

Raytheon Employee Engagement in Energy Conservation

Department of Energy August 5, 2010

Steve Fugarazzo
Raytheon Company
Enterprise Energy Team





Presentation Overview

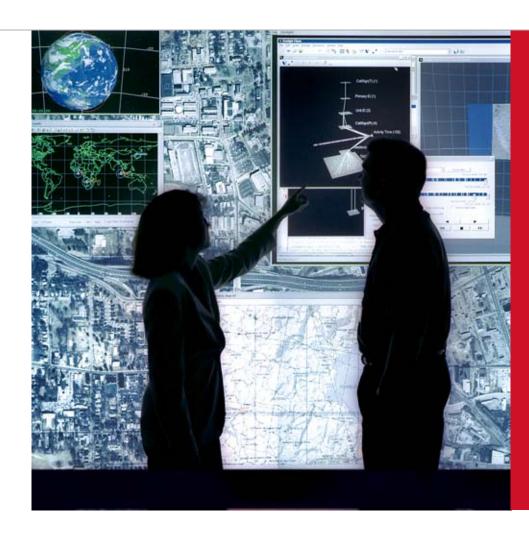
- Company Background
- Communication & Outreach Initiatives
 - Internal Partnerships
 - Energy Champions
 - Energy Citizens
 - Energy Awareness Events & Contests



Raytheon ... What We Do

Raytheon is a global technology company that provides innovative solutions to customers in 80 nations.

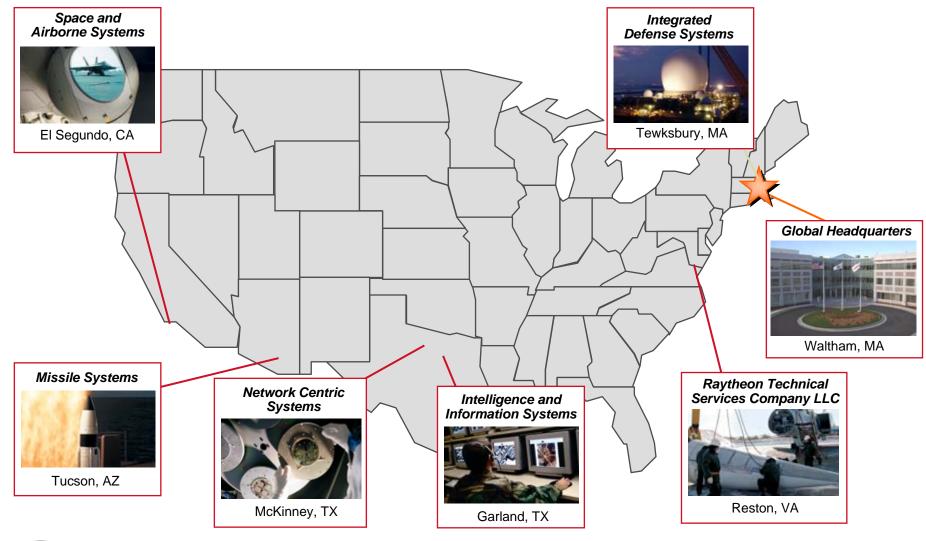
Through strategic vision, disciplined management and world-class talent, Raytheon is delivering operational advantages for customers every day while helping them prepare for the missions of tomorrow.







Raytheon Business Headquarters

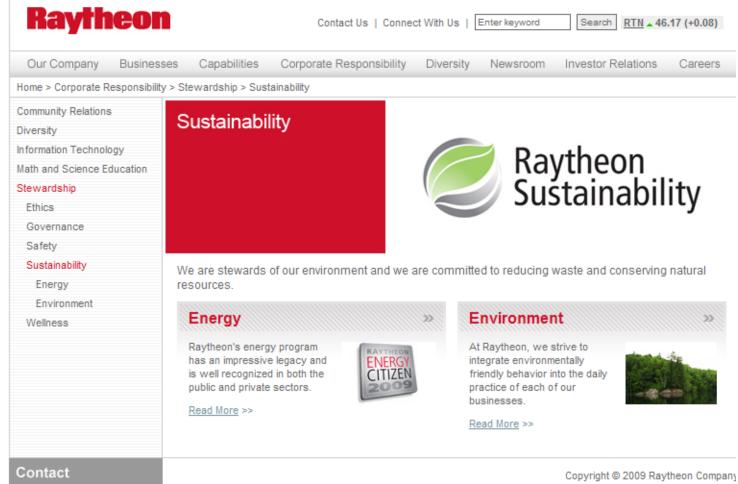




75,000 employees worldwide, 2009 revenue \$25B



Energy and Raytheon Sustainability



Corporate Communications Raytheon Company 870 Winter Street Waltham, MA 02451 Contact Us

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Accessibility





What Energy Is To Us

- ~90% of our carbon footprint
- Necessary to do business
- Expensive!
 - Estimated \$120M in 2009 and rising
- Finite resource Most energy from fossil fuels
- A Corporate/Social responsibility to conserve it
 - Eliminate unnecessary waste
 - Reduce our environmental footprint

Energy Conservation for Sustainable Growth





Why Focus on Employees?

- Raytheon has a long history of energy efficiency efforts
 - Dating back to 1970's Recognized by U.S. Energy and Commerce Depts.
 - "JUICE" Poster Campaign

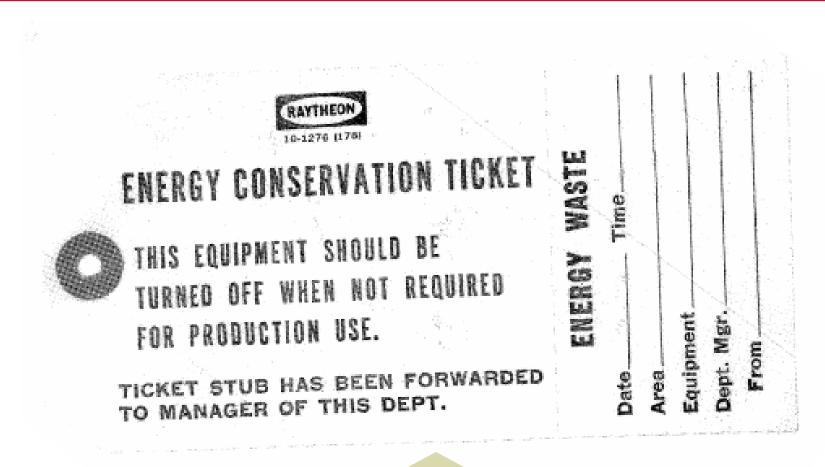


- Main focus in 80's and 90's on infrastructure efficiency opportunities
- More focus on "untapped potential" with employees in recent years
 - Analysis of off-hour consumption showed room for improvement
 - Off-hour audits confirmed lots of waste happening
 - Employees were not motivated enough to save energy at work
 - Employees much more apt to practice conservation at home
 - Use ENERGY STAR "Work and Home" theme to reach employees
 - Utilize ENERGY STAR recognition to engage "top down" support





What's The Best Approach?





One approach used in 1970's





Softer Approach May Work Better

Energy Conservation for a Competitive Advantage

Success Story



MDC – Dining Center

Team Members: Kevin Gigliotti, MDC Eurest Employees & Eurest District Management

Vision

Identify and implement energy conservation measures (ECMs) throughout the Dining Center.

Approach and Results

- Modified the operating procedures of the of equipment in the kitchen such as fryers, cook tops & grills.
- Posted signs in many areas to remind employees to turn off equipment and close doors.
- Installed Thermal Curtains on the open refrigerators to help conserve energy.

Be nefits

Air Curtains: Extends Compressor life. • Better temperature control. •
 Keeps food fresher, safer, longer.











Energy Conservation for a Competitive Advantage

Energy Audit Results

An Energy Audit of this area was conducted on date time

Results: See checked boxes.

- ☐ All equipment and lights were turned off! Thank you for contributing to the energy conservation initiative!
- ☐ Items below were found left on in your office. In the future please follow the below:
 - O PC's should be powered off
 - O Monitors should be powered off
 - O Task light should be powered off
 - O Peripherals with power switches should be powered off
 - External hard drives
 - o Scanners and local printers
 - Speakers
 Unused power cords with
 - transformers should be unplugged

 Laptop power cords
 - Cell phone power cords



Help Make a Difference. Conserve energy wherever you can!

DO NOT POWER DOWN - CRITICAL PRODUCTION EQUIPMENT
POWER DOWN ONLY WHEN EQUIPMENT IS NOT IN USE
PRODUCTION IN PROCESS DO NOT SHUT DOWN UNT
DAILY: FOR INSTRUCTIONS SEE BELOW
POWER DOWN AT END OF SHIFT: 1st 2rd 3rd
POWER UP AT:
WEEKEND: FOR INSTRUCTIONS SEE BELOW
POWER DOWN AT: AM PM ON: FRI SAT SUN
POWER UP AT:
REFER TO PROCESS! PROCEDURE NUMBER
POWER DOWN PER SPECIAL INSTRUCTIONS:





Partnerships with Internal Stakeholders

- Information Technology Green IT
 - Raytheon recognized with InfoWorld Green 15 award
 - Named one of Uptime Institute's 2009 "Global Green 100
- Environmental, Health and Safety (EHS)
 - Earth Day events, employee contests
- Human Resources
 - New Employee Orientations
 - Online Energy Training
- Manufacturing
- Engineering
- Business Development





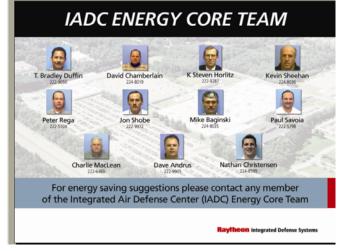




Critical Step: Develop a Network

- Established network of Energy Champions
 - Anyone who sets a good example for others
 - Promotes energy conservation and efficiency every day
 - The responsibility of the Energy Champion is to:
 - Instill a culture of energy conservation within their respective workspaces with each occupant and with every piece of equipment.
 - Develop conservation strategies specific to their work areas.
 - Identify and implement Energy Conservation Measures (ECMs)
 - Assure there is no backsliding Savings must be maintained.
 - Share progress, lessons learned, and innovative energy practices with other team members.









Recruit & Recognize Energy Champions



IADC ENERGY CHAMPIONS Your **Photo** Here To Make a Difference!





Energy Citizen Background & History

- 2007 Energy Citizens program piloted at IDS
 - 18 work & home questions
 - 10% of IDS employees qualified from July-Dec 2007
- 2008 Energy Citizens Company Wide
 - 18 questions developed through collaborative effort of Enterprise Energy Team (EET)
 - 29% of all Raytheon employees were qualified
- 2009 Energy Citizens Company Wide
 - New and improved set of questions (14), including popups w/hotlinks for employees to learn more
 - 44% of all Raytheon employees were qualified
- 2010 Energy Citizens Company Wide
 - Learning tool instead of quiz, fun and interactive
 - Goal is 50% of Raytheon employees
 - At 33% through May
- 2011 and Future Plans:
 - Considering other tools to engage employees
 - Raytheon Sustainability tool (Groom Energy/Proactively Green)
 - Include Energy Citizens as part of "Sustainability Challenge"





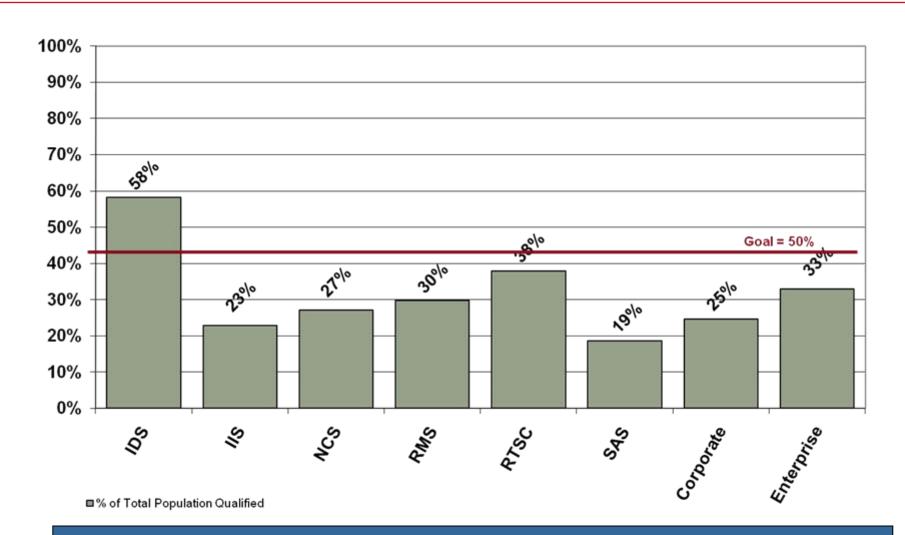








Raytheon 2010 Energy Citizens (through May)



Expect to exceed 50% goal for 2010



Earth Day Awareness Activities

Corporate Update Archive

Raytheon Celebrates the 40th Anniversary of Earth Day

For the 40th anniversary of Earth Day April 22, 2010, Raytheon is celebrating our commitment to sustainability. At Raytheon, sustainability starts in the workplace and extends far beyond. We are dedicated to engaging our employees, customers, suppliers and communities to protect our environment and conserve natural resources.

The following 40 statistics for 40 years of Earth Day reflect our engagement in upholding sustainable practices at work and at home now and for years to come.

Raytheon's Long-Term Sustainability Goals

- Raytheon's goal is to reduce absolute greenhouse gas emissions 10 percent by 2015.
- Raytheon plans to reduce landfill and incinerated waste disposal 25 percent normalized by revenue by 2013.
- Raytheon aims to reduce water consumption 10 percent by 2013.

Energy Management at Raytheon

- In 2009, energy consumption declined on an absolute basis by almost 3 percent, saving approximately \$3 million in energy costs and has declined 13 percent since 2002.
- When measured on a per dollar revenue basis, Raytheon reduced its energy use 10 percent in 2009.
- Raytheon's energy per dollar revenue reduction has been 38 percent since 2002.

Climate Change and Greenhouse Gas Emissions (GHG)





Our Commitment to Future Generations

More Information

Raytheon Sustainability

Environmental Protection Agency (EPA): Earth Day 2010

Related Articles

Our Commitment to Future Generations: Energy Efficiency Update

Renew Your Commitment: Become a 2010 Energy Citizen

Raytheon Recognized for Leadership in Reducing Toxic Material Use

Smart Sprinklers: NCS Fullerton's New Irrigation System Highlighted as Raytheon Sustainability Best Practice

Raytheon Recognized With 2010 ENERGY STAR Award





Energy Awareness Month

Corporate Update Archive

Raytheon Celebrates Energy Awareness Month

October is Energy Awareness Month, and Raytheon is using its 31 days to highlight the company's Energy Champions, support activities promoting an energy conservation culture, and announce a new greenhouse gas reduction goal. The observance is another part of Raytheon Sustainability and its goals of maximizing efficiency and reducing environmental impacts.

Raytheon's New Greenhouse Gas Reduction Goal

Nearly 90 percent of Raytheon's greenhouse gas (GHG) emissions are energy related. So energy awareness plays an important role in helping the company reach its new greenhouse gas reduction goal. As an industry partner in the U.S. Environmental Protection Agency's voluntary Climate Leaders program, Raytheon pledges to reduce its absolute U.S. emissions by 10 percent between 2008 and 2015. Climate Leaders is the country's largest GHG goal-setting program.

This new goal builds upon Raytheon having successfully achieved its first GHG goal. In 2002, as a charter Climate Leaders partner, Raytheon pledged to reduce GHG emissions from its U.S. operations by 33 percent between 2002 and 2009, normalized for revenue and adjusted for inflation. Raytheon not only met but exceeded its reduction goal one year ahead of schedule. By the end of 2008, the company had reduced its emissions 38 percent normalized for revenue and adjusted for inflation.

Energy Champions in the Spotlight

Raytheon is a leader in successfully driving strategies and programs to reduce energy consumption, as demonstrated by five ENERGY STAR awards from the EPA in the last nine years. Much of the credit for these programs goes to the company's Energy Champions - employees who continually seek out energy reduction opportunities, implement concepts, and share their enthusiasm by challenging others to be equally proactive.

More than a dozen Raytheon Energy Champions from across the company and overy Daythoon business are being profiled for Energy





More Information

Corporate Responsibility Report

Raytheon Sustainability

EPA Climate Leaders Program

Home Energy Checklist

Office Energy Checklist

Resources for Kids

Residential and Commercial Incentives





Other Awareness Activities





#1 AGE: (6-9)







Questions ????





Mary Alice Kurtz General Motors Worldwide Facilities Group August 5, 2010





Global Best Practice Process

Common database system for capturing, sharing and tracking implementation of Best Practices.

Global, Regional and Plant level implementation of Best Practices are tracked across all GM Centers (i.e. Paint, GA, Body, Quality, Maintenance, Energy, Facilities, etc).



Goal: Quick sharing & implementation of Best Practices with the intent to maximize Waste Reduction Globally.



Critical Steps in Developing a successful Best Practice process

- □ Protocol that provides a framework for the development, sharing and monitoring implementation
 - □ Leadership engagement within that structure is imperative to drive performance and provide focus
- □ Common database system for capturing, sharing and tracking implementation of Best Practices
 - □ Automated notification to users of new best practices, as they are approved, supports efficient and quick implementation
- Layered audit process to ensure implementation and maximizing impact of identified opportunities
- □ Training to ensure consistent implementation and accommodate changes in personnel and within the organization

GM Global Best Practice Process

Process and System Database facilitate quick implementation

- Best Practice Ideas implemented prior to submittal
 - Proven implementation and operation
 - Meets financial criteria for necessary payback
 - Preliminary analysis / engineering developed
- Database System is flexible, quickly manipulated for filtering of data and reporting implementation status
- □ Focus of Process is kept simple:
 - Best Practice Ideas submitted by Plant Champions through the Account Meeting Structure; approved in overall Account Champion Meetings
 - □ Savings captured for ongoing prioritization of implementation across Region
 - □ BPs shared Globally to maximize reduction of waste

Driving For one Consolidated Process....



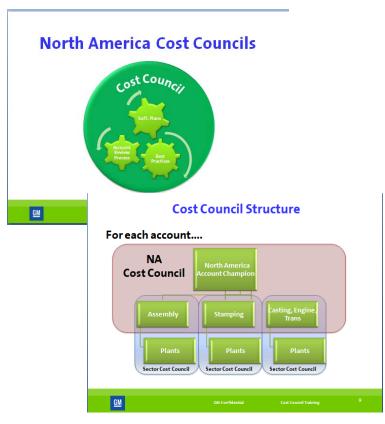
Focus on implementation of specific plans

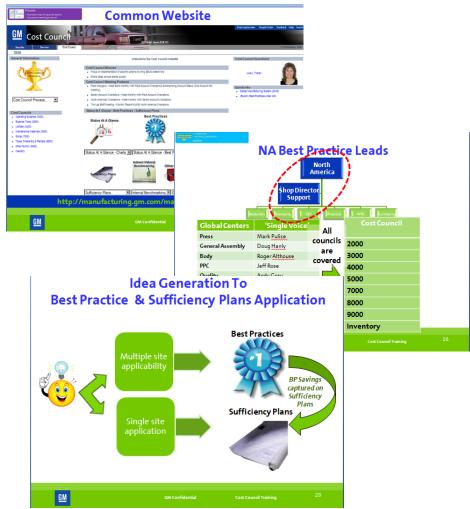
Common plant processes and meeting structure

Share ideas across plants quickly

Lower Total Cost And Eliminate Waste!!

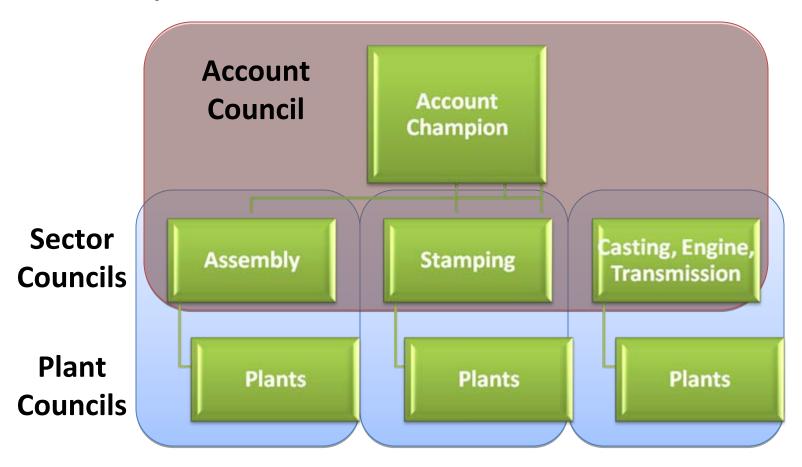
Account Council Review Structure





Consolidated Meeting Structure

For each financial account....

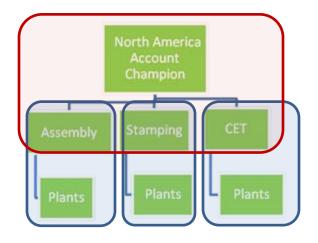


Best Practice Process Integration into the Account Reporting Structure



Account Champion:

- Account Implementation Status Review
- Buy-In & Approval for Implementation of new Best Practices





Sector:

- Sharing among Plant Champions & drive full development of Best Practices
- Drive Improved Implementation Status

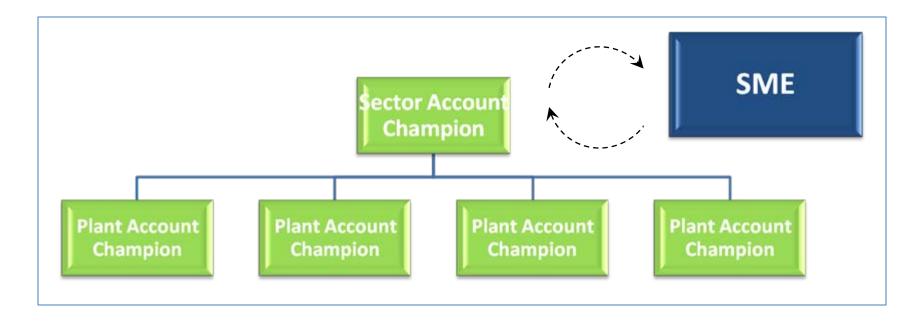


Plant:

- Innovation & Implementation of Region & Global Best Practices
- Account Review w/ Plant Manager

Subject Matter Expertise

Critical Support in Best Practice Development



- Provide technical expertise and analysis to support Best Practice development as requested
- Provide support in development of Best Practices for Global Sharing
- Support Cost Council in assessment of Globally Shared Best Practices for potential Regional implementation



Best Practice Implementation Status

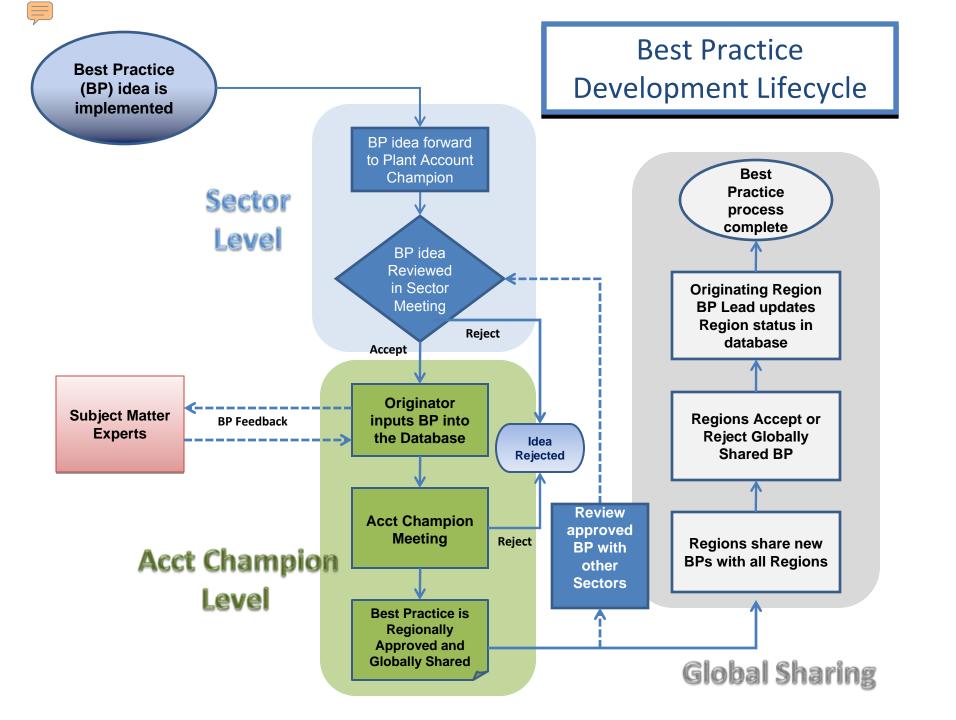
Report Templates

	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09
Sector	% Adopted				
Assembly	58%	60%	63%	64%	65%
Stamping	65%	67%	67%	67%	68%
Engine	57%	57%	57%	57%	56%
Transmission	52%	55%	55%	56%	56%
Casting	58%	60%	60%	61%	61%

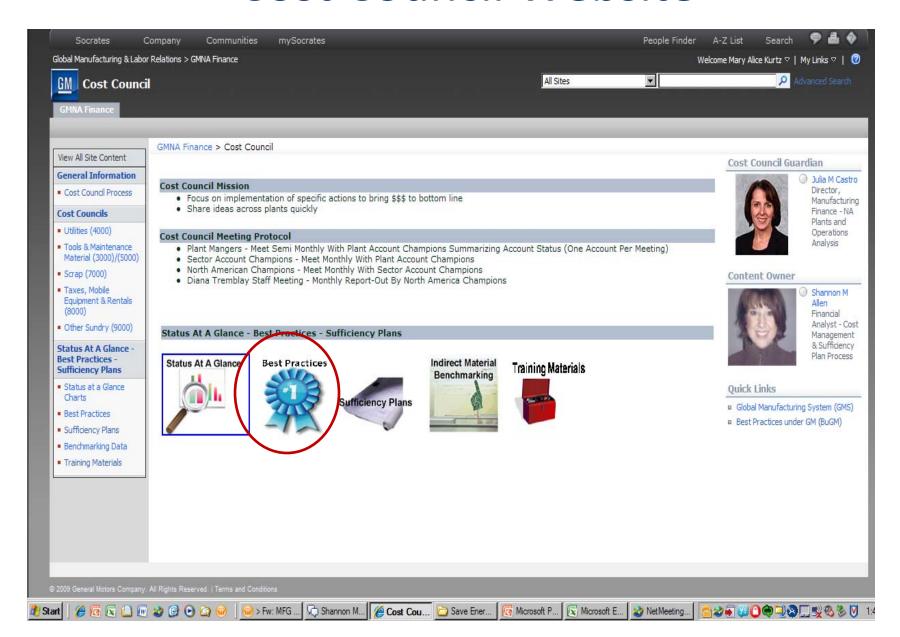
Jul-09	Global Bu	GM Repor	t for Energy & Uti	ilities				Initiate							
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	and the same							, er cuu	iiiipicii						
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> 50% 1	0 80%	50% > IMP			Plant Statistics	GMAP	9	Plants	* BuG	M Cou	ınt				684
< 3,50		IM/	L < 30% K		Total Reported	97%	97%	97%	87%	97%	93%	96%	97%	7%	86%
					Total Not Applicable	12%	12%	11%	29%	13%	20%	30%	13%	1%	16%
Globally Approv	ed BuGms	76		Total	al Adopted (IN/AD/AI)	86%	86%	87%	58%	84%	74%	66%	84%	5%	70%
				Cou	nt Adopted (IN/AD/AI)	65	65	66	44	64	56	50	64	4	478
						South Korea (A)	Supyeong 2 South Korea (A)	S.Korea (Suzuki SAIC CC) (A/M)	Elizabeth Australia (A/M)	Korea (Suzuki SAIC CC) (A/M)	(4)	Hanoi Vietnam (Suzuki SAICCC) (A)	aland (A)	idia	
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		⊟ 28547	Summer Steam Sh ■ Summer Steam Sh		Adopted (IN, AD, AI)									-	4
		320347			Not Applicable (NA)									\rightarrow	4
		≘ 29863	Installing Energy Et											\dashv	7
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Nov 09				
Total Approved BuGMs	80			
Plant Name	Reported	Not Applicable	Adopted	Count Adopted
Parma (M)	100%	33%	68%	54
Lansing Delta Twp. (A/M)	100%	38%	63%	50
Lansing G.R. (A)	100%	33%	68%	53
Bowling Green (A)	99%	21%	78%	62
Fairfax (A)	99%	25%	74%	59
Siao (A)	96%	24%	73%	58
Harntrarnck (A)	96%	30%	66%	52
Mansfield (M)	91%	26%	65%	52
Marion (M)	91%	38%	54%	43
Oshawa S Stamping (M)	91%	43%	49%	39
Indianapolis (M)	91%	39%	53%	39
San Luis Potosi Mexico	90%	26%	64%	50
Oshawa Car Consolidated (A)	88%	33%	55%	4
Oshawa Car Flex (A)	88%	33%	55%	4
Flint Truck1 (A)	88%	21%	66%	5
Spring Hill Stamping	86%	13%	74%	59
Ramos Arizpe 2	86%	20%	66%	5
Shreveport (A/M)	86%	29%	58%	40
Ramos Arizpe Stamping	86%	31%	55%	4
Pontiac Stamping (M)	85%	33%	53%	4:
Fort Wayne (A)	80%	23%	58%	40
Wentzville (A/M)	70%	19%	51%	4
Lordstown (A/M)	70%	20%	50%	40
Arlington (A)	51%	11%	40%	32
GMNA Total	88%	28%	60%	114

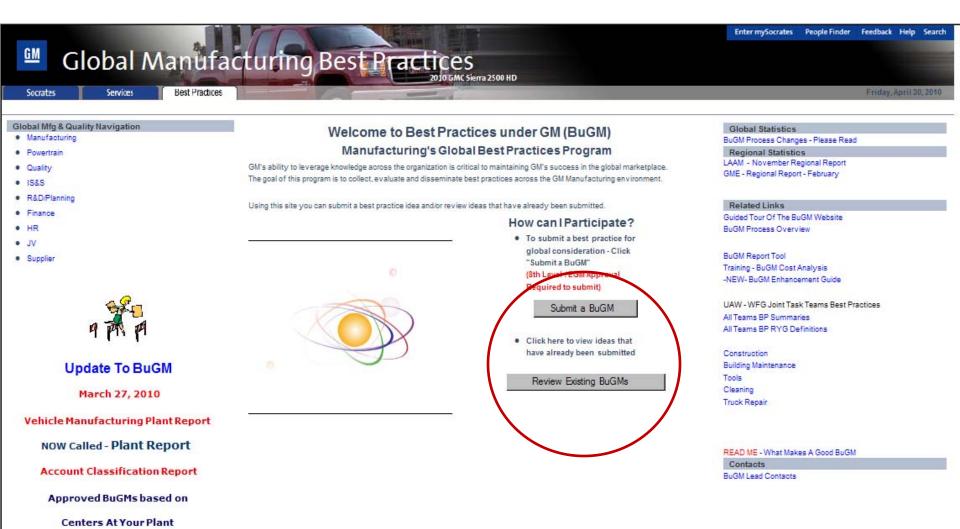
D:						
Fairfax Assy	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09
Account	% Adopted					
2000	60%	58%	60%	63%	64%	65%
3000	66%	65%	67%	67%	67%	68%
4000	58%	57%	57%	57%	57%	56%
5000	54%	52%	55%	55%	56%	56%
7000	57%	58%	60%	60%	61%	61%
8000	60%	58%	60%	63%	67%	67%
9000	66%	65%	67%	67%	59%	62%



Cost Council Website



Best Practice Website



Best Practice Implementation Status ...by Plant

Best Practice implementation status is tracked by *Center* and by **Account**

Center

Bochum Germany (A)	Body	General Assembly	Maintenance	Paint*	Supply Chain	Press	Quality	Facilities	Environmental	Energy	Grand Total
Approved	164	255	34	117	109	177	148	11	3	25	1043
Adopted(AI,IN,AD)	102	186	28	85	80	132	111	8	2	18	752
Not Applicable(NA)	54	63	6	32	22	42	21	1	1	5	247
Grand Total	156	249	34	117	102	174	132	9	3	23	999
Under Evaluation	8	6	0	0	7	3	16	2	2	2	44

*Paint Data Does Not Include Polymers

Account or Cost Council

Hamtramck (A)	2000	3000	4000	5000	7000	8000	9000	Indirect Inventory	Grand Total	
Approved	20	1	56	41	1	3	1	0	123	
Adopted(AI,IN,AD)	10	0	34	20	0	2	0	0	66	
Not Applicable(NA)	6	1	21	21	1	1	1	0	52	
Grand Total	16	1	55	41	1	3	1	0	118	
Under Evaluation	4	0	1	0	0	0	0	0	5	

Summary Reports

Best Practice Implementation Status

