Regional Seminar Series

Chicago, IL

Sustainability—It Is Just Good Business

Ted Gorrie – VP Sales, Americas

Empowering Business in Real-time

OSIsoft Overview

About OSIsoft

- Established in 1980
- Founder - J. Patrick Kennedy
- Private
- Headquarters - San Leandro, CA
- 720 + employees
- 200 + employees in product development
- PI System Installed base
  - 14,000 + systems (excluding OEMs)
  - 110 + countries
- Footprint in:
  - 40% of Fortune 1,000 process & manufacturing companies
  - 65% of Global 500 process & manufacturing companies

Mission

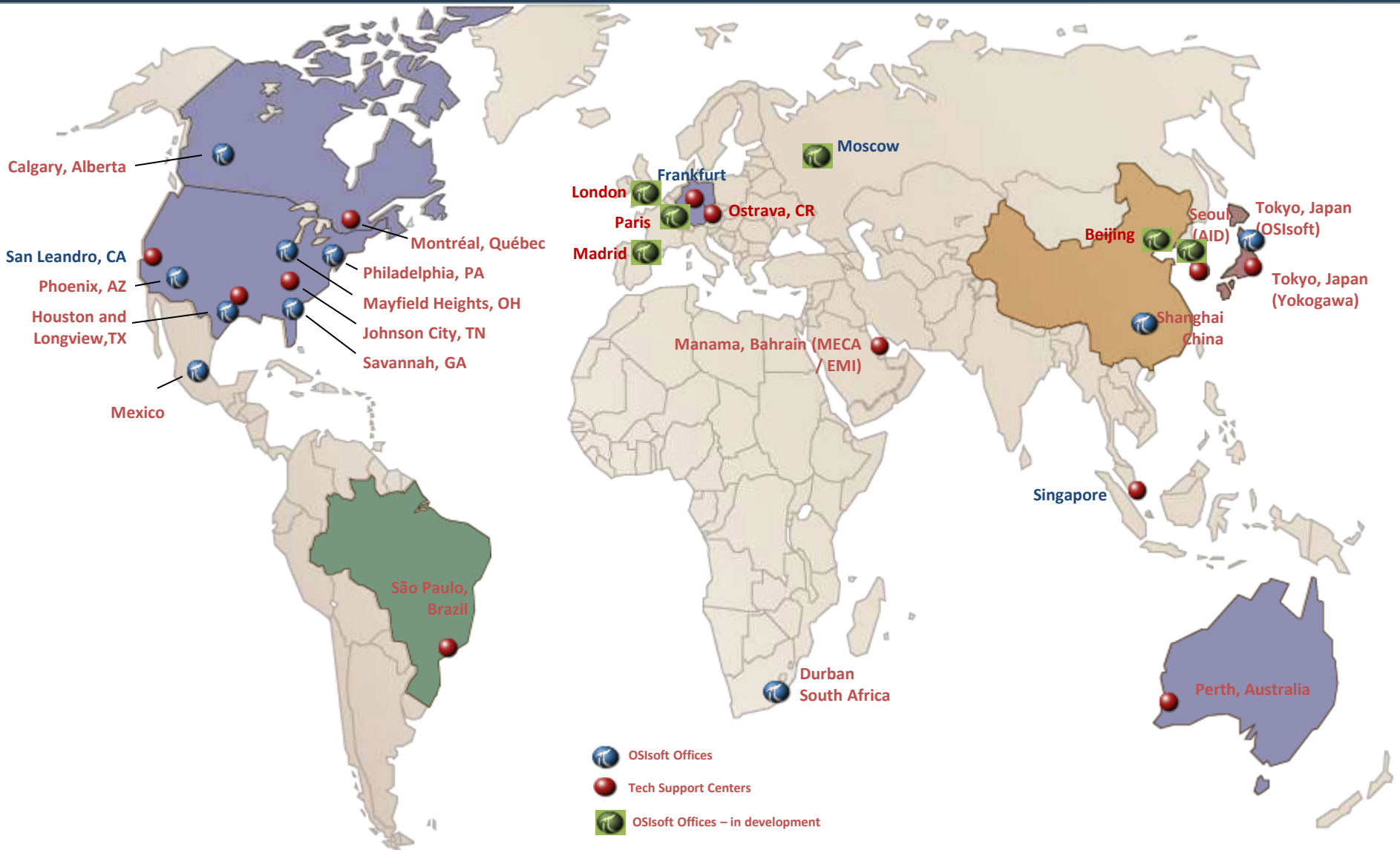
"We are rewarded when we deliver superior value. This means delivering and implementing an infrastructure through which our customers can continuously improve their business performance"

***Dr. J. Patrick Kennedy** CEO & Founder*

"OSIsoft has released continuous upgrades for over 20 years and we have never had to repurchase PI software. Even though we have a 20 year old system, we currently run our PI System at its most updated version. I know of no other software company that has this kind of commitment to its products and its customers."

WEYERHAEUSER CORPORATION

2010 – Global Presence



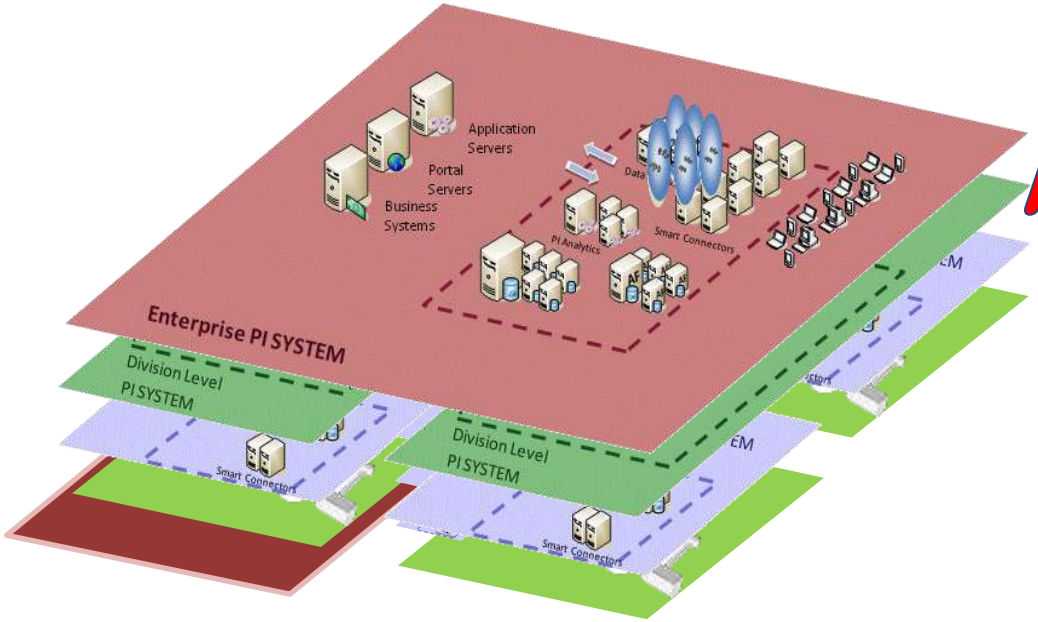
Empowering Business in Real-time

Diverse Customer Base Across Industries

Empowering Business in Real-time

What is PI?

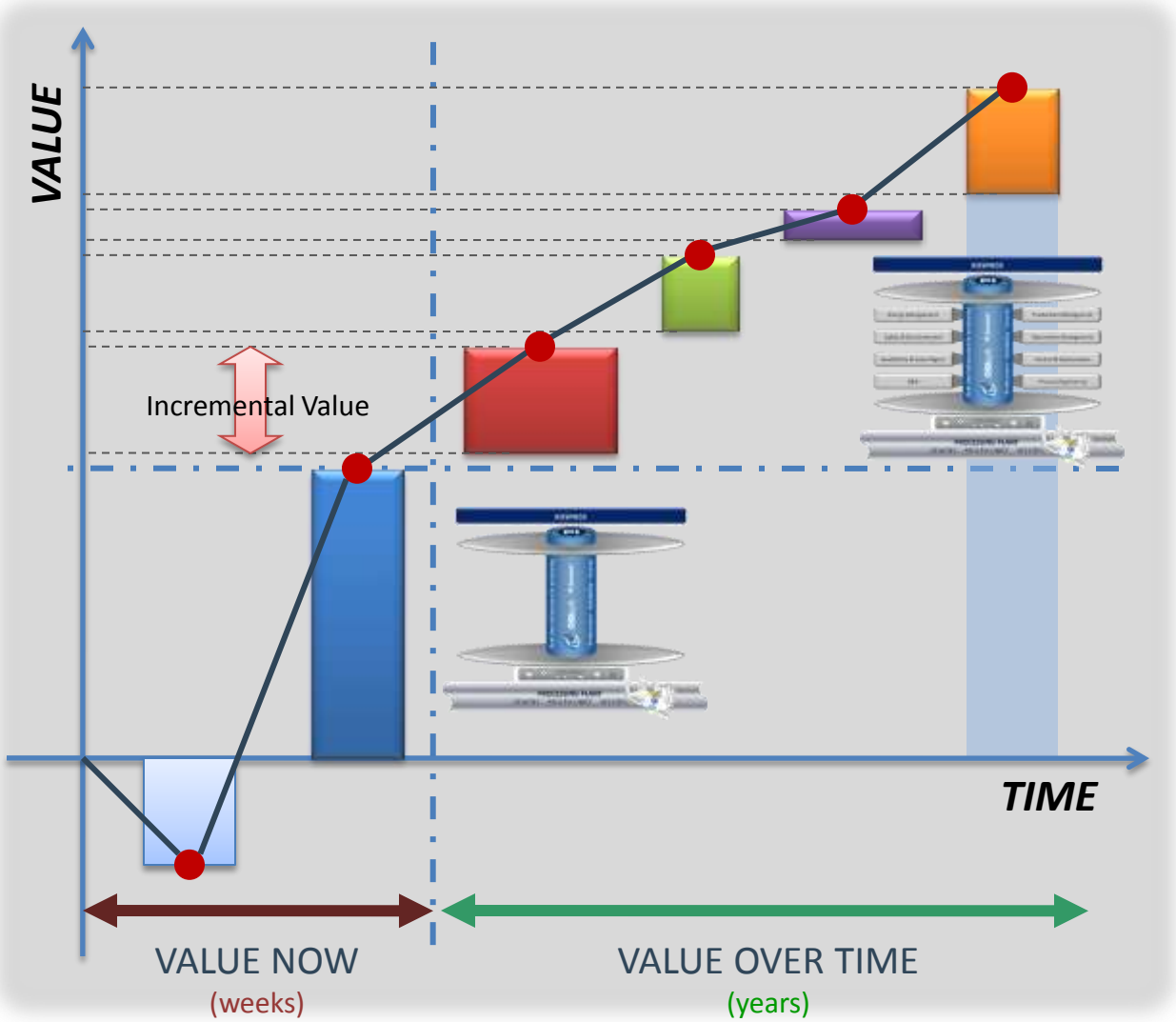
What is PI ?



Real Time Infrastructure for the Enterprise!

The OSIsoft PI System is the highly scalable and secure real-time and event infrastructure that connects people with the right operational and manufacturing information at the right time to analyze, collaborate, and act.

Infrastructure for Continuous Improvement
Value Now, Value Over Time



Example Application Benefits

- *Availability & Asset Mgmt*
- *Safety/Regulatory Compliance*
- *Operations Management*
- *Energy & Water Mgmt*

Infrastructure Value

People ⟷ Assets
Eliminate Detachment & Latency
Shared Immediate Experience
Curiosity ≈ Free

Initial Investment

OSIsoft—Thriving for 30+ Years

- Oil Systems Inc. → OSI Software → OSIsoft
  - Heritage in Automation and Optimization
- Core competencies
  - Strategic Focus – know what you do, know what you don't do - PI
  - Understanding proper technology to leverage
    - HP → DEC → Microsoft/Intel
  - Commitment to our customers
    - Customer Support!
    - Agile Product Development
    - No customer left behind
- Strong Partner Network
  - Independent Software Vendors, Service Providers, Technology Partners, OEMs
  - There is no value to infrastructure unless you use it
  - Our customers and partners create value with PI
- OSIsoft's energy and resource efficiency efforts
  - Majority of meetings using the Internet
  - Significant move to remote installs—on site is rare today
  - Less shipment of products—downloads are preferred by customers
  - Electronic books
  - This is all just good business
- OSIsoft is a key Enabler of Sustainability Initiatives

What is Sustainability?

"A sustainable United States will have a **growing economy** that provides equitable opportunities for satisfying livelihoods and a safe, healthy, high quality of life for current and future generations. Our nation will protect its environment, its natural resource base, and the functions and viability of natural systems on which all life depends."

Sustainable America: A New Consensus (Washington: President's Council on Sustainable Development, **1996**), p. iv.

(http://clinton2.nara.gov/PCSD/)

(http://clinton2.nara.gov/PCSD/Overview/index.html)

The United Nations' "World Commission on Environment and Development" definition of *sustainable development*: "...**meet the needs of the present** without compromising the ability of future generations to meet their own needs."

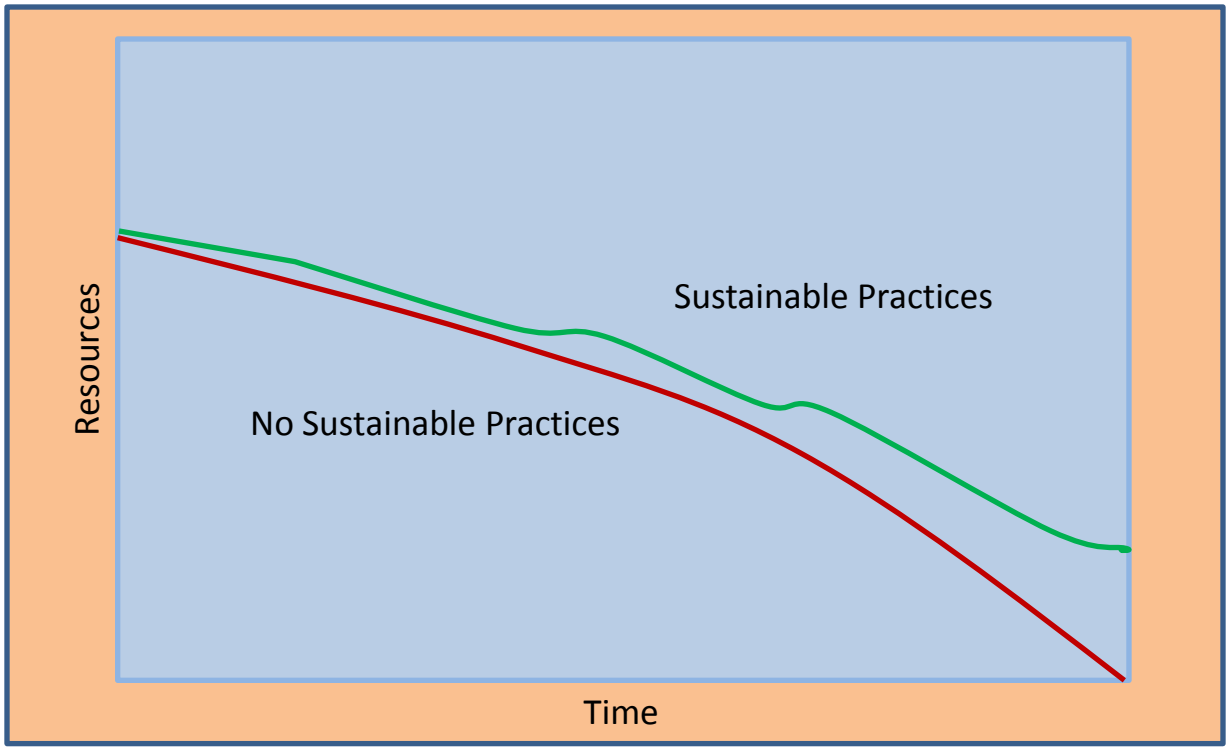
Our Common Future (aka Brundtland Report) (Oxford: Oxford University Press, **1987**), p. 43.

(23 years old, still heavily referenced in UN documents)

What is Sustainability?

- Meet current needs…
- While growing the Economy…
- Without compromising the future

- Sustainability cannot exist without a strong, efficient industrial base



Industry Roles in Sustainability

Utilities supply the electrical energy and water infrastructure society cannot function without

Oil and Gas supply the energy source for many uses

Very important in transportation

Strong light-weight polymers and fibers required for efficient transportation, renewable generation and many other structures

Extremely important for quality of life

Natural resources saved through disease prevention and cure

Fundamental to the modern infrastructure. Mechanical structures, electrical conductors, catalysts.

True renewable resource. Very important to packaging and communication.

Data and transactions for the information driven economy

Sustainability is Continuous Improvement

- Definition: “meet the current without sacrificing the future”
  - The future starts tomorrow and continues…
- Sustainability is not a project
- Must be in the DNA of any organization that wants to sustain
- Strong companies already have the required genes to sustain
  - Manage external disruptions
    - Natural
    - Economic
    - Political
    - Technology
  - Innovate
  - Continuously improve

Sustainability is Continuous Improvement

- Context is internal:
  - Energy efficiency
  - Resource efficiency
  - Capital efficiency, avoidance or delay
  - Employee well being
- Context is external:
  - Environmentally responsible
  - Socially responsible
  - Society well being
  - Trust

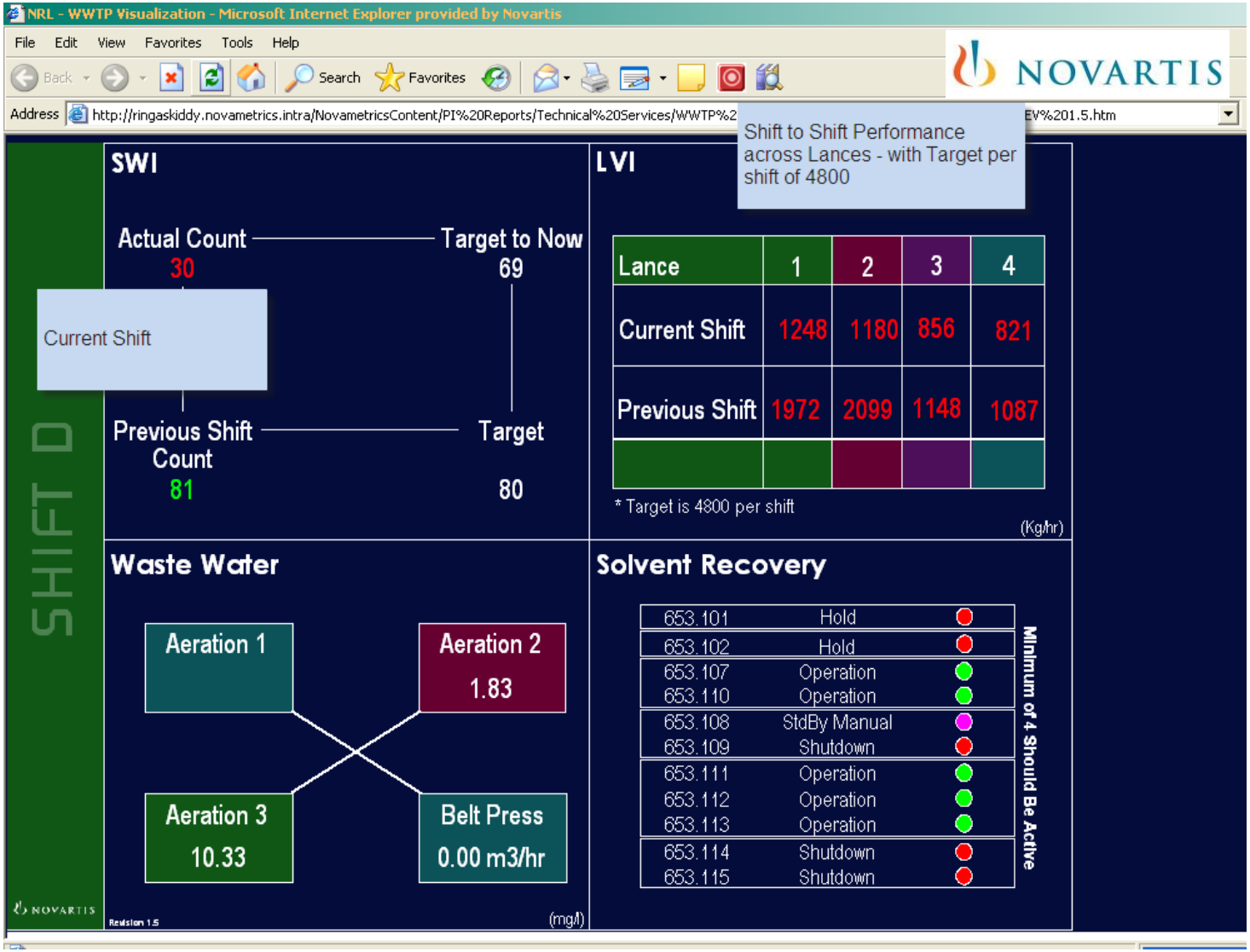
Continuous Improvement

- Four core phases:
  - Measure
  - Analyze
  - Improve
  - Control
- What to measure and control?
  - Disruptions force change
  - Infrastructure is only approach that can deal with change

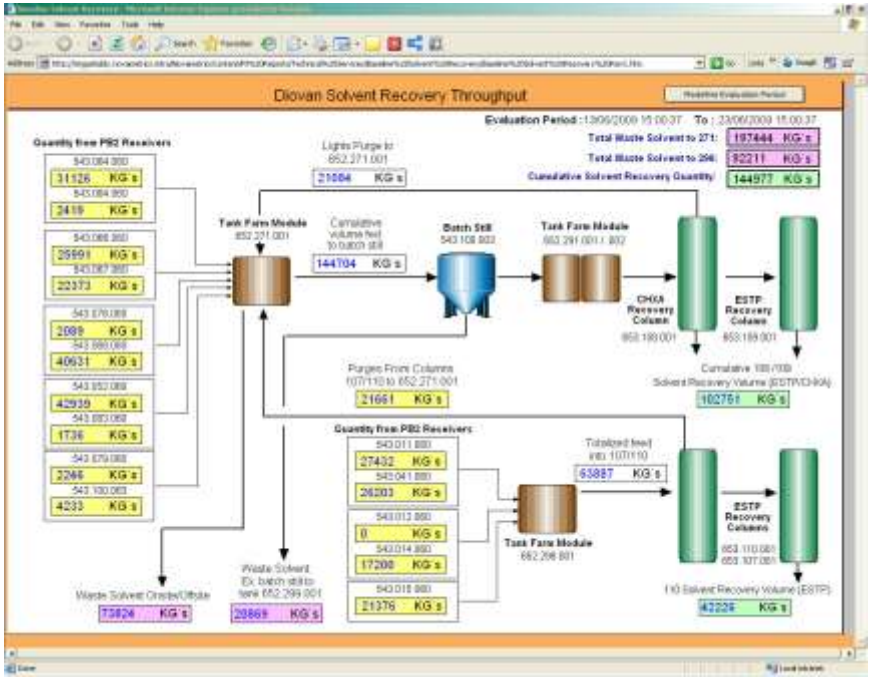
"By far, the greatest benefit to IP was Environmental Monitoring, and *this requirement wasn't even on the radar screen when we justified the Enterprise roll-out*. This came up very immediately after the deployment, and we were able to quickly respond to this operational challenge because we had a common infrastructure to integrate with. We had disguised many disparate systems under a common real-time layer, so our programs had enterprise applicability."

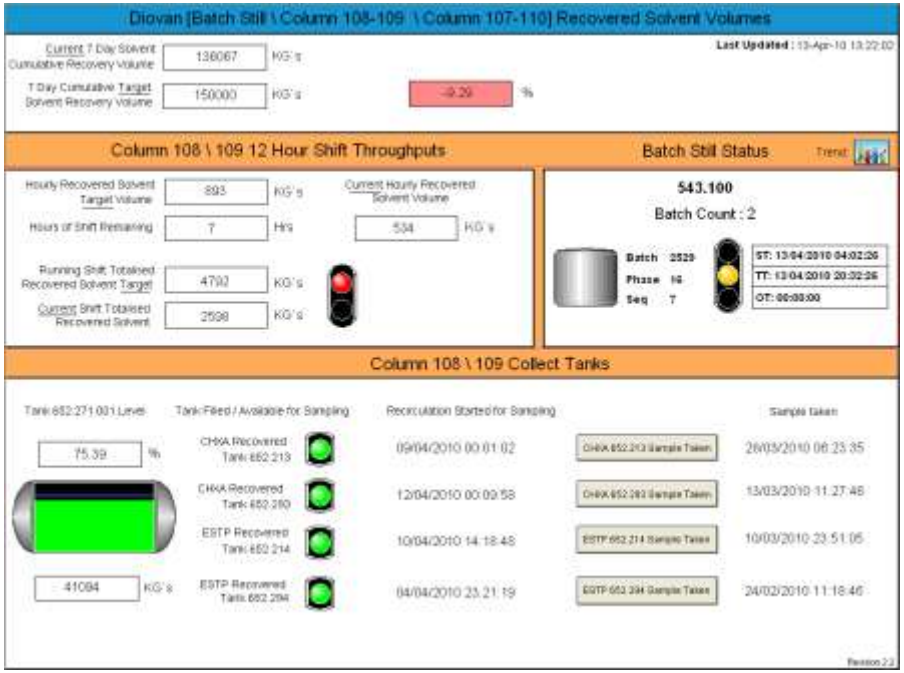
International Paper Company

Novartis Case Study - Shared Vision Feedback



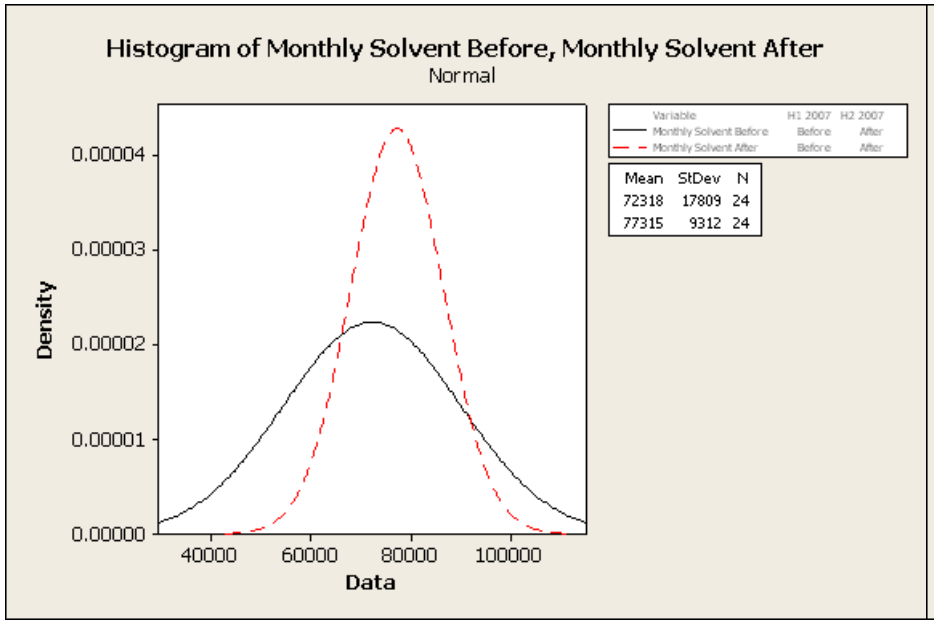
Novartis Case Study – Solvent Recovery

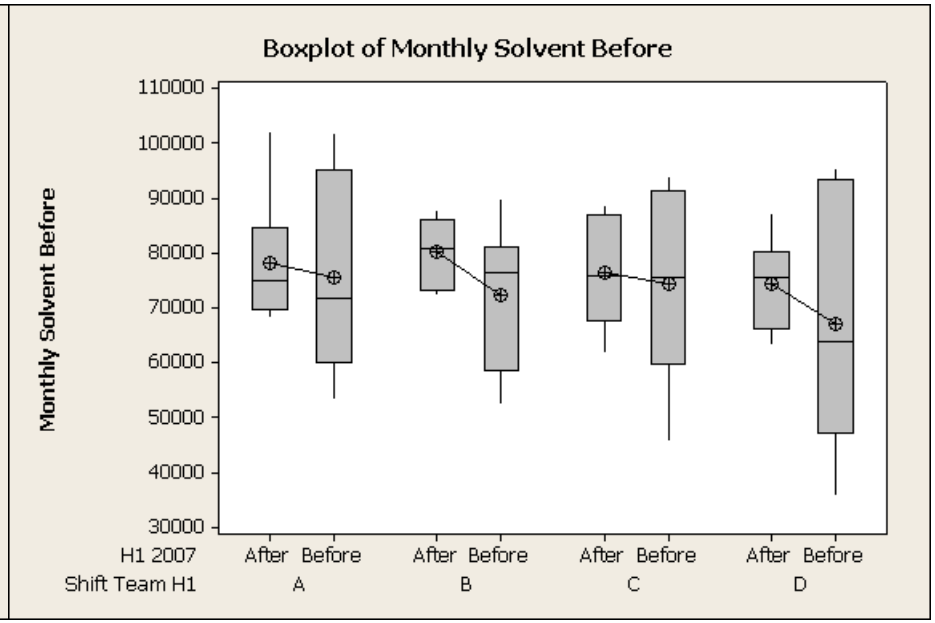




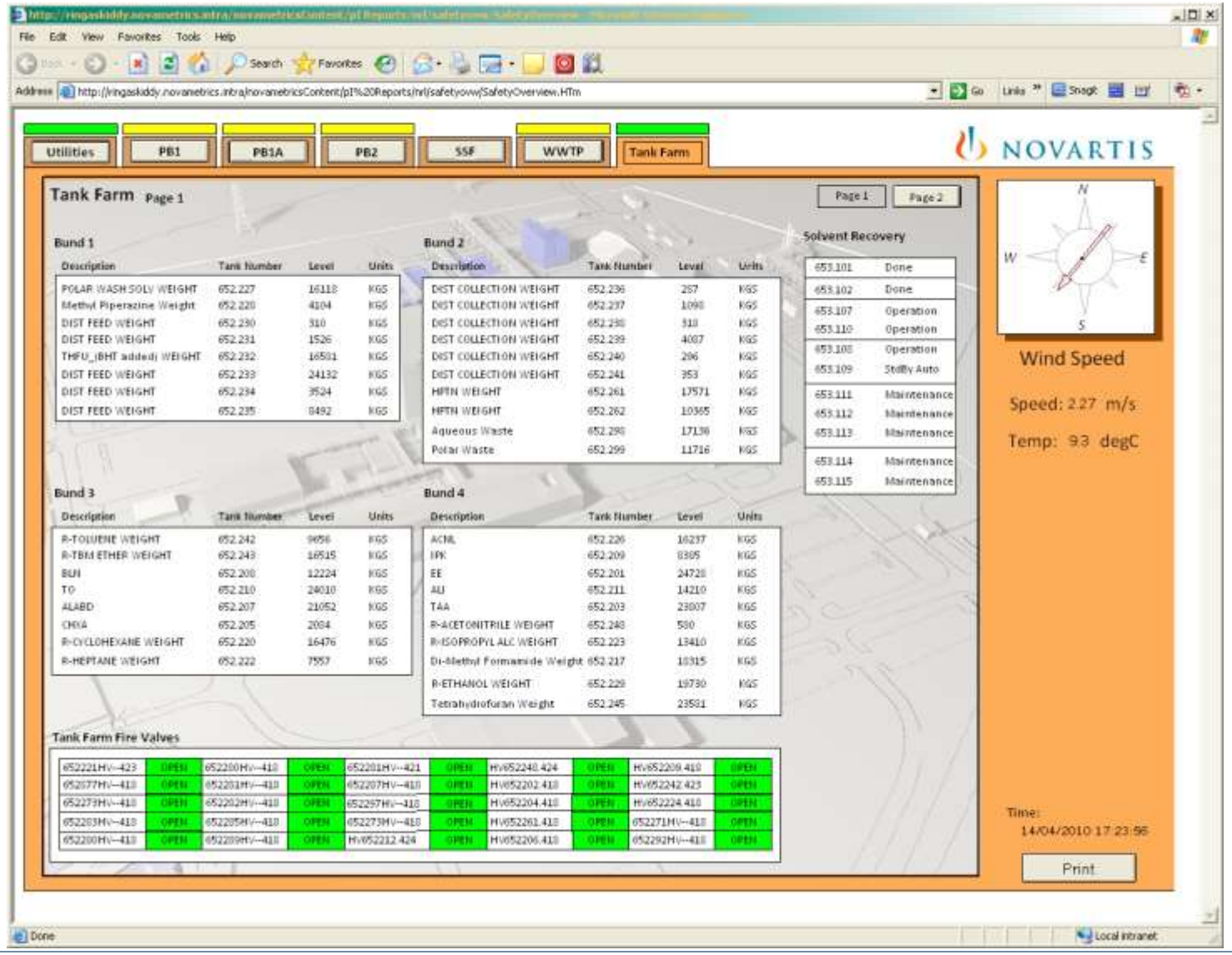
Novartis Case Study - Shared Vision Results

- Improvement by highlighting a target and sharing performance results
- Liquid and Vapour Incinerator performance varied widely across shifts
- 17% capacity lost in performance across the shifts
  - All Equipment and Procedures the same for the shifts
- Before and After Histogram shows the slight change in the mean and the reduction in the variation





Novartis Case Study – Site Safety Visualization

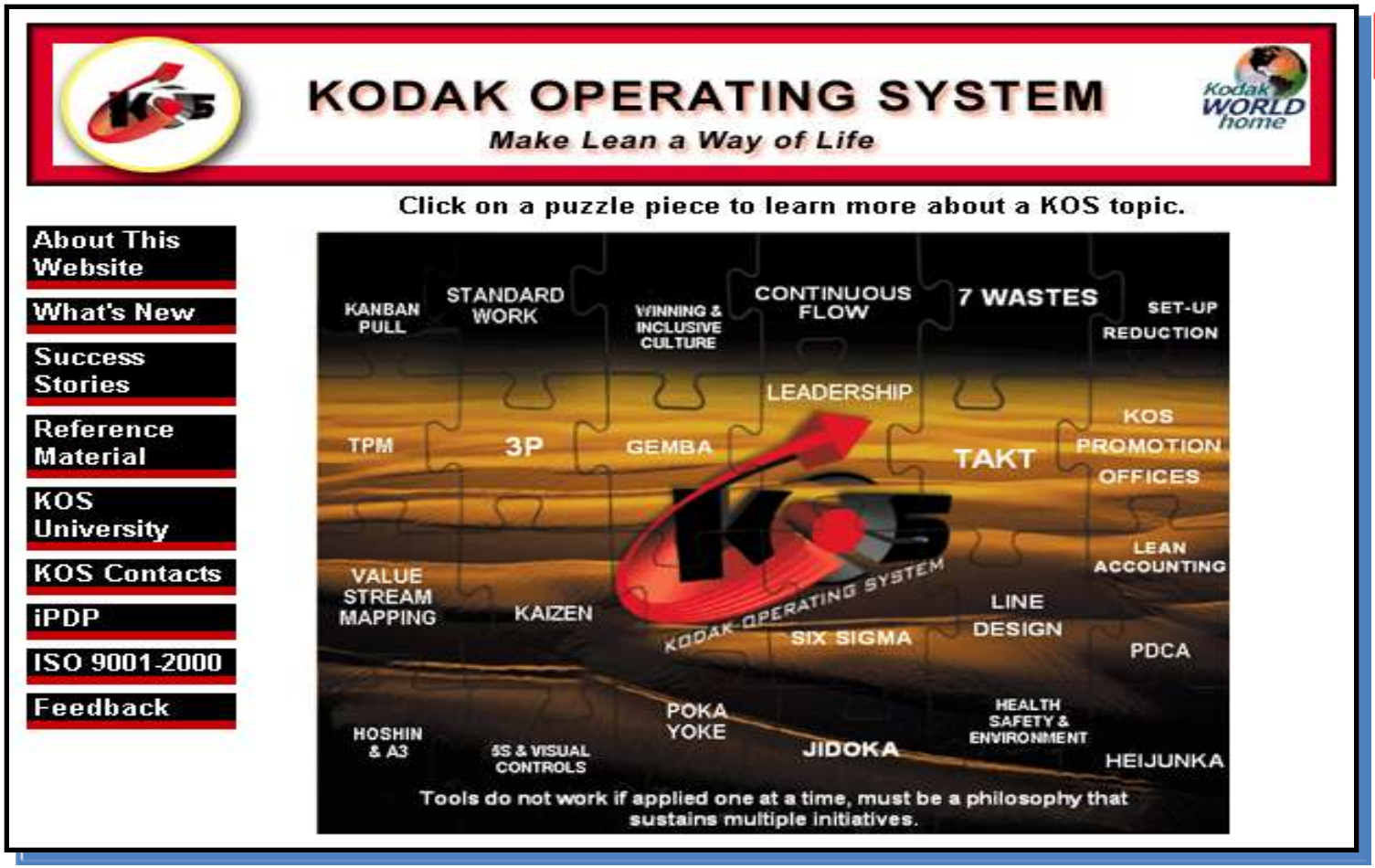


Kodak Case Study - Energy

- Fuel and purchased power are significant cost at Kodak Park (Rochester, NY, USA)
  - Engaged everyone in conservation efforts
  - PI system: 100K tags, 150 Webpart users, 250+ SAP iView pages, 30 interfaces
  - Now correlate production volume to energy
- "There was no 'Big Bang." Rather, there were 1,000 little bangs
  - Established a culture of continuous process improvement
  - Everyone can see the data via browser

http://videostar.osisoft.com/uc2010/Sustainable_Seminar/video/SSS_UC2010_Opening_Kodak_Breeze.wmv

Kodak Case Study – Kodak Operating System



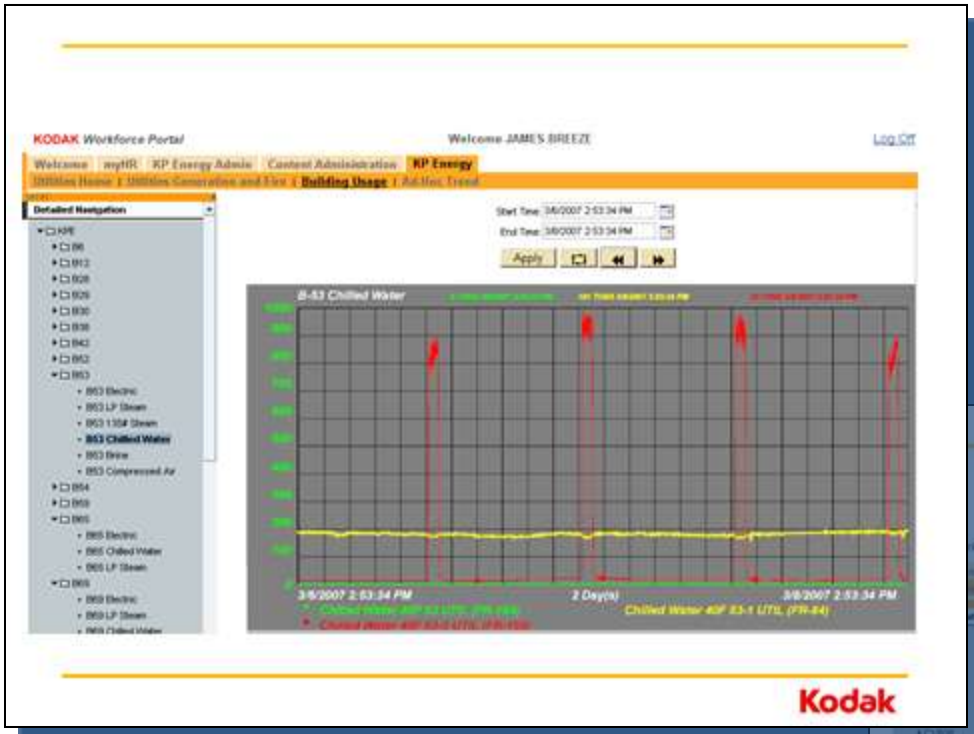
Kodak

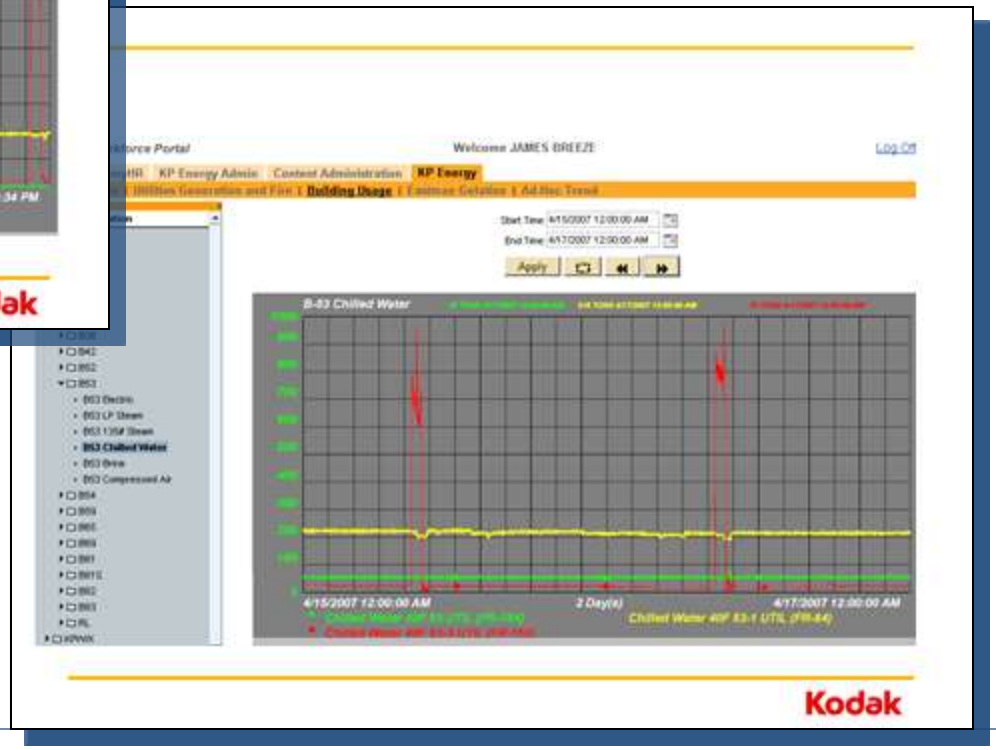
Energy Kaizen: 3-5 days, 6-8 people, action rather than analysis

Energy Gemba: shorter focused Kaizen; observe abnormality take immediate action

Kodak Case Study - Energy

Kodak





Carbon recovery regeneration

- Load on steam and chilled water system
- Awareness allowed optimization and move to off peak times

Kodak Case Study - Energy

- Reduced utility costs with improved
  "
- S
  t

Kodak

Summary of Results

Generation side findings

- Plant loading optimization
- Boiler fan optimization
- Exhaust head improvements
- Better management of self generation vs. purchased power

The Energy Information System (EIS) has been an essential tool to help us reach our Goal of:

"One Powerhouse for Eastman Business Park"

(10:41:53 March 28, 2007)

- Collectively the "annual" savings rate in 2007 was $27 Million
- Today the "annual" savings has grown to more than $30 Million
- The cumulative savings is now in excess of $100 Million

(>50% Savings From Ongoing Operations)

Kodak

ized water

Kodak Case Study - Water

- Kaizen and Gemba applied to water conservation
-
-
-

Water Reduction Results

- 2009 Kodak Water Reduction was 16.5%
- 1,087,000,000 Gallons (or 1,087,000 K Gallons) saved in 2009
- 1st Quarter of 2010 – an additional savings of 450 Million gallons from the 2008 Baseline
- Roughly 1.5 Billion Gallons saved in the last 15 Months
- This is enough water to fill approximately 250 average backyard swimming pools each and every day !!!
- $0.00 In Capital Spent
- These Water Savings are calculated for only the last 15 months and are totally independent of the site's energy reductions

Kodak

IBM Case Study

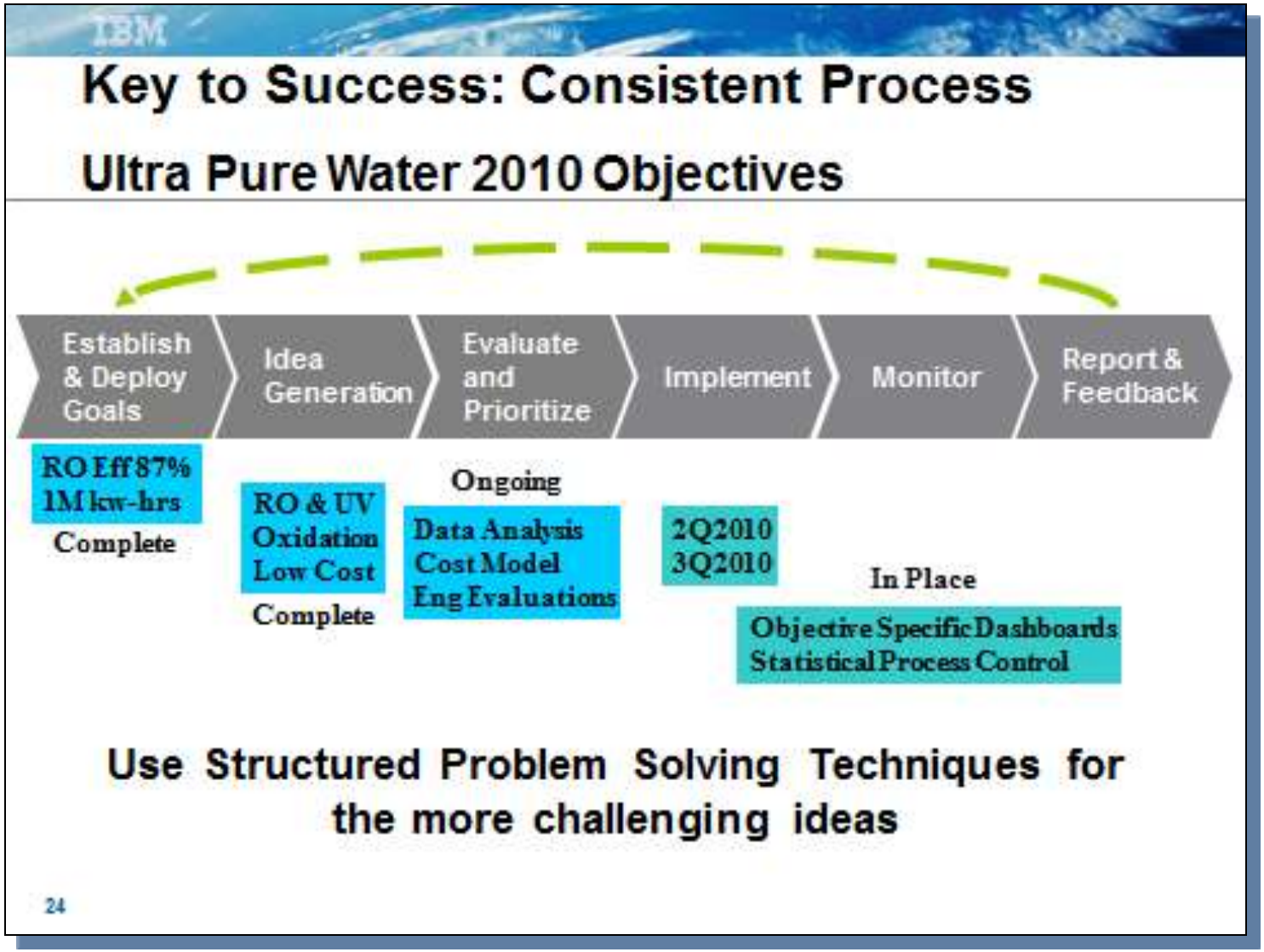
- IBM Burlington (Vermont, USA) is a large semiconductor manufacturing site
  - consumes 3.2 million gallons per day of water and 446 million kilowatt hrs of electricity annually
  - 3.5 million square feet of manufacturing space
  - Largest employer in Vermont → 7,000 employees + 4,000 contractors
- Challenge
  - Reduce water consumption to reduce cost
  - Less water means less energy, chemicals, maintenance and labor
  - Will also minimize environmental impacts
  - Leverage data acquisition, storage and visualization tools to monitor water usage and improve efficiency

IBM Case Study

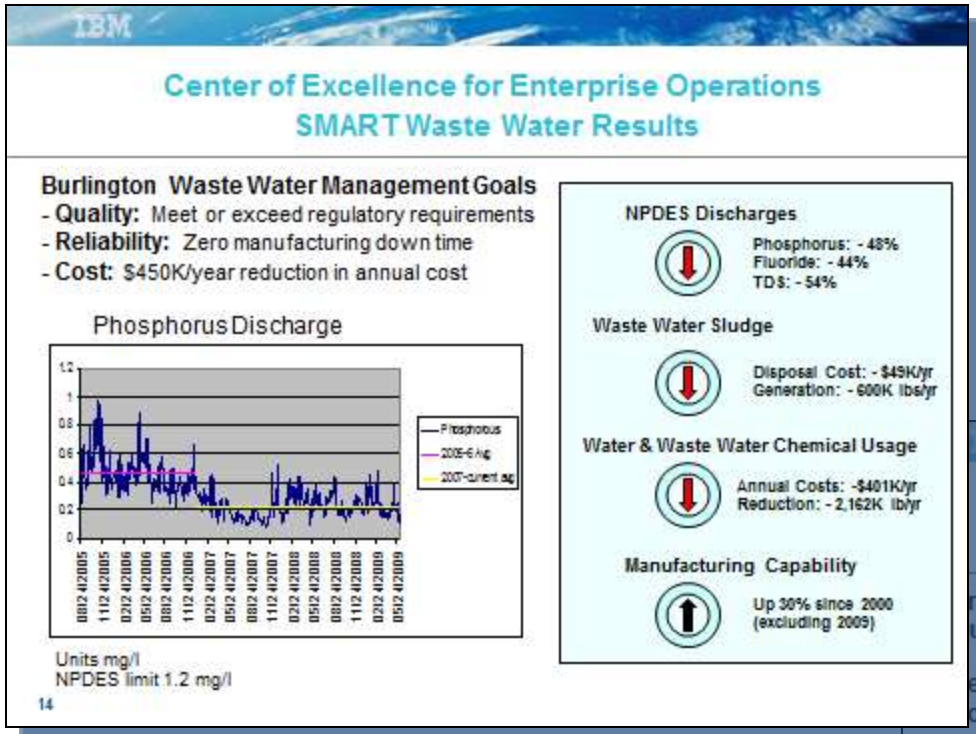
- Approach
  - Used PI to collect/store data from sensors, IT network and servers
  - Statistical process control techniques used to continually analyze operational data
  - Identifies process improvements that reduce water consumption, electrical consumption, and cooling load
- Results
  - IBM achieved over $3.6M in annual savings
  - Reduced water usage 27% while increasing manufacturing capability 30% in last 10 years

- Case study available on OSIsoft website: http://osisoft.fullviewmedia.com/uc2010/12-IBM.html

IBM Case Study

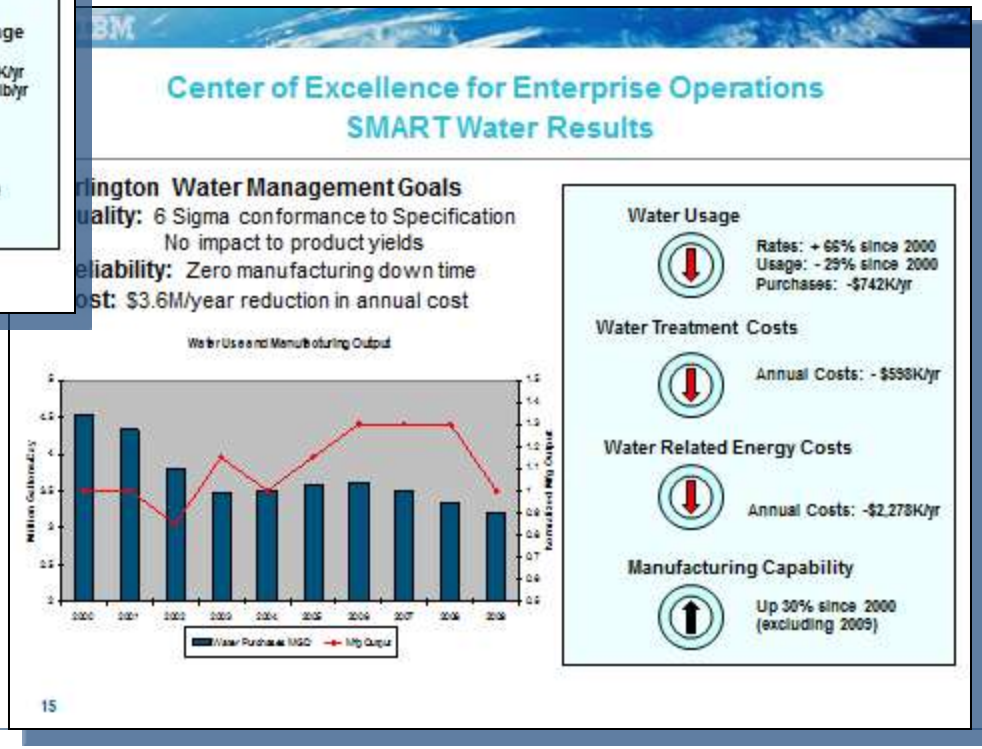


IBM Case Study



Smart Water Project

Phosphorous discharge well below compliance

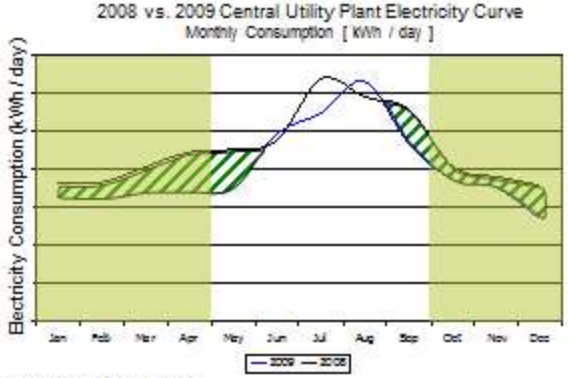


Empowering Business in Real-time

IBM Case Study

B963 / B971 Central Utility Plant Reporting Results

- Reporting Results:
  - Energy Savings: 4,800,000 kWh
  - Money Savings: $390,000
  - Annual Energy Savings equal to 650 homes electricity consumption [Vermont]



- Results Exceeded Expectations
  - Central Utility Plant personnel clearly recognized and understood goals
  - Energy Savings exceeded Goal by $40,000
  - Winter Free-Cooling Utilization exceeded expectations by 60 days

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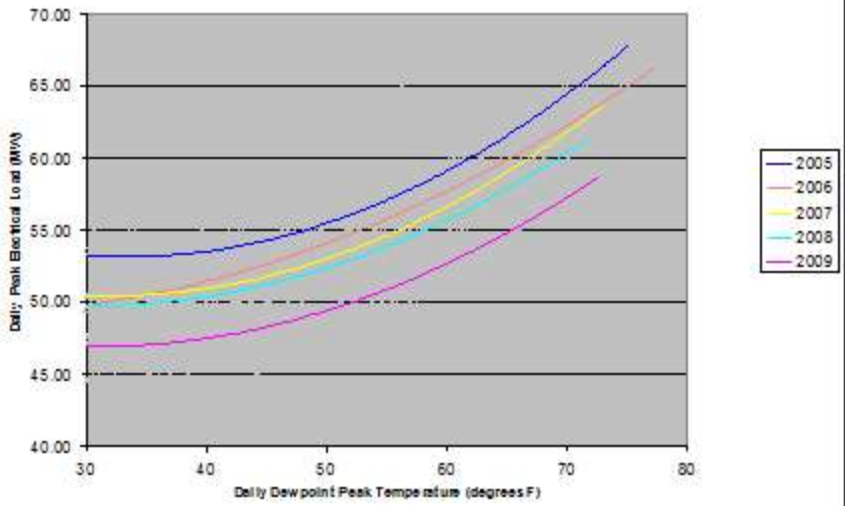
Free Cooling Project

Leverage cold ambient temperatures of Vermont

Average Peak Electrical Loads at IBM VT 2005-09



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Alcoa

- Faced recent hardships
  - Price collapse
  - Demand destruction
  - Credit crunch
- Extremely important part of sustainability value chain
  - Supplier of light-weight, strong materials

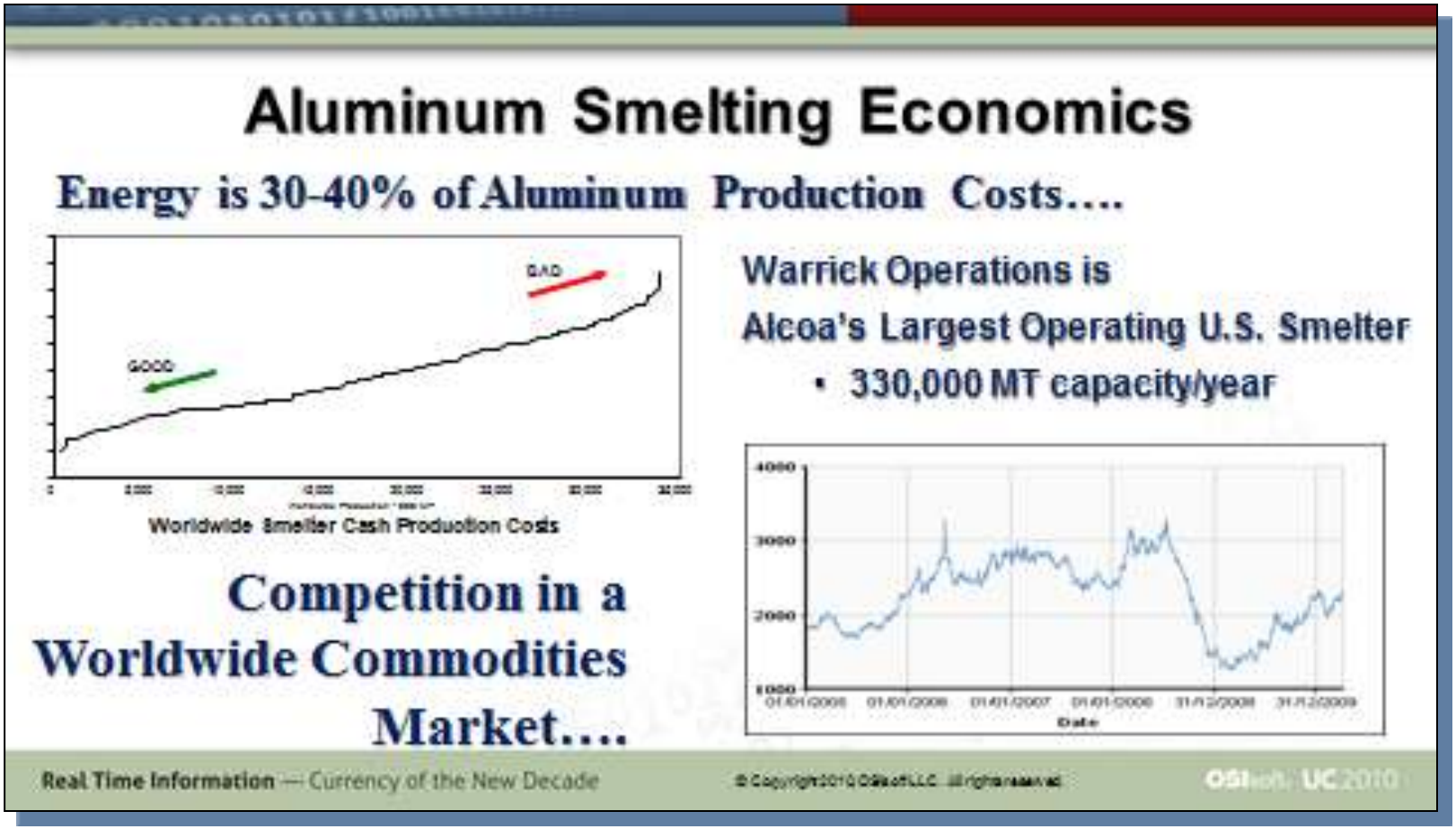
> "Throughout 2009, our industry and company experienced the most challenging economic environment that many of us can recall. Faced with a triple threat—aluminum prices crashing, broad demand destruction within our customer base, and a credit crunch that crippled our ability to initiate growth—we quickly executed our Cash Sustainability Program to strengthen our balance sheet, restore liquidity, and make Alcoa free-cash-flow neutral by the end of 2009."
>
> "I see an amazing future for Alcoa. Strong, lightweight, energy-saving and infinitely recyclable, our miracle metal will continue to contribute to the sustainable life and health of our planet and its people."
>
> Klaus Kleinfeld, Chairman & CEO

Alcoa

- Aggressive, transparent Sustainability Program
- Some key concepts
  - Life cycle assessment
  - Product design
  - Economic value of products
- Industrial Demand Response
  - Provide reliability to the grid
  - Reduce energy costs

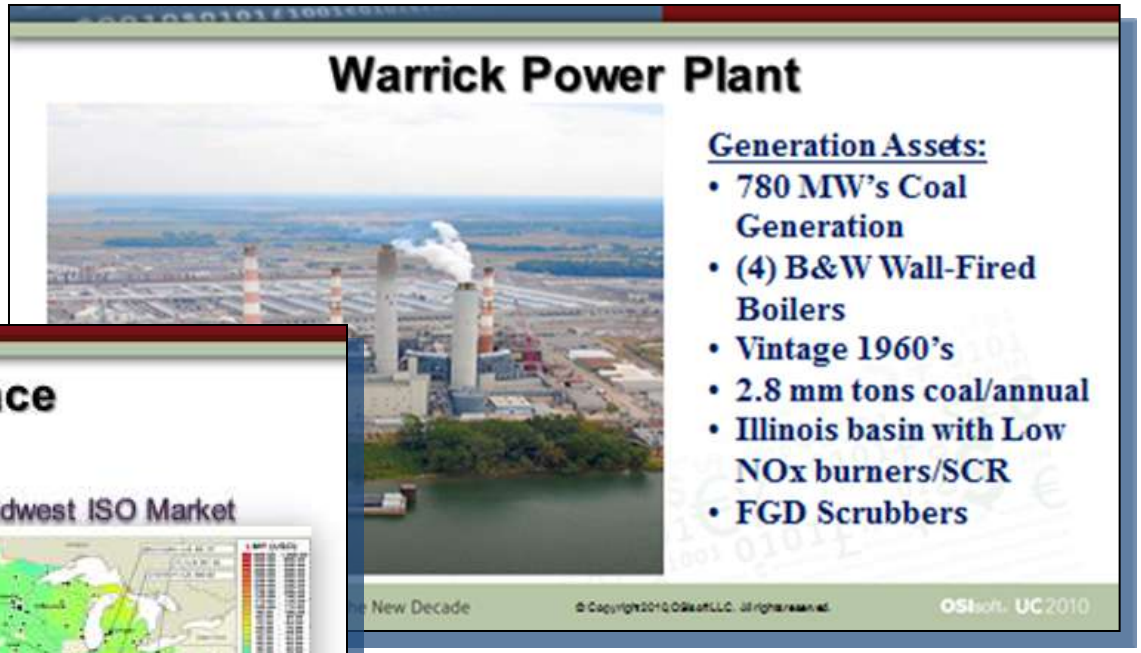
Alcoa

- Commodity business
- Competitive advantage comes from production efficiency



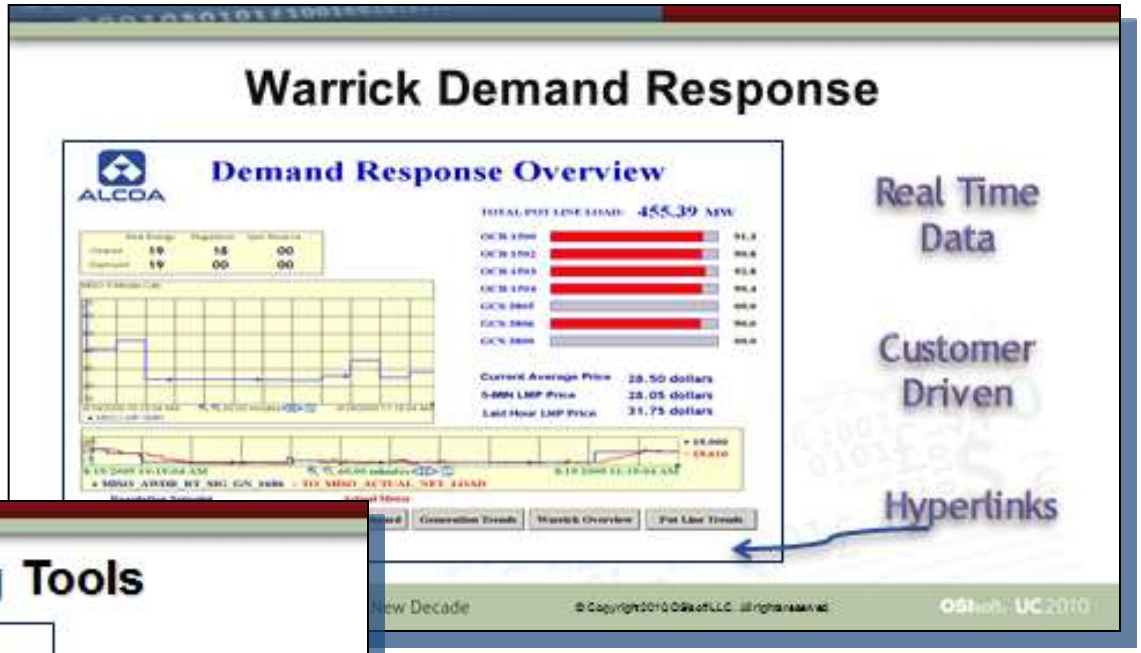
Alcoa

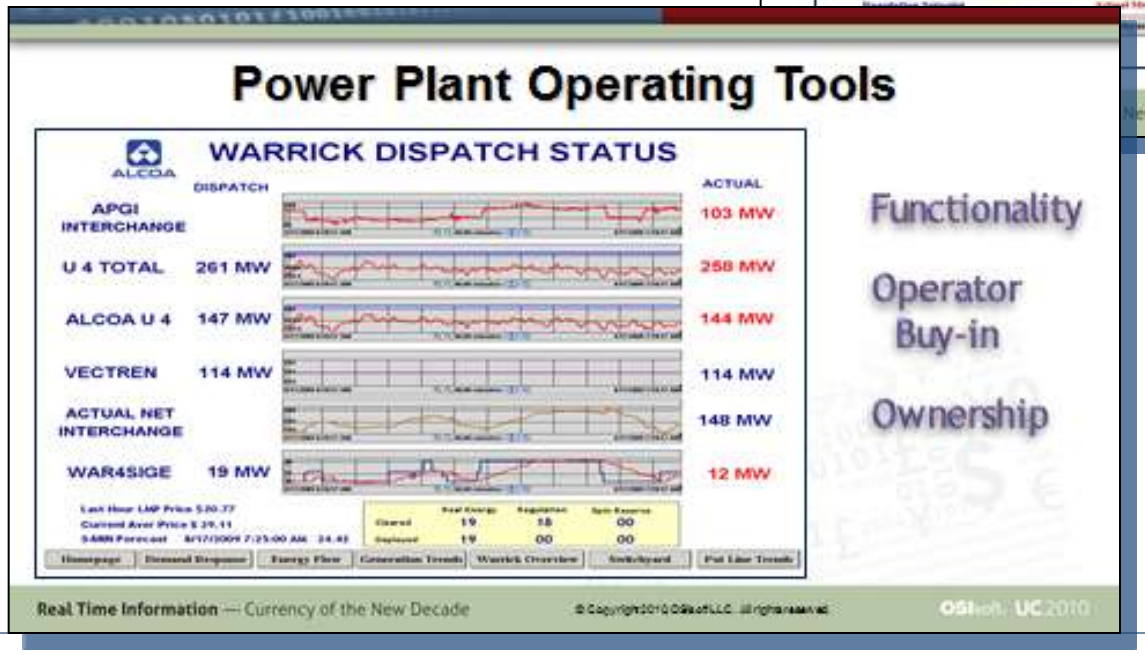
- 780 MW Generation
- FERC License—participate in markets as a generator



Alcoa

- MISO (Grid operator)
  - Reliability
  - Generation capacity
  - Congestion mitigation
- Alcoa
  - Sell power
  - Purchase





A.T. Kearney Study

- They studied the performance of sustainability-focused companies during financial crisis of 2008/2009
  - Some continued to focus on long-term health vs. just short term survival
  - Difficult to have this discipline
- Results
  - Stock market performance was 15% higher for these companies vs. their peers

"Create value for shareholders and society"

Sustainability

- Sustainability is about your company's long term survival
  - Not just carbon, Green House Gas (GHG) or other "green" initiatives
- Corporate initiative
  - engage in a culture of continuous improvement
  - improve compliance, public perception, and profitability
- Increase profits
  - Manage economic, social and environmental risks and opportunities
- Gain and Sustain the Trust of the general public
- Sustainability needs your company to sustain, to thrive
- This is just good business

Thank you

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