

Save Energy Now LEADER Web Conference Replication Seminar Series

**“Just do it (replicate)”
with Plans, Tools, and Resources**

**Fred Schoeneborn, CEM, CEA
June 28, 2011**



Agenda

- Seminar Series **Overview**
- **Recap** Replication Session #2
- **“Just do it (replicate)”**
 - Fred Schoeneborn - **ORNL** team
 - Larry Fabina - **ArcelorMittal**
- **Questions/Future Seminars**



Replication Series

- Presents **5** one-hour Webinars assisting *Save Energy Now* LEADER Companies
- Scheduled monthly - **fourth Tuesday** at 2:00 p.m.
- Focuses on **real-world** examples and solutions
- Offers practical **tools**
- Includes **peer** *Save Energy Now* LEADER participants



Sell Management / Build a Network

- **Motivate** management
- Use **facilitation** aids
- Focus on the **PRIZE**
- Tune in to **WII-FM**
- Build a **Network** with internal and external contacts
- Stress Network **benefits**
- Utilize **tools**



Sharing by Raytheon

- Note the **priority** of focus areas
- Display **Energy Leader** characteristics
- Use a **management system** approach
- Stress **tracking** and benchmarking
- Build internal **partnerships** with key people
- Incorporate internal **organizations**
- Alter **behaviors** with a soft approach
- Increase **awareness** with celebrations & contests
- Keep metrics/**reports** simple, concise, & focused



Plans for Replication

- Create a compelling **vision** for five years out
- Create a **roadmap** to reach the vision
- Include Best Practices into **new design & retrofits**
- Build robust **tracking** into the management system
- Establish clear **accountability**
- Address **Training** requirements
- Coach employees through the **“change process”**



Tools for Replication

- **Mine** for opportunities from past EE initiatives
- Utilize a Best Practice **Matrix**
- Gain a “**seat at the table**”
- Follow up with a replication **scorecard** tool
- Establish an **energy fund**
- Lower “**hurdle rates**”
- Take advantage of incentives/**rebates**
- Use “**other people’s money**”



Resources for Replication

- **Internal resource** identification
- DOE *Save Energy Now* Technical Account Managers (**TAMs**)
- **Consultants**
- **Utility** company programs
- **Vendors**
- Other **companies**/industries
- **Neighboring** plants
- **Government** programs
- Industry **Associations**



Champion of Replication

- **Larry Fabina**
- ArcelorMittal
- Manager, of Continuous Improvement
- Focus is on Replication





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“Just do it (replicate)”
with Plans, Tools, and
Resources

Larry Fabina, Manager, Continuous Improvement,
USA Energy Team Coordinator, ArcelorMittal USA

The World's Leading Steel Company

- ArcelorMittal is the world's number one steel company, with over **287,000** employees in more than **60** countries. ArcelorMittal is the leader in all major global markets, including automotive, construction, household appliances and packaging, with leading R&D and technology, as well as sizeable captive supplies of raw materials and outstanding distribution networks.
- An industrial presence in **20** countries exposes the company to all the key steel markets, from emerging to mature, positions it will be looking to develop in the high-growth Chinese and Indian markets.
- ArcelorMittal values scale, vertical integration and product diversity. Approximately **35%** of our steel is produced in the Americas, **47%** in Europe and **18%** in other countries such as Kazakhstan, South Africa and Ukraine.

Underpinning all our operations is a philosophy to produce Safe Sustainable Steel

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Consolidation Europe
Downstream Integration



Regional leadership South Am.
Leadership in value added



Capture growth
and increase presence in growing market



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Leadership in value added



Regional leadership Eastern Europe
Increase presence in Asia and Africa



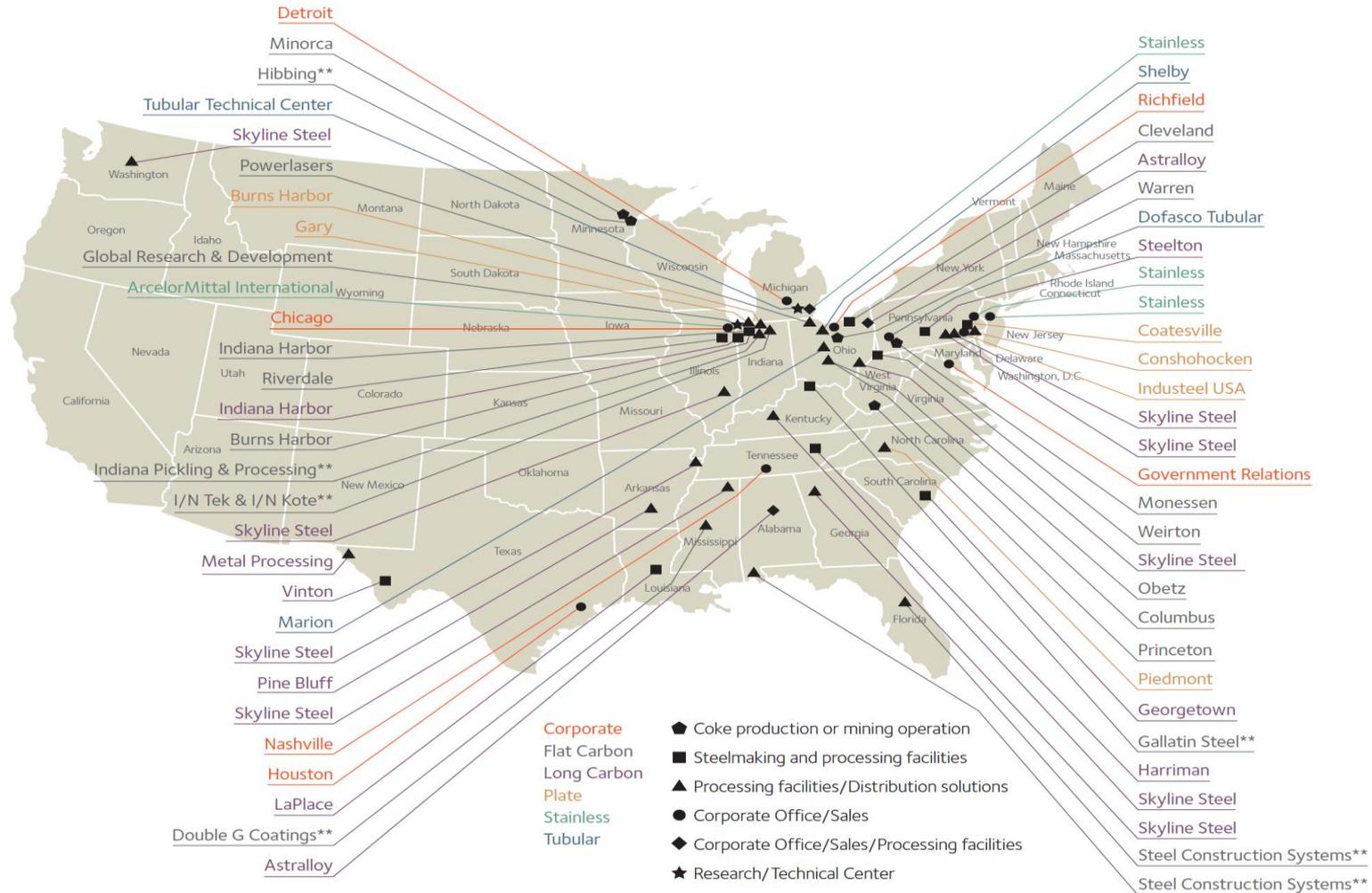
Global acquisition
Upstream integration



MITTAL



ArcelorMittal across the U.S.



Energy at ArcelorMittal



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Global to Local Energy Network



- Chief Technology Office
 - Energy Section
 - Coordinates world wide efforts and works with the plant operations
 - Maintain “Best Practices”
 - Energy Webinars
 - Worldwide Energy SharePoint
 - Energy Knowledge Management Program (KMP)
- Global Research Process Steering Committees
 - Energy Section
- North and Central America Energy Committee
 - USA, Canada, and Mexico
 - Monthly Energy Conference Call
 - Annual Americas Energy Roundtable (Includes Brazil)
- Plant Energy Champions (USA)

Energy Planning Energy Roadmap

- 10-Year Roadmap – Large Sized Facilities
- 5-Year Roadmap – Medium and Small Sized Facilities
 - Helps to determine where you want to go and how to get there with regards to energy reductions within the plant
 - Helps in developing a long-term energy plans and initiatives
 - Helps in setting tactics to attain energy reductions
 - Helps in attaining plant wide interest in energy
 - Defines key assumptions
 - Defines key constraints
 - Helps define what it takes to move the plant into a higher quartile with regards to energy consumption
 - Helps to insure that you do the right things in the right order
 - Helps keep energy a priority
- 1-Year Plan
- Now Plan



Incorporating New Design Concepts and Best Practice Retrofits

- Understand the Current Technology and Best Practice retrofits
 - No Regret Technology - Major Capital Projects
 - “Bottom Up” Energy reduction Investments - Plant Projects
- Sources of Information
 - Internal Benchmarking
 - Internal Experts
 - External Experts
 - DOE Experts
 - Equipment Builders
 - Suppliers
 - Competition
 - Other Manufacturing outside your Industry.

Address Training Requirements

- Assess the training needs for management and hourly employees
 - Steam
 - Process heating / Combustion
 - Fans
 - Pumps
 - Motors
 - Awareness
- Purdue University Technical Assistance Program (TAP)
 - U.S. Department of Energy “Best Practices” Workshops
 - College New Hires Program on Best Practices
- Energy awareness training for new hires
- Vendor Training – classroom and learn by assisting
- On the job training
- DOE experts – *Save Energy Now* program
- Certified Energy Manager (CEM)
- Local Utilities

Self-assessment Best Practice Matrix

- Presently 16 Best Practices have been developed
- Link to Best Practices on the Energy Home Page on the intranet
 - Best Practices can be attained by anyone with a logon ID
- Best Practice self-assessment is benchmarked against peers
- Best Practice Webinars
 - One hour in length
 - Review of Best Practice
 - Plant Presentation of the application of the Best Practice
 - Q & A



Best Practices

- Steam Trap Management
- Energy management at reduced operations or shutdowns
- Compressed Air Management
- Energy Asset Management
- Minimizing loads on delays and downtime
- Gas and Electric Balance Methodology
- VSD for pumps, blowers and fans
- Optimal allocation of steel gasses
- Electrical demand management
- Reactive power optimization and power factor correction
- Steam grid management
- Heating curves for reheat furnaces
- Cooling tower energy office
- Calculation of energy footprint using GCB
- Combustion tuning
- Group Standards for energy units and conversion

Monthly Metrics

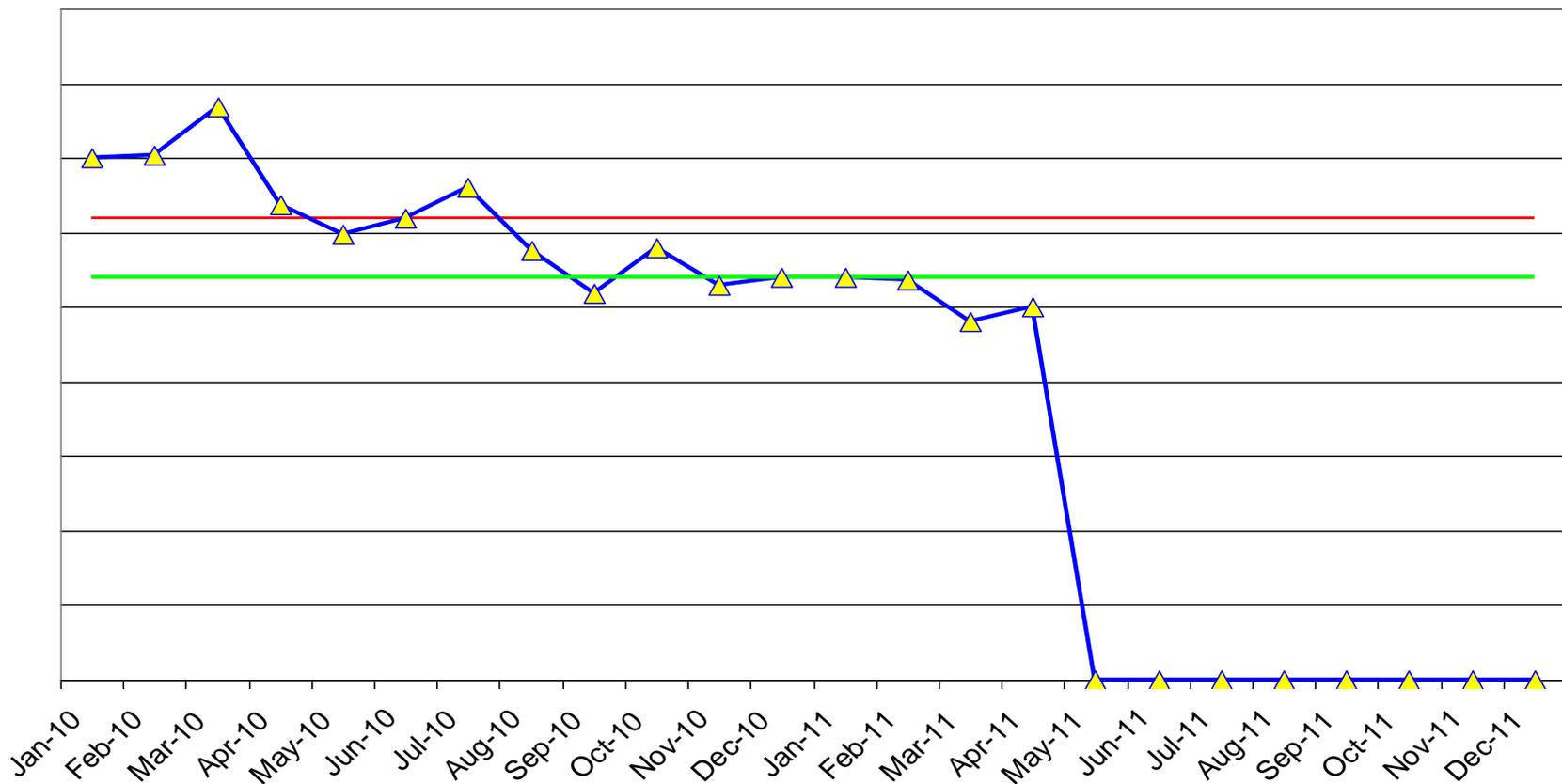
Use a Replication Scorecard Tool

Iron Producing Electrical Performance

metered

— '10 Avg — Goal ▲ Month — Best Year

MWh/t



Possible Enablers to Advance your Program

- Gain a “seat at the table”
- Success Builds Success
- Good Communications Program
- Establish an Energy Fund for projects
- Lower the “Hurdle Rates” for Energy Projects
- Consider Performance Contracts
- Energy Grants, Incentives and Rebates
 - DOE
 - State
 - Local Utilities

Indiana Harbor Plant DOE Grant



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- 504 Boiler Project
 - Grant awarded in November 2009
 - Project is 50% funded with ARRA funds through a DOE grant
 - Total project cost of \$63.2 Million
 - Matching funds - \$31.6 Million
 - Project - Use the presently flared blast furnace gas to produce electricity by installing a high efficiency blast furnace gas fired boiler
 - Planned completion July 2012

Burns Harbor Grant
Conserving Hoosiers Industrial Power (CHIP)



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energy.IN.gov

- CHIP Grant – Indiana Office of Energy Development (IOED)
 - Awarded Grant in August 2010 from IOED
 - Funded through the ARRA with 50% matching funds
 - Total project cost of \$752,000
 - Project – Install 21 VFDs on the Hot Dip Coating Line
 - Project completed in April 2011
 - 64% reduction in electricity
 - Electrical savings estimated at 14,000,000 kWh which is equivalent to the electricity needs of 1,600 homes for a year



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Questions?

Next Seminar in the Series

- **July 26, 2011**
- **2:00 p.m. Eastern**
- **Determine and Communicate the Value of Replication**
- **Guest Speaker from Nissan**
- **Please register**



Feedback

- **Welcome** comments regarding Seminar Series
- Seminars are **your** sessions
- Make seminars **meaningful** for you
- Feedback aids **continuous improvement**
- Send **comments to** Lindsay Bixby at:
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