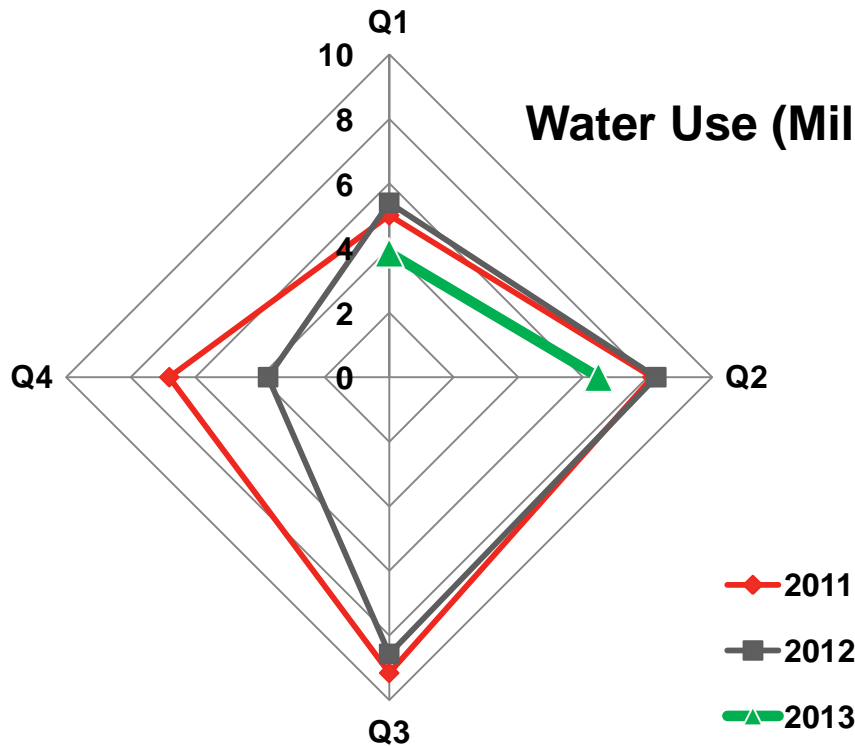


Water Usage Comparison

Corporate Office Building



Water Savings – Cooling Tower HES



- HES System implemented in Q3 2012
- System is 50% optimized with blow down done at 6,000 micro mhos conductivity (10,000 mhos is the target & it will be achieved next year)

Highlights

- On an average, 8 Million gals of water saving per year
- Reduction in chemical use & elimination of acid use



Water Used (Million gals)				
	Q1	Q2	Q3	Q4
2011	5.01	8.15	9.16	6.81
2012	5.40	8.27	8.57	3.75
2013	3.85	6.48		

HES System Installed



HES System



Brine Tank

Where is the Leak?

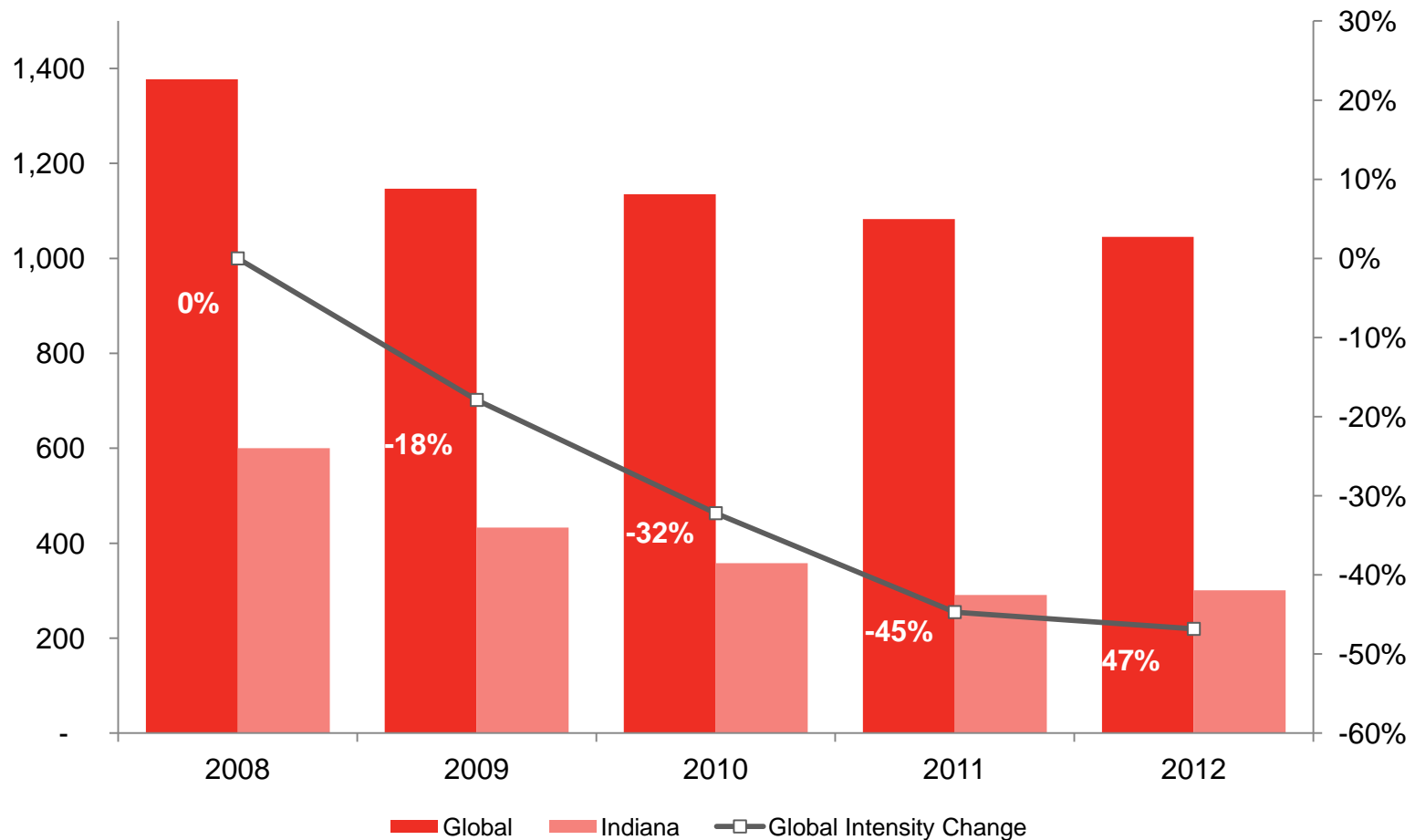


- A 500 gpm for 1-hour => 30,000 gallons
- An undiscovered 1 gpm leak => 525,000 gal/yr



Cummins Water Conservation Progress

Total Water Usage (in Million Gallons) and Intensity change from 2008 Baseline (gallons/hr)

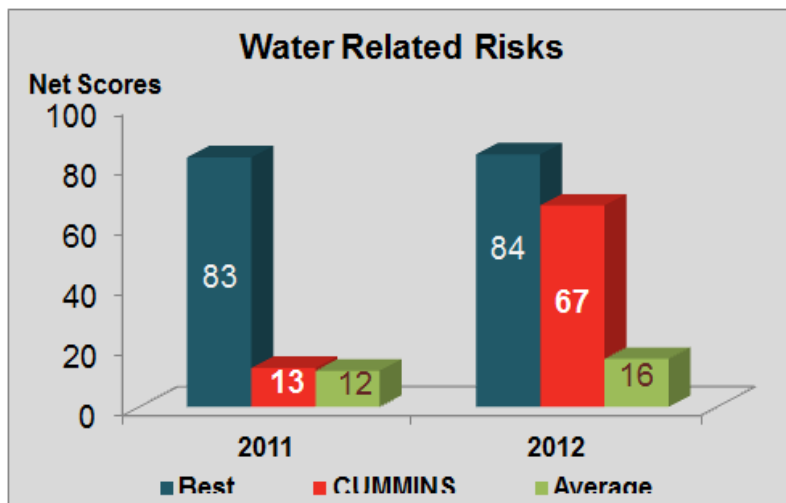


Reporting Results



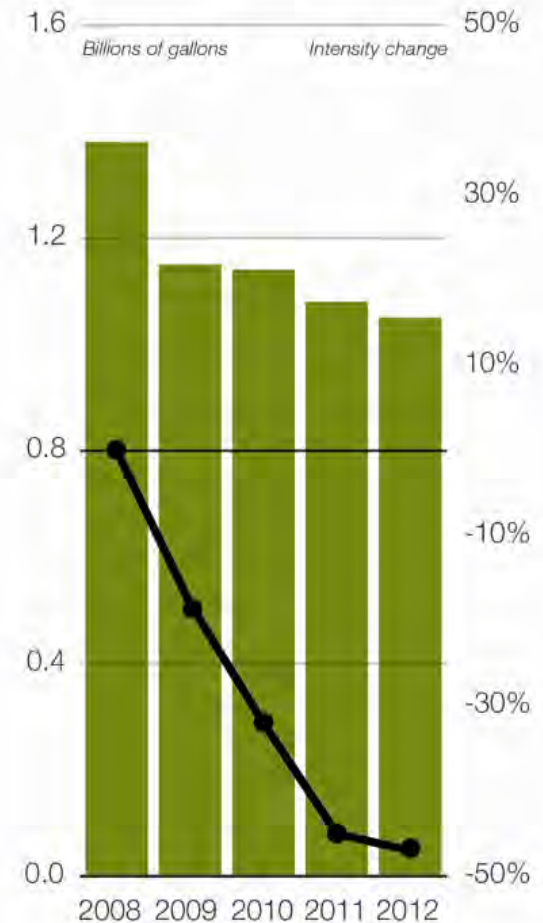
Cummins Environmental Addendum

SUSTAINABILITY REPORT 2011-2012



Total water withdrawn

in billion gallons



2008	1.38 B	Total water use
2009	1.15 B	Water withdrawn normalized to labor hours
2010	1.14 B	
2011	1.08 B	
2012	1.05 B	

