U.S. Voluntary Approaches to Reduce Emissions of Greenhouse Gases

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Overview

- U.S. Approach on Climate Change
- U.S. Emissions and Reduction Options
- Voluntary Programs
  - ENERGY STAR
  - Methane Programs (Landfills)
  - High-GWP (Aluminum)
  - Climate Leaders
  - Clean Energy
- Future
**U.S. New Approach on Climate Change**

- **Key Elements**
  - cut GHG intensity (emissions/GDP) by 18% by 2012
  - enhance GHG reduction registry to allow firms to document actions that reduce emissions
  - ensure that firms are not penalized under any future climate policy and credit is given for real reductions
  - five year $4.6 billion in tax credits for investments in renewables, hybrid and fuel cell vehicles, cogeneration, and landfill gas conversion
  - expand funding for climate change research and technology
  - fully fund international programs (GEF, “Debt for Nature,” and AID programs)
  - new GHG reduction challenges for industry

**U.S. Climate Strategies**

- **U.S. pursuing broad range of climate strategies**
  - voluntary private-public partnership programs
  - R&D investments and tax incentives
  - appliance standards that increase minimum efficiency
  - financial incentives (i.e. grants to states & localities)
  - reduce GHGs from Federal buildings & transportation

- **U.S. programs are achieving real results**
  - 66 MMTCE (242 Tg CO₂ Eq.) reductions in 2000 alone
  - >500 MMTCE locked-in thru 2012 from EPA voluntary program actions to date

- **U.S. programs are spurring investment**
  - addressing most major emission sources
  - focused on cost-effective opportunities
  - delivering multiple benefits with strong track record
U.S. Emissions of GHGs in 2000

Voluntary Programs Offer A Lot When Well Designed

- Voluntary programs work now; while R&D is underway
- Many underutilized and cost-effective technologies and practices
  - sizable efficiency gains and GHG reductions by 2010
  - significant energy bill savings
  - enhanced economic growth
- Strategic planning
  - market assessment of cost-effective opportunity
    - where are markets not working
    - where is largest environmental benefit
- Focus on action
  - what does audience need to make better energy decisions
  - reducing transaction costs to better investments
Notes:
Includes emissions from electric utilities, based on each sector's share of electricity demand.
U.S. CO₂ emissions are based on a business-as-usual (no policy) scenario (U.S. EIA, Annual Energy Outlook 1998).

Efficiency Offers Big Opportunity Over Next Decade as Capital Stock Turns Over

50% of CO₂ emissions ten years from now will result from equipment that will be purchased between now and then.

ENERGY STAR Makes Efficiency Easy

- Turns energy efficiency into real products and services
- National definitions for efficient products, homes, and buildings
- Provides objective, clear information

I want my home/building to be energy efficient, BUT...

What does that mean?
What do you ask for it?
Who do you ask?
How do you know it will work?
How do you know it did work?
ENERGY STAR is Now a Broad Energy Efficiency Platform

- Sizable results in 2001
  - Reduced GHG emissions by 19 MMTCE (70 Tg. CO₂ Eq.)
  - Prevented emissions of nitrogen oxides (NOₓ) of 140,000 tons
  - Reduced energy consumption by 84 billion kWh, providing net savings to consumers and businesses of $6 billion on energy bills
  - Offset more than 10,000 MW of peak demand
- Overall
  - 750 million products purchased
  - 57,000 new homes constructed
  - 10,000 commercial buildings benchmarked
- Results are growing -- triple by 2010

Energy Performance Benchmarking is a New Cornerstone for Efficiency

- New building energy rating system (‘99)
  - Overcomes major market gap
    - can’t manage what can’t be measured
    - now have system like mpg for cars; scale of 1 to 100
    - measures how key building systems work together
  - Great success in short time
    - 10,000 buildings benchmarked
      - 11% of office building space benchmarked
      - 8% schools benchmarked to date
      - 800 buildings labeled for excellence
  - Used to mark leadership and in market transactions
    - leasing, audits, sales
    - placing value on efficiency in the marketplace
### EPA’s Methane Programs: Stabilize Methane through 2010

- Methane is potent -- 100-year GWP = 23
- Methane is a valuable fuel (improves mitigation economics)
- Many cost-effective opportunities when market barriers removed
- Methane reductions will slow rate of climate change -- worth special attention

#### U.S. Methane Emission Projections

<table>
<thead>
<tr>
<th>Year</th>
<th>Baseline</th>
<th>w/Actions</th>
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<tbody>
<tr>
<td>1990</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>160</td>
<td></td>
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<tr>
<td>2010</td>
<td>180</td>
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- **Natural Gas STAR** -- over 50% of industry
- **Coalbed Methane Outreach** -- assisted 25 new projects
- **Landfill Methane Outreach** -- assisted 200 new projects
- **Agricultural Outreach Programs**

#### Additional 500 projects to target with successful model

- Currently 339 operational projects --- 196 assisted by LMOP
- Over 200 more projects are in construction/planning stages (~8 MMTCE annually)
- Potential for projects at 500 more landfills (representing ~16 MMTCE annually)
- Can feed into Climate Leaders program
High GWP Programs:
Reduce High GWP Gases thru 2010 and beyond

- Gases are potent and persistent -- many thousands x CO2
- Voluntary sector programs low cost / high return
- MAC initiative advancing alternative technologies
- Commercial Chiller initiative coalescing industry on equipment retirement

Voluntary Partnerships
Working Broadly with Industry

- HFC-23 from HCFC-22 Production - since 1993
  - 100% participation; 24% reduction '95-'00
- PFCs from Aluminum - since 1994
  - 45% reduction 1990-2000; extend goals to 2005
- PFCs from Semiconductors - since 1996
  - Program model for World Semiconductor Council
- SF₆ from Electric Power Systems - since 1999
  - Partners represent 50% of U.S. generation
- SF₆ from Magnesium - since 1999
  - Partners represent 80% of U.S. emissions
- HFC-134a From Mobile Air Conditioning - since ‘99
  - OEMs, Equipment Suppliers, SAE, Canada, EU
### Voluntary Aluminum Industry Partnership (VAIP)

<table>
<thead>
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<tr>
<td>• Effective in reducing emissions</td>
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<tr>
<td>• Project 70% reduction from 1990-2005</td>
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<tr>
<td>• Develop and share best practices</td>
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<tr>
<td>• good practice protocol for smelter measurement procedures</td>
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<tr>
<td>• workshops for benchmarking/good practices for reduction of anode effects</td>
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<tr>
<td>• collaborate with IPCC, int’l aluminum associations and member companies in developing better PFC inventories</td>
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<tr>
<td>• sponsor basic research to better understand anode effects</td>
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<tr>
<td>• Economic analysis</td>
</tr>
<tr>
<td>• High quality data</td>
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<tr>
<td>• Model for IPCC methods, data for emission factors</td>
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### New Opportunities With Industry Climate Leaders

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<tr>
<td>• Climate Leaders - 2002</td>
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<td>- Key component of Administration’s new climate policy</td>
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<td>- Encourages companies to develop long-term comprehensive climate change strategies</td>
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<td>• Set aggressive corporate-wide GHG emissions reduction goals</td>
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<td>• Corporate-wide inventory of six major greenhouse gases</td>
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<td>- Program launched with 11 Charter Partners representing diverse group of energy-intensive and service-oriented companies</td>
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<td>- Now more than 30 partners; 8 have GHG emission reduction goals</td>
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<td>• ex. Miller Brewing pledged to reduce emissions (from 2001 baseline) by 18% per barrel of production by 2006</td>
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<td>• ex. General Motors pledged to reduce total emissions (from 2000 baseline) by 10% for all their North American facilities by 2005</td>
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EPA’s Climate Change Umbrella Program

CLIMATE LEADERS

ENERGY STAR
Green Power Partnership
Natural Gas STAR
Landfill Methane Outreach Program

WasteWise
CHP Partnership
Coalbed Methane Program
Commuter Choice Leadership Initiative

The Company We Keep
New Opportunities With Industry
Clean Energy

- Combined Heat and Power Partnership - 2001
  - US wastes in electricity generation the energy needs of Japan
  - If double Combined Heat and Power capacity by 2010 to 100 GW, would achieve over 25 MMTCE in reductions
  - EPA launched Partnership in 2001 with 17 partners, promoting industry action, regulatory clarification and appropriate policies

- Green Power Partnership - 2001
  - More businesses would chose Green if options weren’t confusing
  - EPA launched Partnership in 2001 with 20 partners, to provide
    - clear information on options and environmental benefits
    - recognition to add to value of purchase

EPA’s Programs Reducing Emissions

- EPA Programs -- 60+ mmtce in 2001; 170+ mmtce in 2010
Future

• Almost triple GHG reductions by 2010
  – have successful business models to expand
    • after a decade of building, Energy Star is ready for major push
      – new public education campaign
      – major push on building benchmarking and effective upgrades
      – add more complicated home improvement elements
      – add industrial energy efficiency
    • methane programs continue to grow and deliver

• New opportunities for industry participation
  – Corporate Climate Leaders program
  – Combined Heat and Power
  – Green Power