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Sustainable Manufacturing at McCormick & Company

Baltimore Regional Sustainability Symposium

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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 Bruntland 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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CSR Value Curve

FIGURE 2.
CSR Value Curve.



Source: IBM Institute for Business Value.



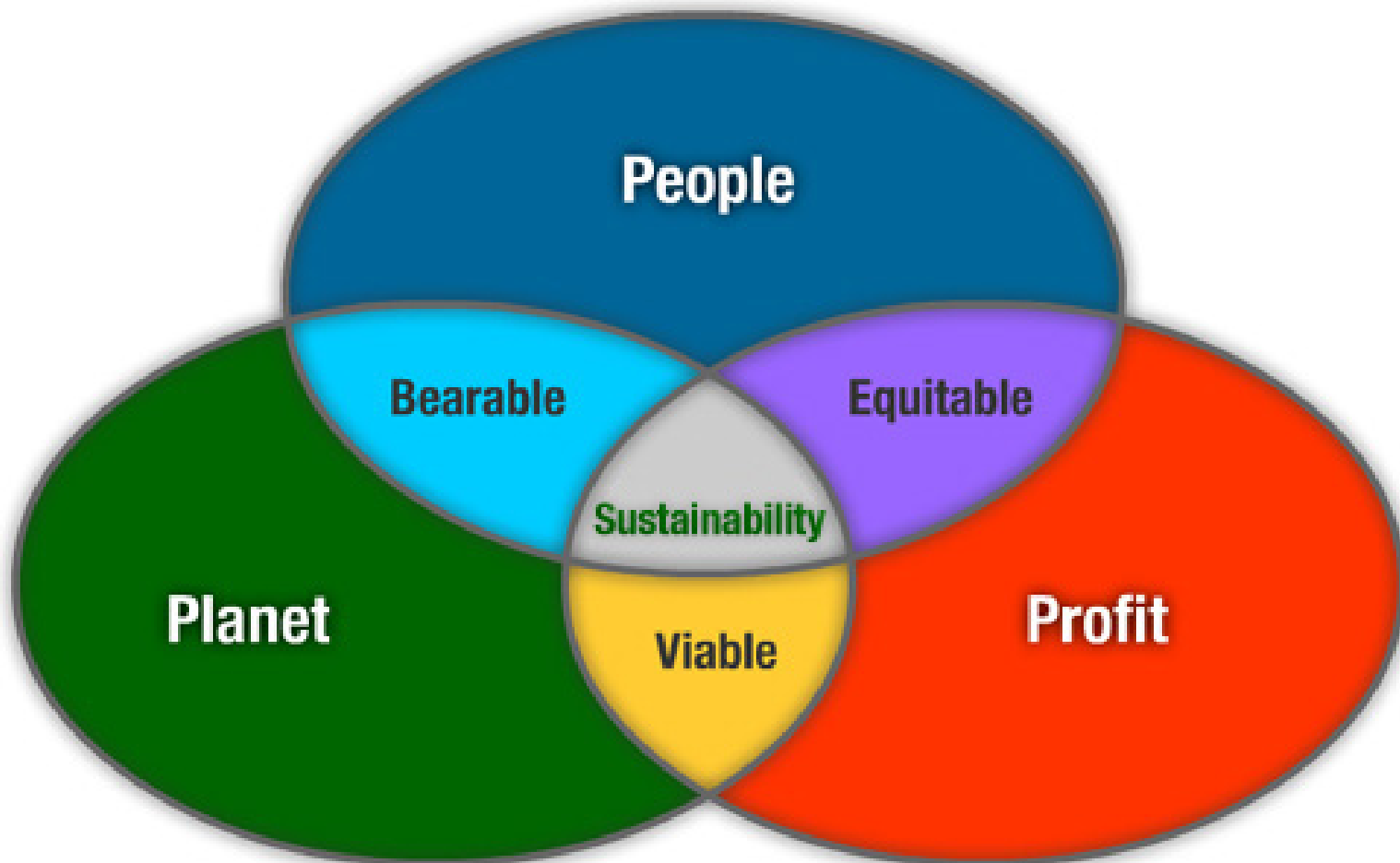
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The Triple Bottom Line

People, Planet, Profits



The phrase was coined by Steve Elkington in 1994



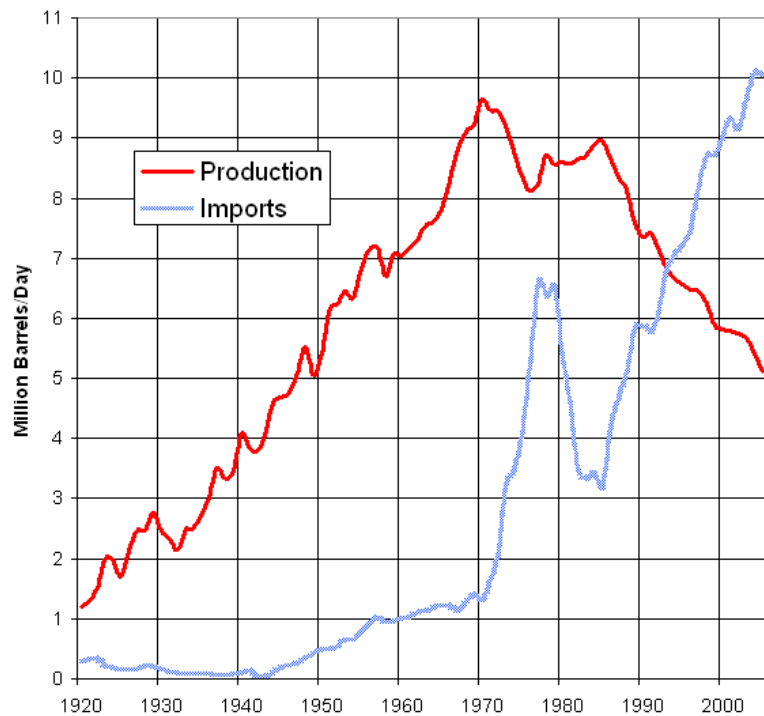
Key Issues - Energy

- 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)

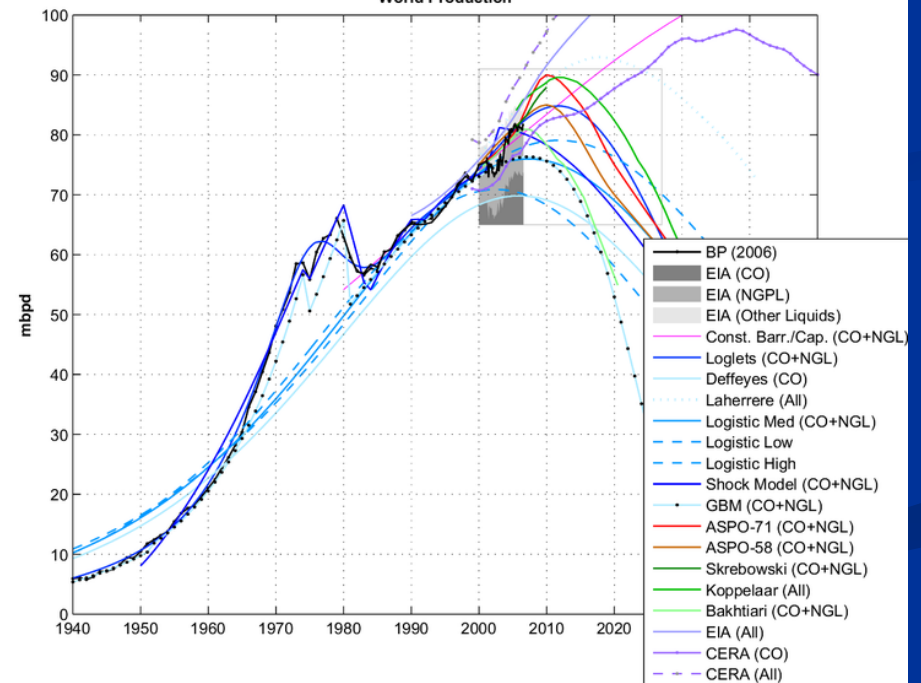
Key Issues - Energy

Peak Oil Theory

US Oil Production and Imports



World Production



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



Alberta Tar Sands

Key Issues - Waste

“Waste is a resource in the wrong place”

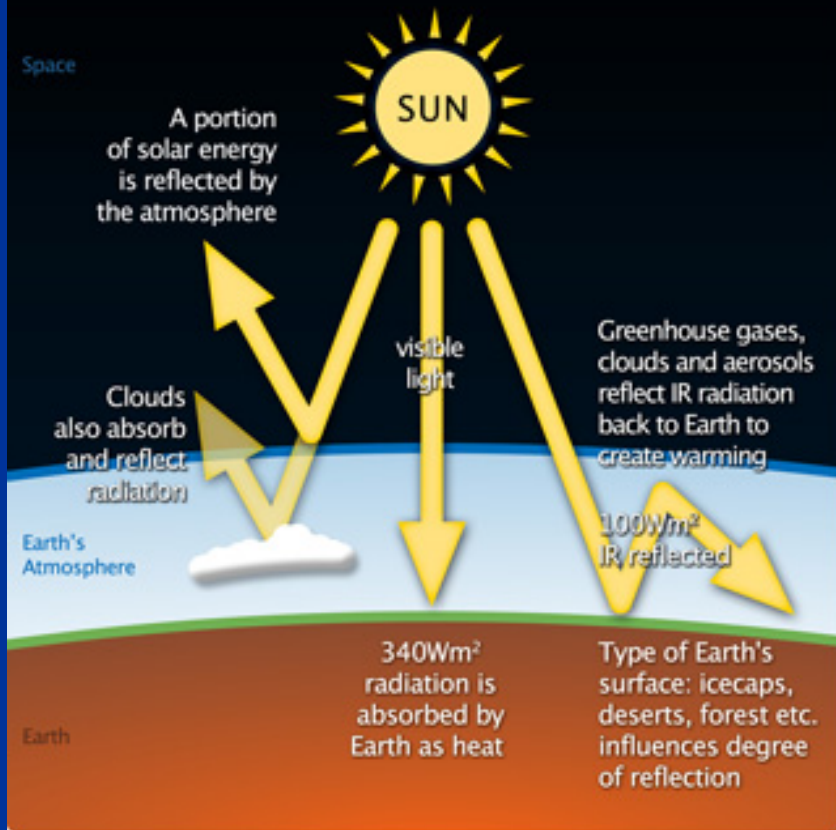
- Reduce, re-use, recycle (3 R's), downcycle, discard
- Cradle-to-cradle approach challenges the concept of waste – by-products of one process feed another
- Take the 3 R's even further

Reduce, re-use, recycle, **redesign, reimagine**

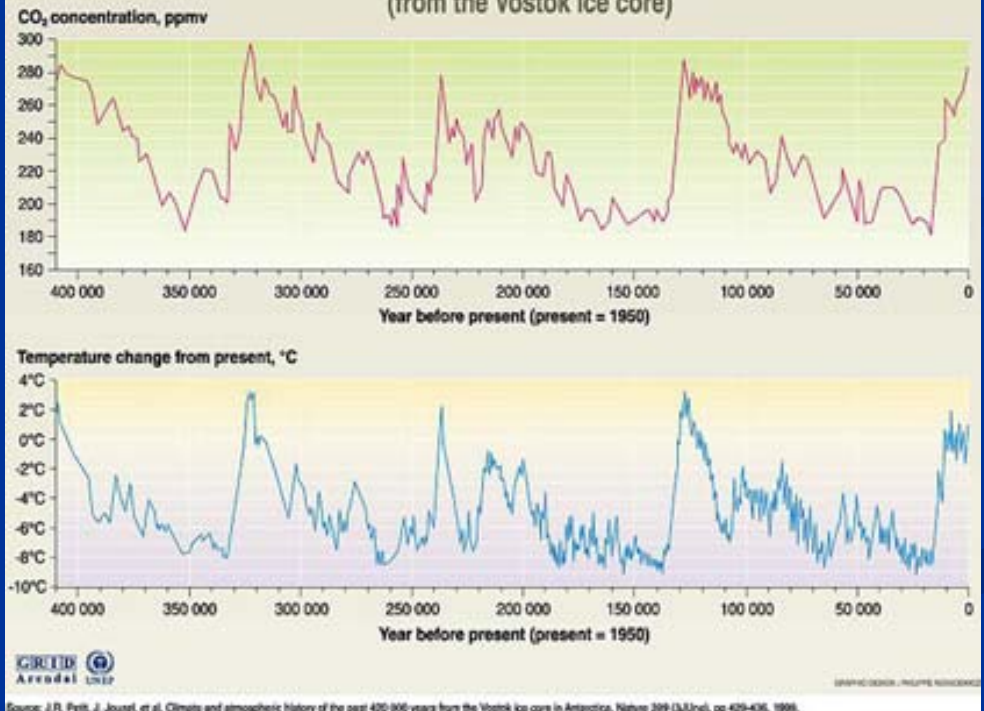
- Reducing waste not only conserves resources but reduces energy usage
- Many companies are targeting “zero landfill waste”

Key Issues – Climate Change

The Greenhouse Effect



Temperature and CO₂ concentration in the atmosphere over the past 400 000 years (from the Vostok ice core)





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



McCormick Peer Efforts

- Kraft Foods has reduced per unit, since 2001:
 - Water consumption by 34%
 - Energy usage by 25%
 - CO₂ emissions by 30%
 - Solid waste by 16%

- P & G has reduced per unit, since 2002:
 - Water consumption by 51%
 - Energy usage by 46%
 - CO₂ 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



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 speed³
 - 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)



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



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