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
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

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
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
• RGCI / NEC-ECP
• Massachusetts v. EPA [549 U.S. 1438 (2007)]

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”
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

Centered in Historically Industrial Nations

Looser CO₂ focus

Shifts in U.S. Politics and Regulations

Tighter CO₂ focus

Centered in Industrially Developing Nations

What might change over the next 15 years?
Potential futures

- THE FAST ROAD
- THE BROKEN ROAD
- THE LONG ROAD
- THE SAME ROAD
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.

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

Base case

QBTU*

650
600
550
500
450
400
350
300
250


Potential demand reduction through enhanced energy productivity

* Quadrillion British Thermal Units
Note: Transformation losses (power generation and refining) allocated to end-use segments.
Source: MGI Global Energy Demand Model
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
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/energystrategy
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
“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.”

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

1. **Centralized Coordination & Leadership**
2. **Energy Efficiency**
   - (Optimize our Equipment, Tools, and Systems)
3. **Energy Culture**
   - (Actively Practice Conservation)
4. **Energy at the Right Value**
   - (Demand Side Management)
5. **CO₂ Management**
   - (Strive for Innovation and Creative Solutions)
6. **External Forces** (controlling risk)
7. **Internal Forces** (controlling cost)
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/energystrategy
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!