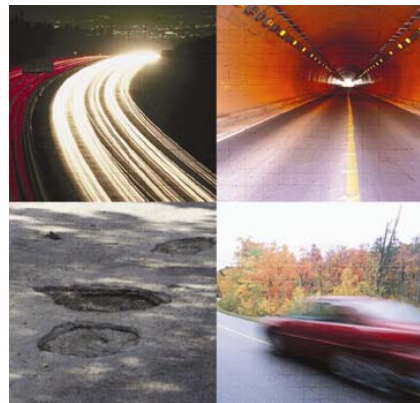




Energy Strategy for the Road Ahead



November 14, 2007

Call-in Number: 1-866-299-3188

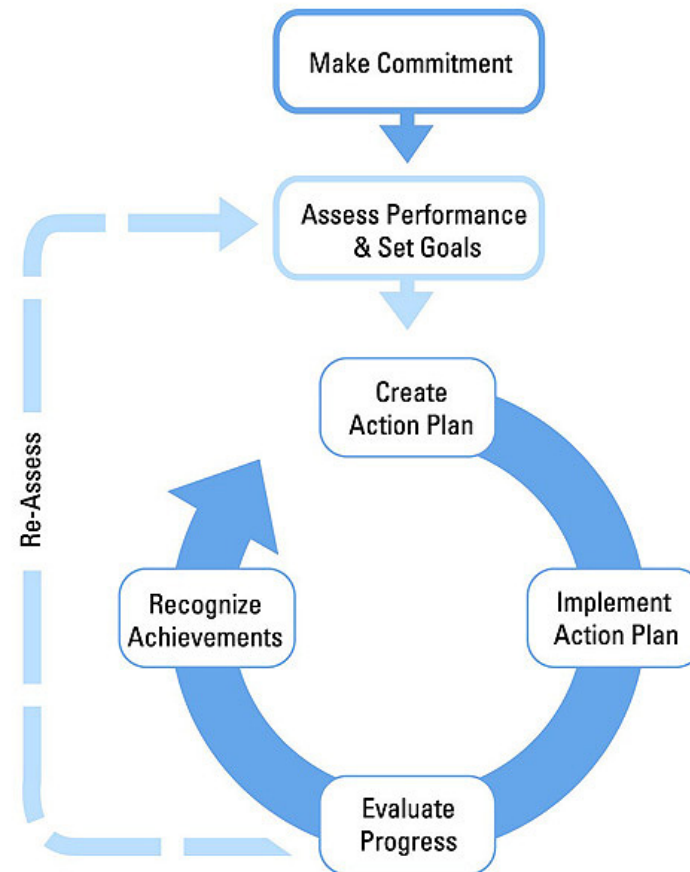
Conference Code: 202 343 9965



About The Web Conferences



- **Monthly**
- **Topics are structured on a strategic approach to energy management**
- **Opportunity to share ideas with others**
- **Slides are a starting point for discussion**
- **Open & Interactive**



Web Conference Tips



- Mute phone when listening! Improves sound quality for everyone.
Use * 6 – to mute and # 6 to un-mute
- Hold & Music – If your phone system has music-on-hold, please don't put the web conference on hold!
- Presentation slides will be sent by email to all participants following the web conference.

Today's Web Conference



Strategic Energy Management Project

- Walt Tunnessen – Background and context
- Betsy Dutrow – Strategy development process and recommendations
- Questions and Discussion
- Announcements

Strategic Value of Energy Efficiency: Energy Strategy for the Road Ahead

ENERGY STAR Networking Web
Conference

Wednesday, November 14, 2007

Context for strategic development

Energy impacts to business are increasing:

- Energy supply markets are less certain
- Competition among energy users
- Climate change and greenhouse gas (GHG) emissions
- Growing scrutiny of energy and climate risk by investors & other stakeholders

Unpredictability of energy markets increasing

Energy is becoming a risk factor

- Electricity market volatility
 - Natural gas prices impact many electrical markets
 - Marginal and locality pricing in some markets
 - Reliability of grid and service at peak demand periods
 - Average electricity prices for all end uses are projected to increase between 6.4%-10.8%
- Oil & gas market volatility
 - Supply & distribution constraints
 - Questions about pricing policies
 - Nationalization of oil assets
 - Natural gas prices historically affected by crude prices
 - Natural gas surcharges – up 75% since 2005
- Coal less volatile but varies regionally

Makes forecasting more difficult

Market volatility increases risk and uncertainty



Demand for energy increasing globally

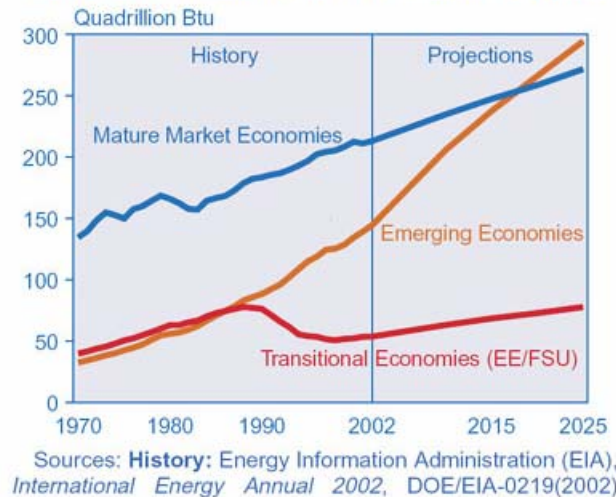
US demand for electricity forecasted to grow by 40% by 2025

- 300 1000 MW of new power generation will be needed.
- 57% of US base load coal plants built before 1972

International demand for energy is growing rapidly

- Demand for electricity is expected to nearly double between 2002 and 2025, from 14,275 billion kWh to 26,018 billion kWh

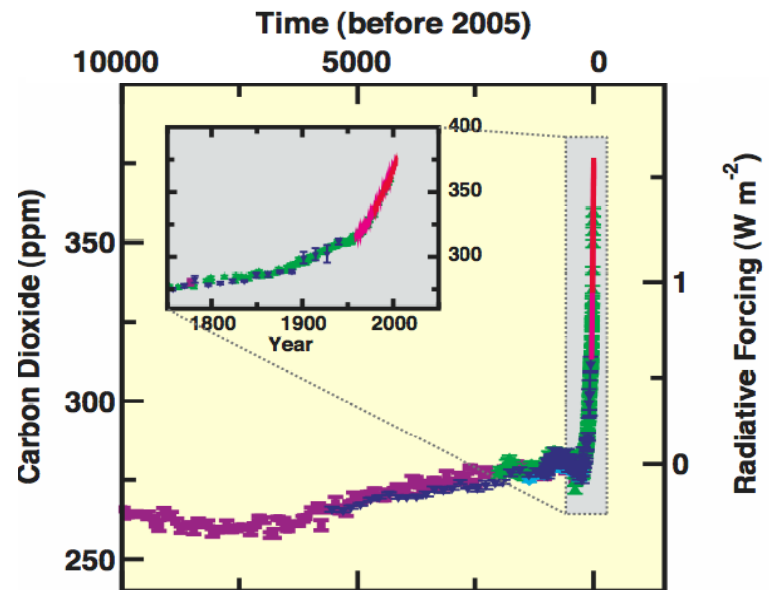
World Marketed Energy Use by Region, 1970-2025



Increased demand but limited supply will amplify risks and costs

Climate change debate over?

- IPCC - Greenhouse gases (GHGs) and temperatures are rising; warming of climate system is considered “unequivocal”
- Atmospheric concentrations of CO₂ in 2005 far exceeded the natural range over the last 650,000 years
- Global average warming in past century is about 0.76°C (1.37°F)
- Rate of warming in past fifty years nearly twice 100-year average
- Warmest years over last century: 1998, 2002, 2003, 2004, 2005, 2006



Focus on GHG management

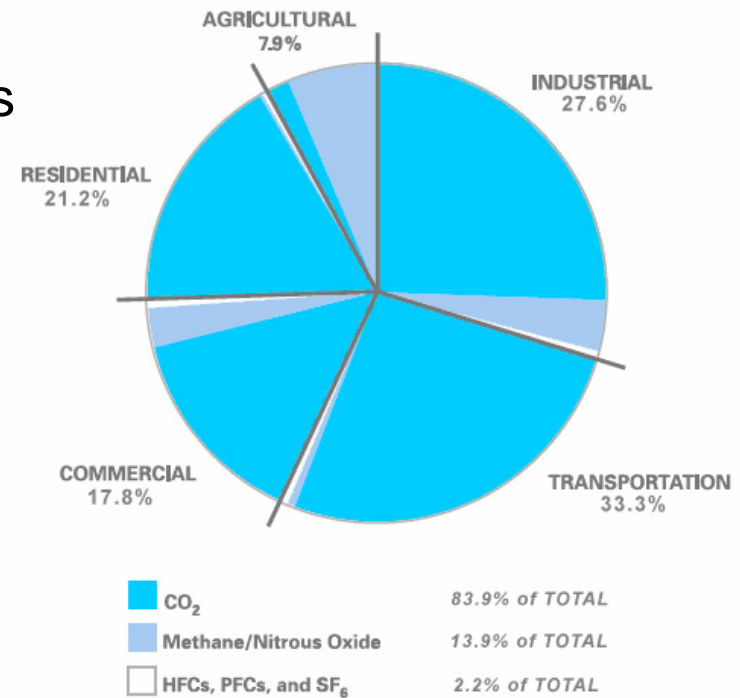
Voluntary Action

- Private & public sector organizations are setting GHG reduction goals
- Local & State governments setting GHG reduction goals

Regulatory Action

- AB 32 California
- RGGI / NEC-ECP
- Massachusetts v. EPA [549 U.S. 1438 (2007)]

Distribution of US GHG Emissions



NOTE: Totals may not add up to 100% due to independent rounding.
Source: US EPA Inventory of Gas House Gases and Sinks 1990 - 2004

Most GHG emissions linked to energy use

Time to change the view of energy

- Energy is no longer just a support to doing business
- Energy presents new impacts, risks and opportunities
- Companies need to plan for the “energy future”

Energy Strategy Project

- Companies participating in the Global Business Network – EPA Workshops:

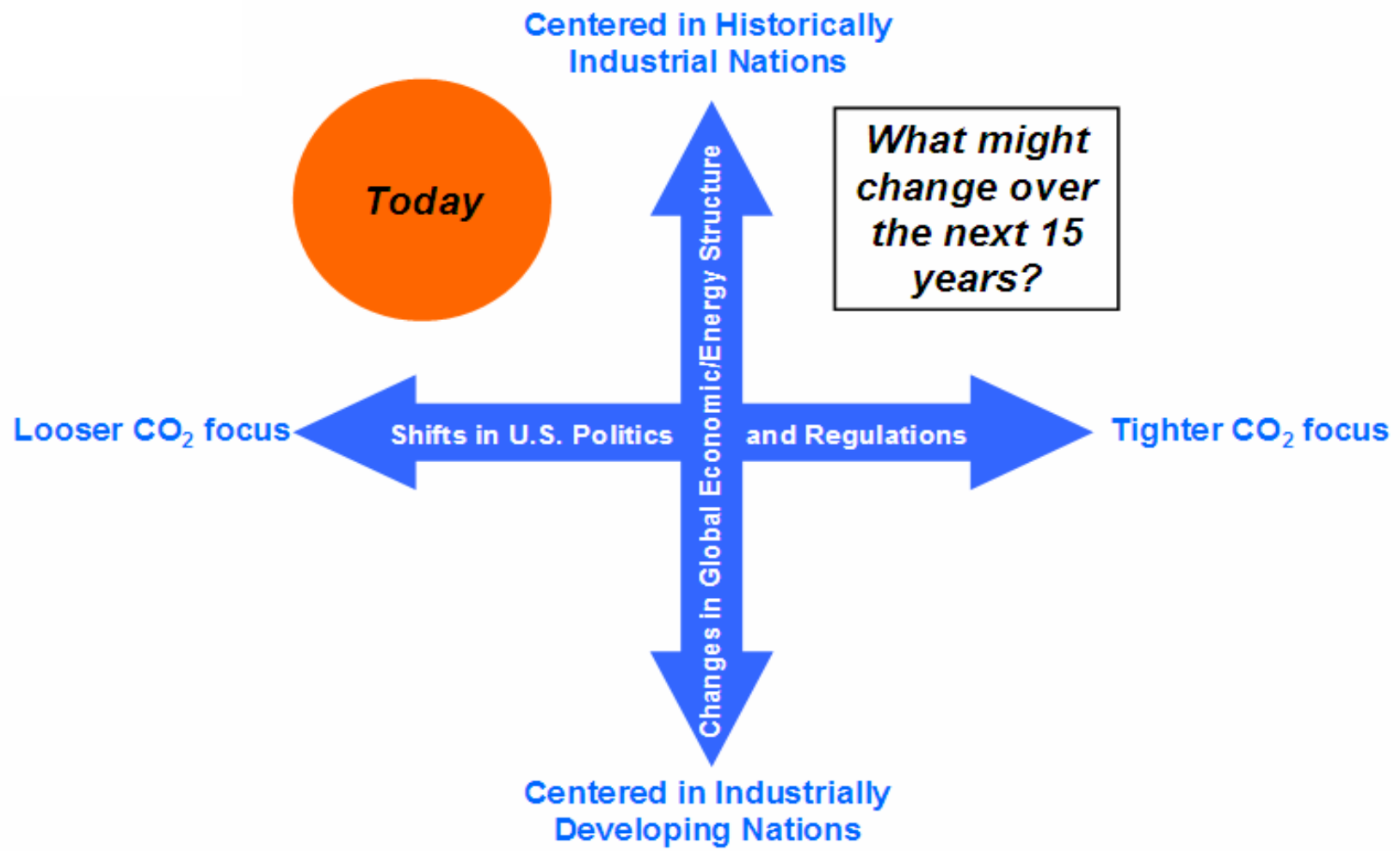
- California Portland Cement
- Cascade Engineering
- CEMEX
- Dow Chemical
- Eastman Chemical
- Genentech
- General Motors
- HSBC
- Jones Lang LaSalle

- Merck & Co.
- Mittal Steel
- National Starch & Chemical
- Owens Corning
- PepsiCo / Frito-Lay
- PPG
- Procter & Gamble
- Shell NA
- Toyota NA
- UPS

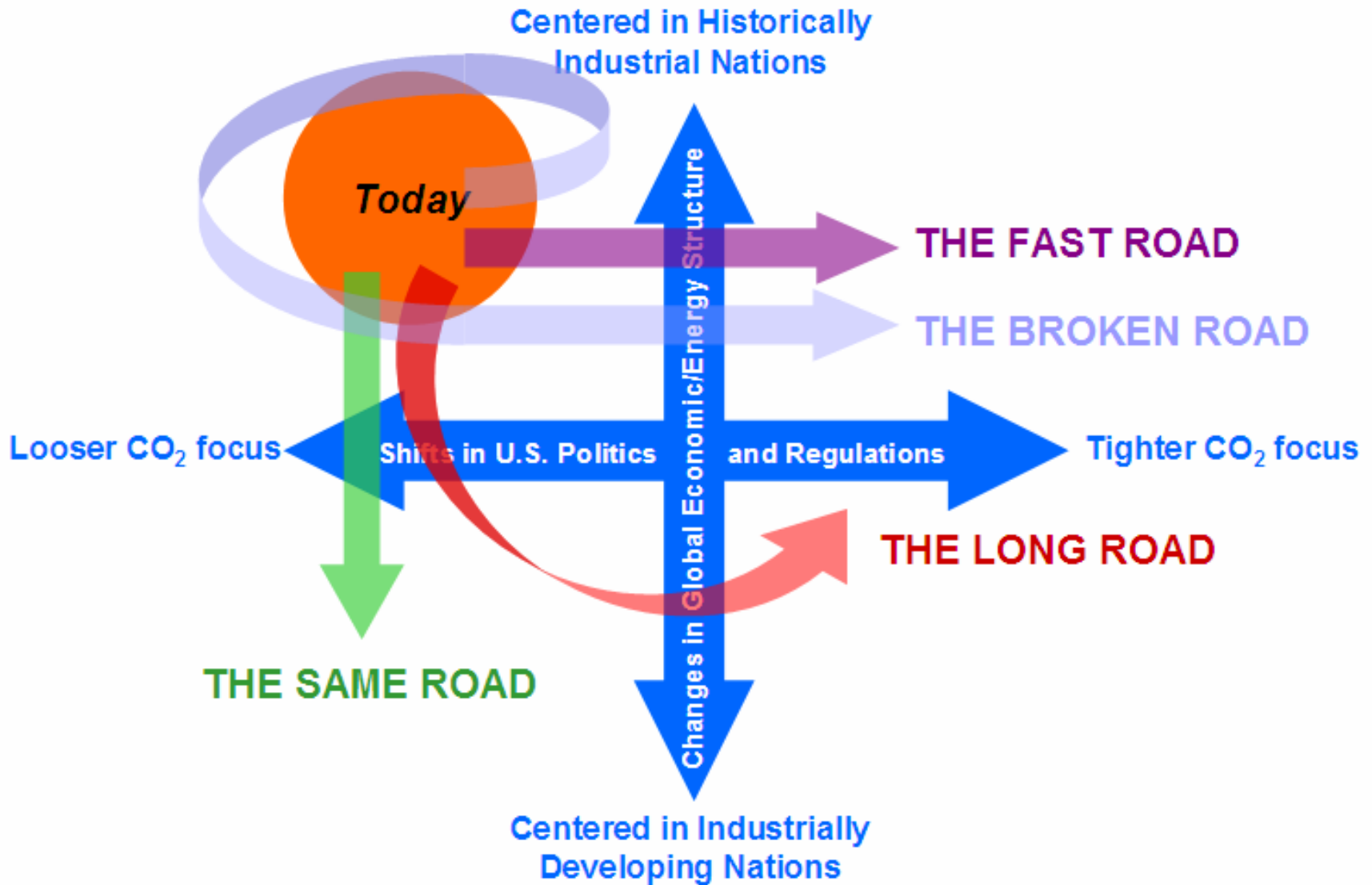
The energy future

- **Questions to consider**
 - **How might the energy future look?**
 - **How will it influence energy management?**

Framework for thinking about the future



Potential futures



Businesses need a robust strategy to succeed

- **First, master the fundamentals of energy management, increasing energy efficiency, regardless of the energy future**
- **Energy efficiency is:**
 - A large resource
 - More than 50 percent of gas and electric growth can be offset cost-effectively
 - Low cost now
 - Fraction of new generation
 - Stays low cost – regardless of any future price of carbon

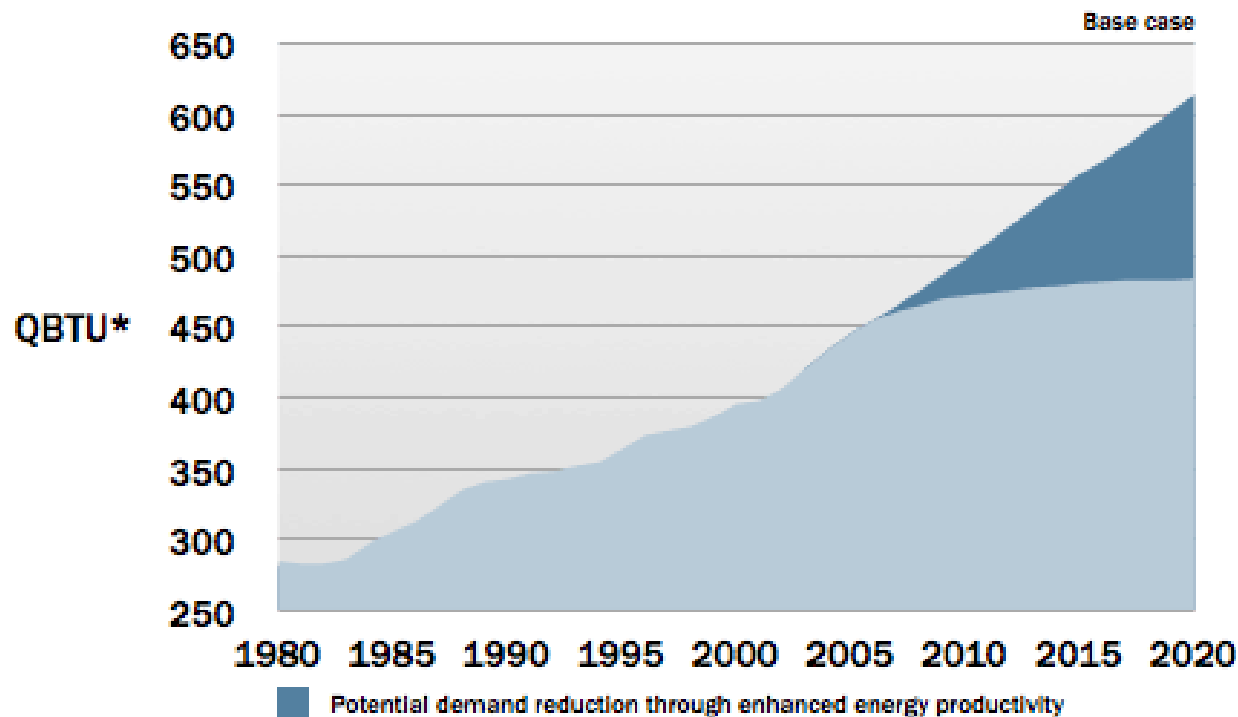
Energy efficiency recognized by international body as key action for impacting climate risk

- *WG III Summary for Policy Makers (May 2007)*

- **Changes in lifestyle and behavior patterns can contribute to climate change mitigation across all sectors. Management practices can also have a positive role.** ✓
- **Upgrades of energy infrastructure in industrialized countries, and policies that promote energy security, can, in many cases, create opportunities to achieve GHG emission reductions compared to baseline scenarios.**
 - It is often more cost-effective to invest in end-use energy efficiency improvement than in increasing energy supply to satisfy demand for energy services. Efficiency improvement has a positive effect on energy security, local and regional air pollution abatement, and employment.
- **Energy efficiency options for new / existing buildings could considerably reduce CO2 emissions with net economic benefit.** ✓
 - Many barriers exist against tapping this potential, but there are also large co-benefits
 - By 2030, about 30% of the projected GHG emissions in the building sector can be avoided with net economic benefit.
- **The economic potential in the industrial sector is predominantly located in energy intensive industries. Full use of available mitigation options is not being made.** ✓

Mckinsey Report on Curbing Global Energy Demand Growth

CAPTURING THE ENERGY PRODUCTIVITY OPPORTUNITY COULD CUT GLOBAL ENERGY DEMAND GROWTH BY HALF OR MORE OVER THE NEXT 15 YEARS



* Quadrillion British Thermal Units

Note: Transformation losses (power generation and refining) allocated to end-use segments.

Source: MGI Global Energy Demand Model

Advanced strategies enhance success

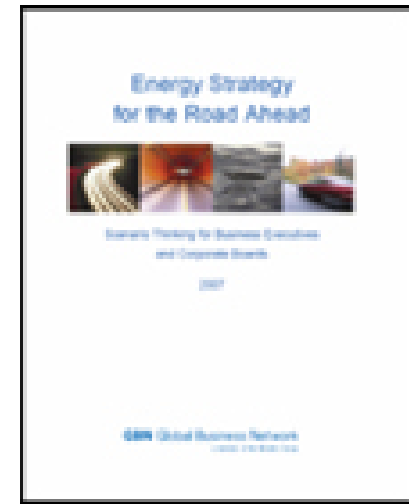
- Second, shift the view of energy
 - **Energy productivity** – value energy in terms of corporate productivity
 - places energy on equal footing with labor, material, capital, & other operating expenses
 - **View energy investments over longer term, reducing high hurdle rates**
 - generally lower risk
 - provide sustained and predictable return on investment

Broaden the view

- Energy is an input at many stages in a product or service
 - Inputs occur upstream, within and downstream of a company
- Third, **think in terms of the energy value chain**
 - Upstream - reduce energy use among suppliers
 - Within - look for opportunities to improve energy management
 - Downstream - re-engineer product and production process for energy inputs within the company

Energy Strategy for the Road Ahead

- The advanced energy strategies and considerations for guiding corporations into the future
- Developed by senior executives, Global Business Network and EPA ENERGY STAR
- www.energystar.gov/energystategy



Senior executives are key

- Set the priorities and direction for a company
- Should be involved in defining need for and scope of a corporate energy strategy
- Empower staff and enable energy investments
- Involve themselves

Corporate energy directors

- Senior executives are in the best position to issue and promote an energy strategy for their company
- What is the role of the corporate energy director?
 - Enable executives to have the discussion.
 - Inform of GBN scenarios
 - Inform of all energy impacts to corporation
 - Encourage and facilitate strategy session among top executive stakeholders

How is this being received?

One company's experience

“Most probable future:

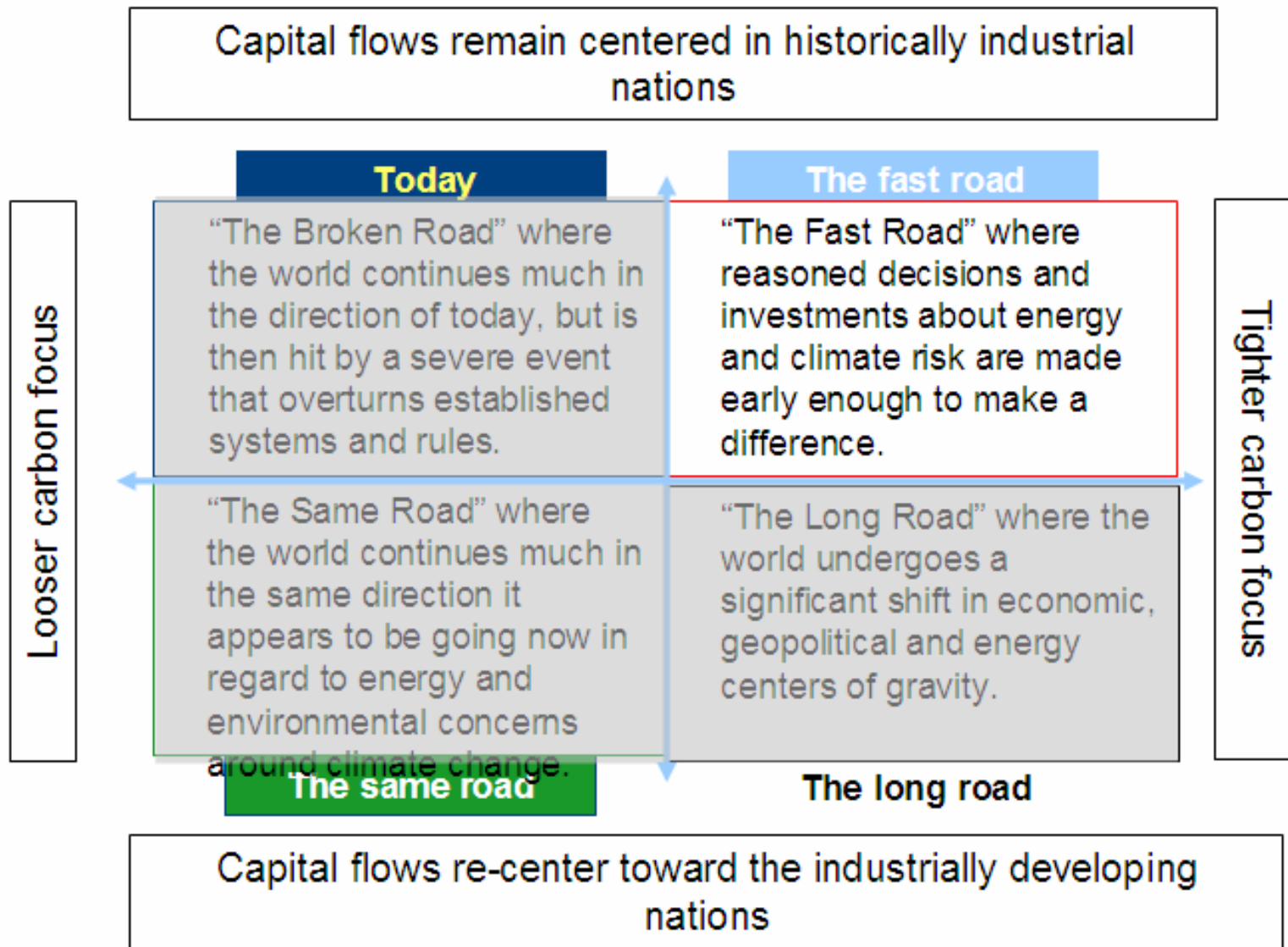
- Our capital intensive assets make capital flows to other nations difficult, if not impossible.
- Energy prices rise steadily and are high enough to allow investments in alternative energy but push for efficiency improvements.
- A political consensus will emerge in the U.S. for tight but incentive-heavy regulations to control carbon dioxide emissions.
- Conservative estimations depict that this may be a multi-million dollar risk or opportunity for us.

Thus, the proposed strategic intent for energy management is:

- To reduce the carbon footprint of our operations to minimize our impact on the environment and on the communities in which we do business.”

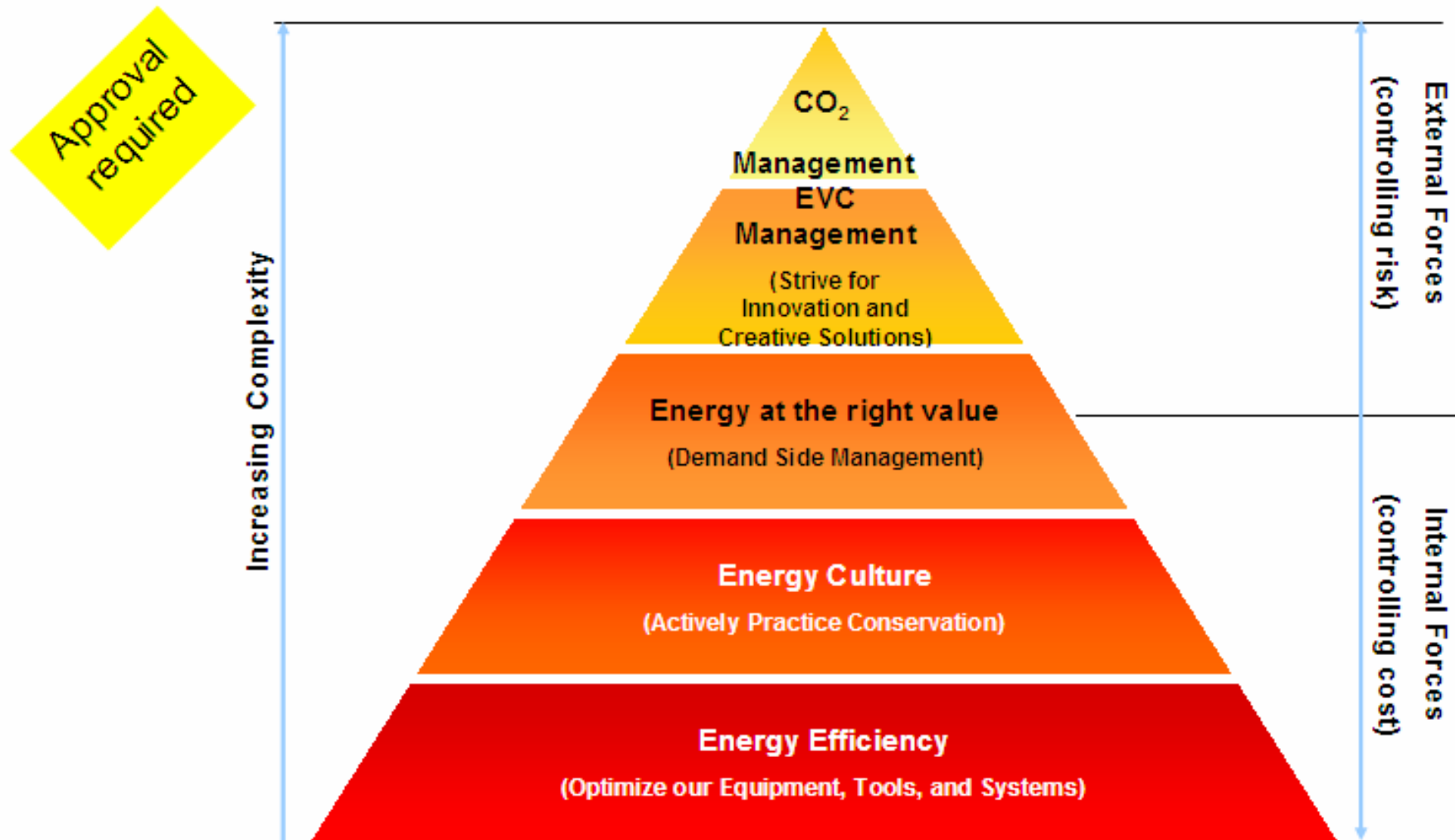
Source: EIA, *Energy Strategy for the Road Ahead*, September 2007 & 6 sigma project

This company decided to plan for the Fast Road



Source: adapted from Energy Strategy for the Road Ahead, September 2007

The company's overarching strategy framework



centralized coordination & leadership

New themes realized for this company

- Centralized coordination and leadership by setting an overarching strategy framework.
- Master the fundamentals of energy efficiency by optimizing our equipment, tools, and systems.
- Call to action to all employees to do their part in making the company a leader in energy management.
- Shift the strategic conversation from “How much energy can be saved?” to “How much energy is really needed?”
- Expand the energy management horizon to include all energy required to make and use the product or service by both supplier and customer means.
- See energy as a lever for positive growth and change within the business.

For more information

Energy Strategy for the Road Ahead
may be downloaded from:

www.energystar.gov/energystategy



Questions & Discussion

Upcoming Web Conferences



December – No web conference – Happy Holidays

January 16 – ENERGY STAR Program Update

February 21 – Green Power Strategies

March 19 – Engaging Employees in Energy Efficiency

Download past web conference presentations at:

www.energystar.gov/index.cfm?c=networking.bus_networking

Questions or comments? Contact: tunnessen.walt@epa.gov



Thank You!