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 *truly our nature*

## Sustainable Manufacturing at McCormick & Company

Baltimore Regional Sustainability Symposium  
March 29, 2010

Jeff Blankman  
Sustainable Manufacturing Manager

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 *truly our nature*

## Agenda

- Definition
- Why Now? Evolution of Sustainability
- Triple Bottom Line
- Key Issues
- Customer/Peer Efforts
- Benefits
- Projects/Initiatives
  - Energy Efficiency
  - Renewable Energy
  - Waste Reduction
- Case Studies/Results

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## Definition of Sustainability

*“Meeting the needs of the present generation without compromising the ability of future generations to meet their own needs”*

- 1987 Brundtland Report

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## Why Now?

- Increasing awareness to environmental issues
- Energy cost spikes increases savings opportunities
- Customers are evaluating suppliers for their impact on the environment
  - Wal-Mart and Pepsico
- Consumers are taking a greater interest in how the companies they support impact society
  - Peers such as P & G and Kraft

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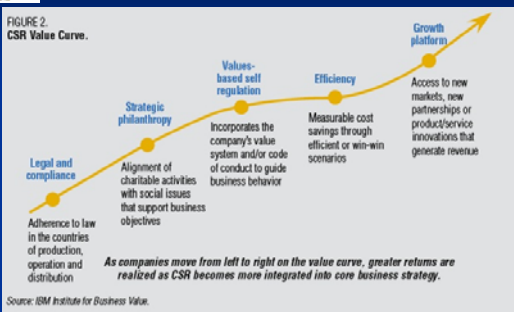
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## CSR Value Curve

FIGURE 2. CSR Value Curve.



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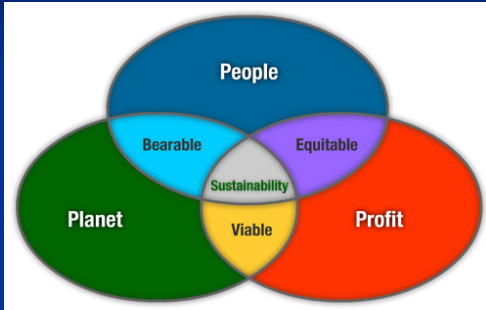
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## The Triple Bottom Line People, Planet, Profits



The phrase was coined by Steve Elkington in 1994

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## Key Issues - Energy

- Many concerns with fossil fuels
  - Limited resource no longer being produced
    - Price spikes likely to continue
    - In 100 years or so, we have burned roughly 50% of the oil that took millions of years to form
    - U.S. comprises approximately 5% of the world population but consumes 25% of its energy. Europe uses about 1/2 the energy per person as the U.S.
  - Trade imbalances/foreign debt
  - Dependence on oil from countries with strained relations (Nigeria, Russia)

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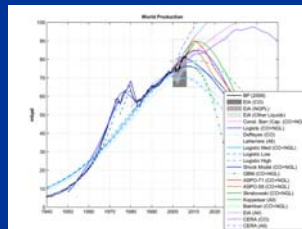
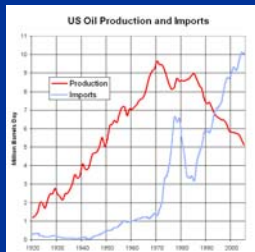
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## Key Issues - Energy

### Peak Oil Theory



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## Key Issues - Energy

- Pollution throughout fossil fuel supply chain
  - Mining – mountaintop removal of coal, safety issues
  - Consumption – toxic metals such as mercury, acid rain, climate change
  - Disposal – toxic metals in coal ash




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## Key Issues - Waste

*“Waste is a resource in the wrong place”*

- Reduce, re-use, recycle (3 R’s), downcycle, discard
- Cradle-to-cradle approach challenges the concept of waste – by-products of one process feed another
- Take the 3 R’s even further
  - Reduce, re-use, recycle, **redesign, reimagine**
- Reducing waste not only conserves resources but reduces energy usage
- Many companies are targeting “zero landfill waste”

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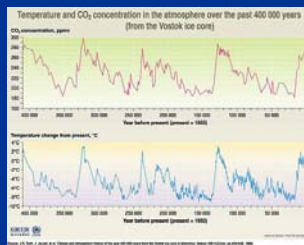
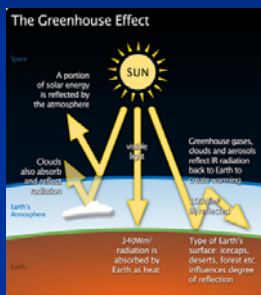
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## Key Issues – Climate Change




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## Key Issues – Climate Change

- Consensus among *scientists* is strong, among politicians and media, less so
- Reduction targets
  - 25% reduction by 2020 vs. 2005 baseline
  - 80% by 2050 vs. 2005 baseline
- Two primary methods of controlling emissions
  - Carbon Tax
  - Cap & Trade
  - New idea, Cap & Dividend, recently proposed

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## McCormick Customer Efforts

- Wal-Mart
  - Packaging Scorecard for their 60,000 suppliers
  - Goal to reduce packaging by 5% by 2013 and eliminate PVC in Private Label brand
  - Set efficiency goals for buildings/transportation and sustainable products (sell 100 million CFLs)
- Pepsico
  - Has committed to reduce (by 2015):
    - Water consumption by 20%
    - Electricity usage by 20%
    - Fuel consumption by 25%
  - Recently introduced a Supplier Sustainability Outreach Program, where key suppliers will report progress on sustainability goals to Pepsi quarterly

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## McCormick Peer Efforts

- Kraft Foods has reduced per unit, since 2001:
  - Water consumption by 34%
  - Energy usage by 25%
  - CO<sub>2</sub> emissions by 30%
  - Solid waste by 16%
- P & G has reduced per unit, since 2002:
  - Water consumption by 51%
  - Energy usage by 46%
  - CO<sub>2</sub> emissions by 52%
  - Waste disposal by 50%

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## Sustainability Benefits

- Cost savings opportunity of \$1 million+ /year
- Perspective through a “sustainability lens” identifies new opportunities
- Distinguishes ourselves from the competition
- Proactive action keeps us ahead of regulations and reduces liability
- Aids in recruiting of prospective employees

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## Energy Efficiency Initiatives

- Check with local utilities for rebate programs
- Shift/weekend shutdown procedures
- Retrofit/Replacement Opportunities
  - Lighting – more efficient fixtures and sensors
    - Warehouse/Production High Bay Areas – 50% reduction
    - Offices/Store Rooms – 30%-60% reduction
    - Emergency Exit Signs – 95% reduction
  - Waste Heat Recovery
  - Variable Speed Drives - energy is proportional to speed<sup>3</sup>
    - 90% speed -> 73% of the energy
    - 80% speed -> 51% of the energy
  - Synchronous belts vs. V-belts (5% reduction, inexpensive)

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## Energy Efficiency Initiatives

- “Sleep” or idle modes for dust collectors, conveyors, and equipment
- Optimize temperature settings
- Compressed air reduction/optimization
  - Very inefficient (15% of energy performs work, 85% waste heat)
  - 1/8” air leak wastes over \$4,000/year in electricity
  - Leak detection and repair program
  - Alternatives to air, such as electric blowers
  - Optimize air settings
  - Automatic shut-offs
- HVAC optimization
  - Economizers (use outside air when cool outside)
  - Recovery wheels to re-claim energy from exhaust air
  - VFD to optimize air changes (don't over-circulate air)

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## Energy Efficiency Initiatives

- Spec/Store Room changes
  - NEMA Premium efficiency motors
    - Typical energy savings of 8% over standard efficiency
    - 40 hp motor that costs \$2,000 will consume \$2,500/month in electricity (24 hr operation)
    - Large motors that operate continuously may justify replacement before failure
    - Re-building old motors affects efficiency, cost savings is more than offset by increased electricity consumption
  - 28 watt T8 4' fluorescent lamps vs. 32 watt
    - 12% reduction in energy, 1-2% reduction in light
    - \$.50 cost premium => \$10 electricity savings over 20,000 hr life

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## Energy Efficiency Initiatives

- Best Practices – facility upgrades
  - High efficiency heat pumps – 15 SEER rating or higher
    - 15% reduction vs. standard 13 SEER
    - 33% reduction vs. older 10 SEER
  - Chilled water HVAC systems
  - “Trim” air compressor – modulates air according to demand
  - Reflective roofs, proper insulation
  - LEED certification on major facility renovations/expansions

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## Renewable Energy Initiative

4 acre solar energy system in Hunt Valley

Over 6,000 panels

Produces almost \$200k/yr in electricity




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## Waste Reduction Initiatives

- All waste streams should be investigated
- Commonly recycled items
  - Scrap metal
  - Corrugated cardboard – can they be re-used?
  - Office paper
  - Glass
- Other areas of opportunity
  - Plastics
    - Stretch Wrap
    - Bags/Liners
  - Organic waste (to composting facility), can include paper bags

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## Final Thoughts

- Sustainability metrics *can* be managed
- Like any other program, the more *everyone* is involved, the better the results

*“The significant problems we have cannot be solved at the same level of thinking with which we created them”*

- Albert Einstein

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## Further Info

- *Triple Bottom Line: How Today's Best-Run Companies Are Achieving Economic, Social and Environmental Success -- and How You Can Too*, by Andrew Savitz
- *Green to Gold: How Smart Companies Use Environmental Strategy to Innovate, Create Value, and Build Competitive Advantage*, by Daniel Esty and Andrew Winston
- *Confessions of a Radical Industrialist: Profits, People, Purpose – Doing Business by Respecting the Earth*, by Ray Anderson and Robin White
- *Cradle to Cradle: Remaking the Way We Make Things*, by William McDonough and Michael Braungart

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