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# ***Global Sectoral Approaches as Part of a Post-2012 Framework: Results and Lessons from Phase I***

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# About the Center for Clean Air Policy (CCAP)

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- Washington and Brussels-based environmental think tank
- Committed to advancing pragmatic and cost-effective climate and air quality policy through analysis, dialogue, & education
- CCAP's 30-country *Future Actions Dialogue* has produced agreements on emissions trading, design of Clean Development Mechanism; now focused on post-2012 climate policy
- Working with key developing countries (China, India, Brazil, Mexico) and U.S. states to design climate policies
- Running multi-stakeholder dialogues in the U.S. and the EU to build agreement on elements of a US national climate policy package and EU strategy



# About the Centre for European Policy Studies (CEPS)

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- Independent and private Brussels-based think tank
- Focus on all EU policies (internal & external)
- Leading forum for debate on EU affairs
- Strong in-house research capacity
- Extensive network of partner institutes throughout the world
- Strong stakeholder involvement

# Overview

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- Why focus on developing countries?
- Why focus on energy-intensive sectors?
- Overview of the Sectoral Analysis Project
- What are the elements of a sectoral approach?
- Lessons learned to date

# ***Why Focus on Developing Countries?***

# International Policy Context

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- Bali Action Plan calls for verifiable “Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development”,
- Supported and enabled by verifiable technology, financing, and capacity-building support from A1 countries
- Roadmap envisions a menu of options that developing countries can elect to pursue including NAMAs, tech transfer, SDPAMs, sectoral approaches, and reductions from deforestation (REDD)
- Also envisions a range of financing from A1 including expanded carbon market mechanisms (based on tougher A1 targets) and new financing beyond ODA

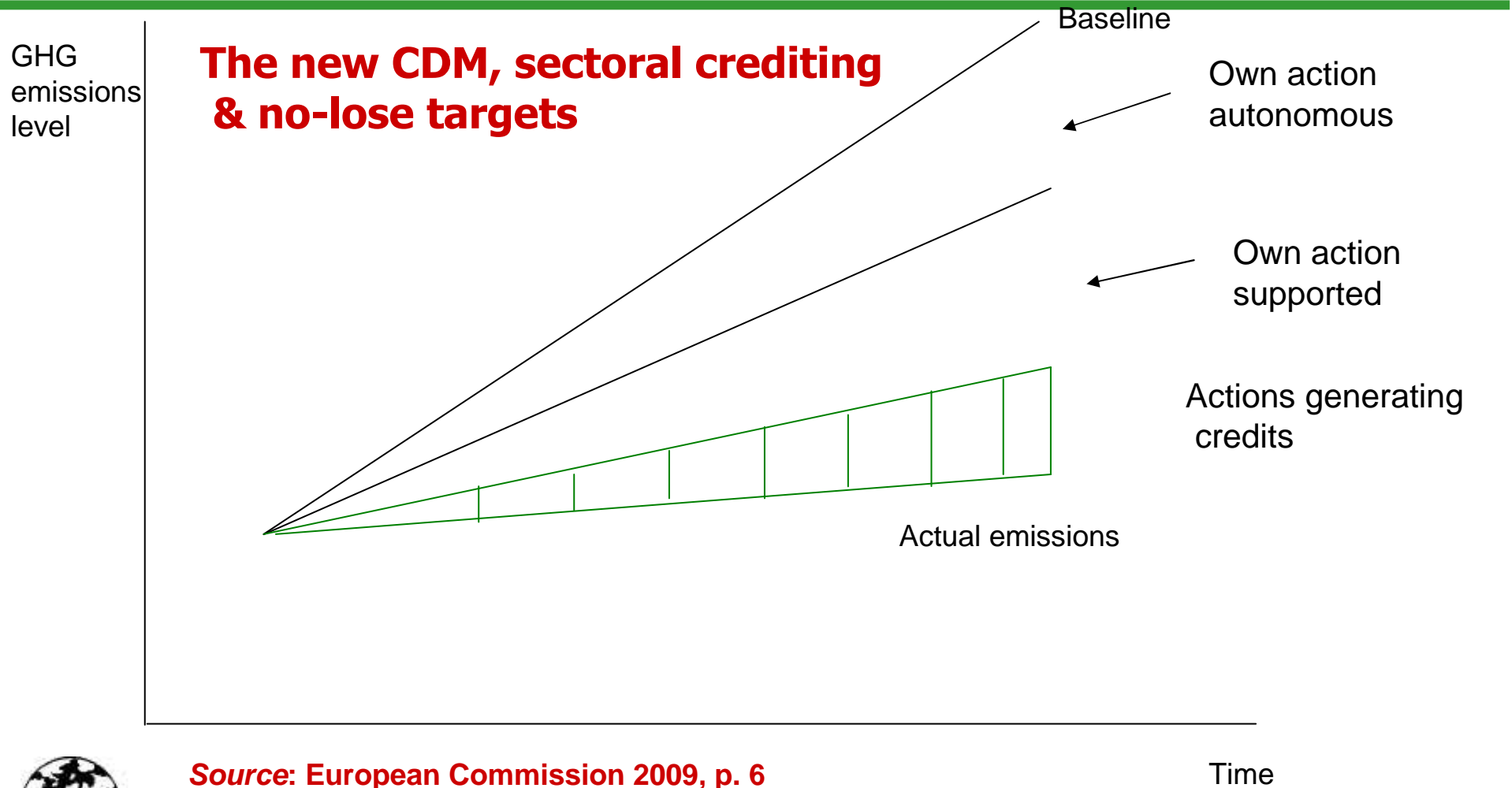
# International Policy Context: After Poznan

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- Interest in sectoral crediting is increasing, going beyond technology transfer in Art. 4.7 (China, Mexico, ...)
- Role of public finance versus crediting (South Africa - Korea; SDPAMS-NAMAs)
- EU recognizes 3 types of actions: autonomous, supported, credited
- EU recognizes possibility to use sectoral approaches to identify A-1 target (P. 73, Annex 14, Copenhagen Communication, Part II).

# Developing countries actions

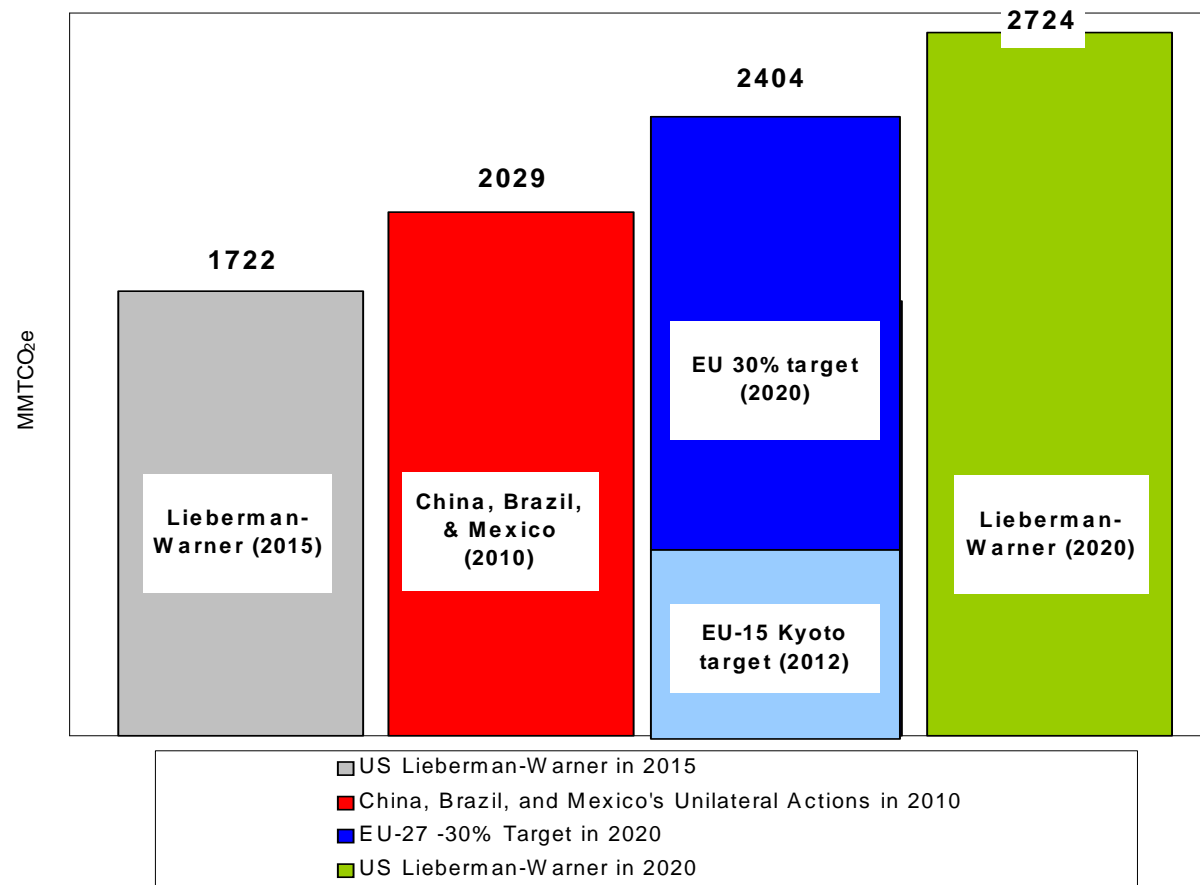


Source: European Commission 2009, p. 6



# Developing Countries already undertaking Unilateral Actions

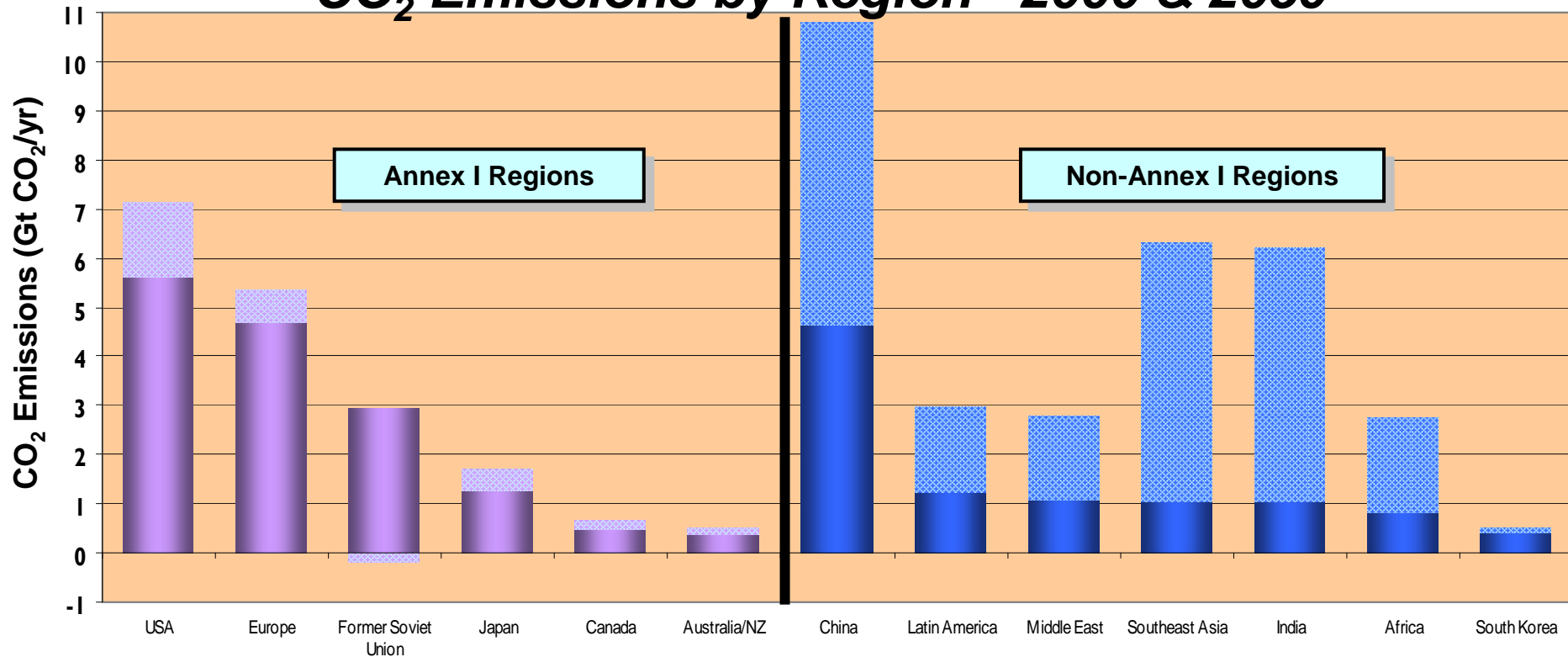
**Unilateral Actions Compared to US and EU Efforts**  
*(Reductions from Business-As-Usual)*



Source: Center for Clean Air Policy (updated)

# ... but outlook for Developing Country emissions growth remains substantial

## CO<sub>2</sub> Emissions by Region - 2000 & 2050



**Developed country reductions alone cannot ensure stabilization**



<sup>1</sup> Includes Fossil and other industrial CO<sub>2</sub>.

Source: U.S. Climate Change Science Program. 2007. *Scenarios of Greenhouse Gas Emissions and Atmospheric Concentrations* (MINICAM Results).

# Sectoral Strategies = Transition

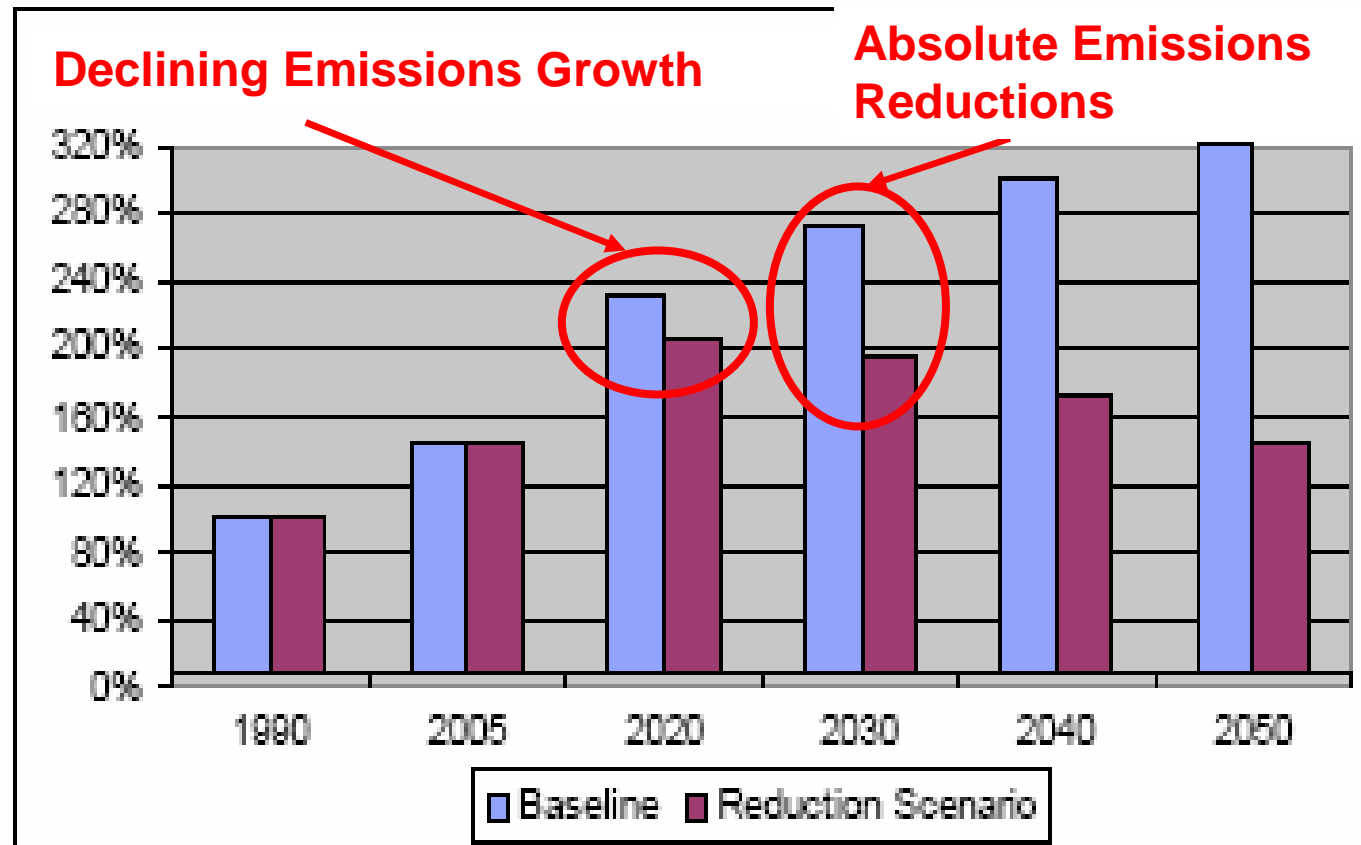
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- A **long-term** vision for meeting global climate goals might include international cooperation and global carbon prices.
- In the **near-term**, not realistic to ask developing countries to adopt absolute emission caps.
  - » Bali Action Plan calls for “nationally appropriate mitigation actions”.
- Instead, seeking to reduce the rate of growth below business-as-usual.
- Sectoral strategies can help navigate this transition.

# Scenario for Developing Country Emissions

- EU analysis of 50% chance of staying below 2°C
  - » Developed countries 32% reduction below 1990 by 2030; 60% below 1990 in 2050



# Advantages of a Sectoral Approach

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- A bridge strategy for the next commitment period (between 2012 – 2020) to encourage further developing country actions.
- Creates strong technology finance incentives in key internationally competitive sectors (e.g. steel, cement, electricity) to:
  - » deploy advanced low carbon technologies (such as CCS that are not market ready and cost effective) in developing countries
  - » Encourage developing countries to set more aggressive emissions reduction targets than in their current laws and regulations.
- Could fit into the Registry of Nationally Appropriate Mitigation Actions (NAMAs) concept that is at the center of debate in the UNFCCC process now

# ***Why Focus on Energy Intensive Sectors?***

# Focus on Energy Intensive Sectors Is Opportunistic

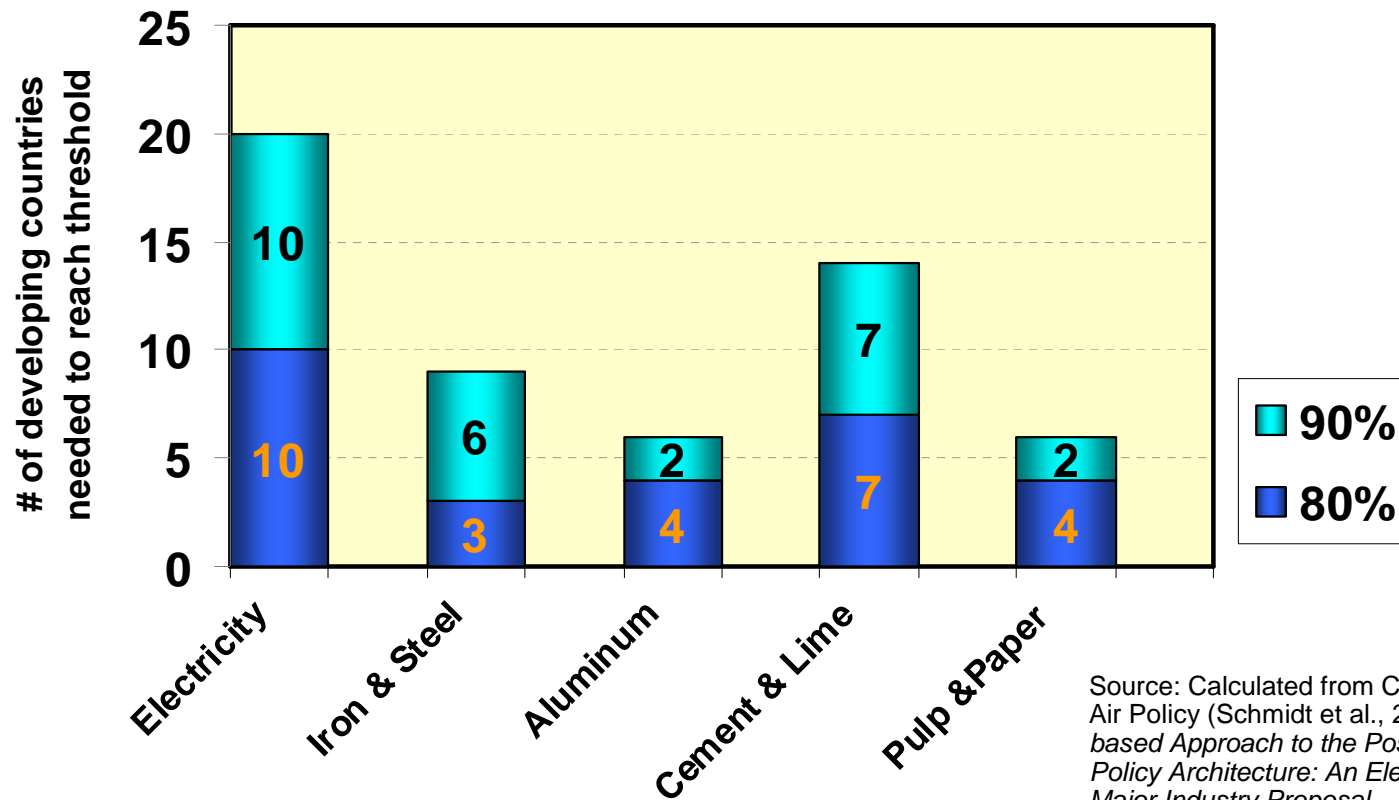
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- Internationally, energy-intensive industrial sectors like cement, steel, paper, and aluminum:
  - » Aluminum, steel and cement alone account for roughly 10% of global direct emissions;
  - » Are experiencing rapid growth in developing countries;
  - » Are characterized by large, multi-national companies (and high level of concentration); and
  - » Offer opportunities for GHG progress.

# How Many Developing Countries Need to Play ?

**Top 10 developing countries in each sector emit 80-90% of non-Annex I CO<sub>2</sub> emissions**



Source: Calculated from Center for Clean Air Policy (Schmidt et al., 2006), *Sector-based Approach to the Post-2012 Climate Policy Architecture: An Electricity and Major Industry Proposal*

# Focus on Energy-Intensive Sectors Can Ease Competitiveness Concerns

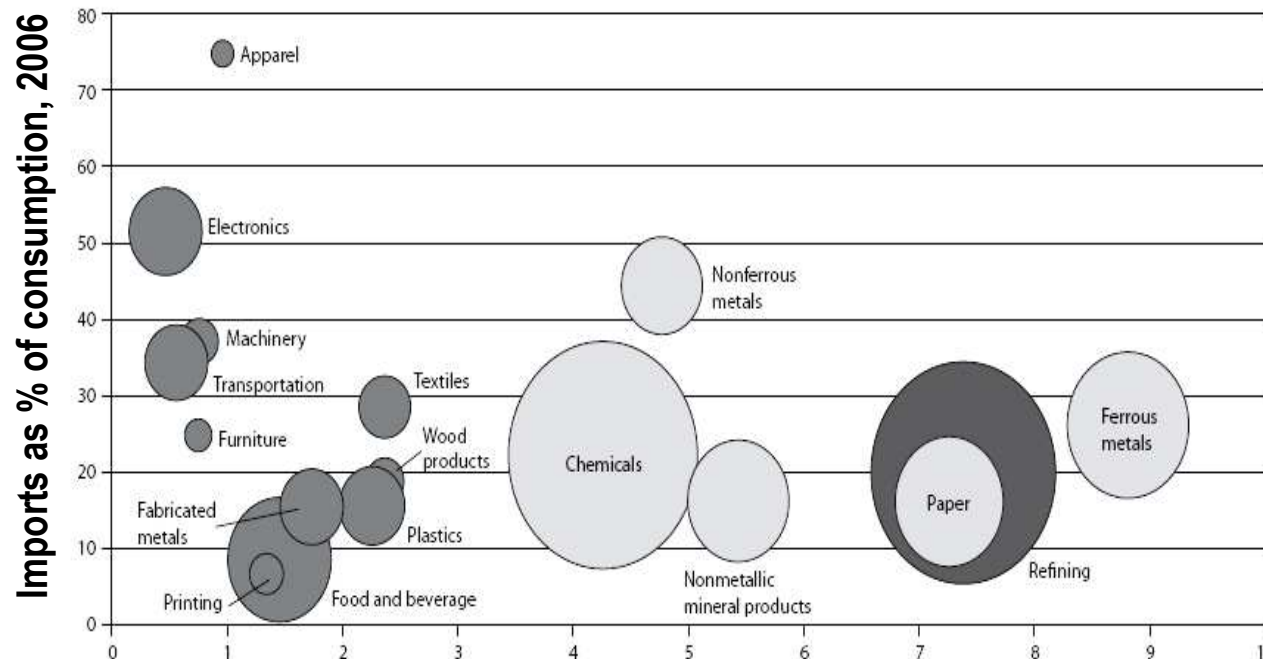
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- Actions by internationally competitive, energy intensive sectors are **politically important** to building strong national commitments in developed countries.
- Actions by these sectors *can* help **reduce emissions leakage** stemming from developed country actions.

# Limited number of internationally competitive industries at risk

## *US industry energy intensity and imports as a share of consumption*



US energy costs as % shipment value, 2002

Source: Peterson Institute and WRI, *Leveling the Carbon Playing Field*, May 2008, p. 9.



- For most industries, energy costs are *not* the dominant factor
- But for some energy and carbon-intensive industries, carbon pricing could change relative costs and lead to GHG leakage
- If GHG leakage can be moderated, it will be easier for Annex I countries to set aggressive national reduction targets CE

**Slide 18**

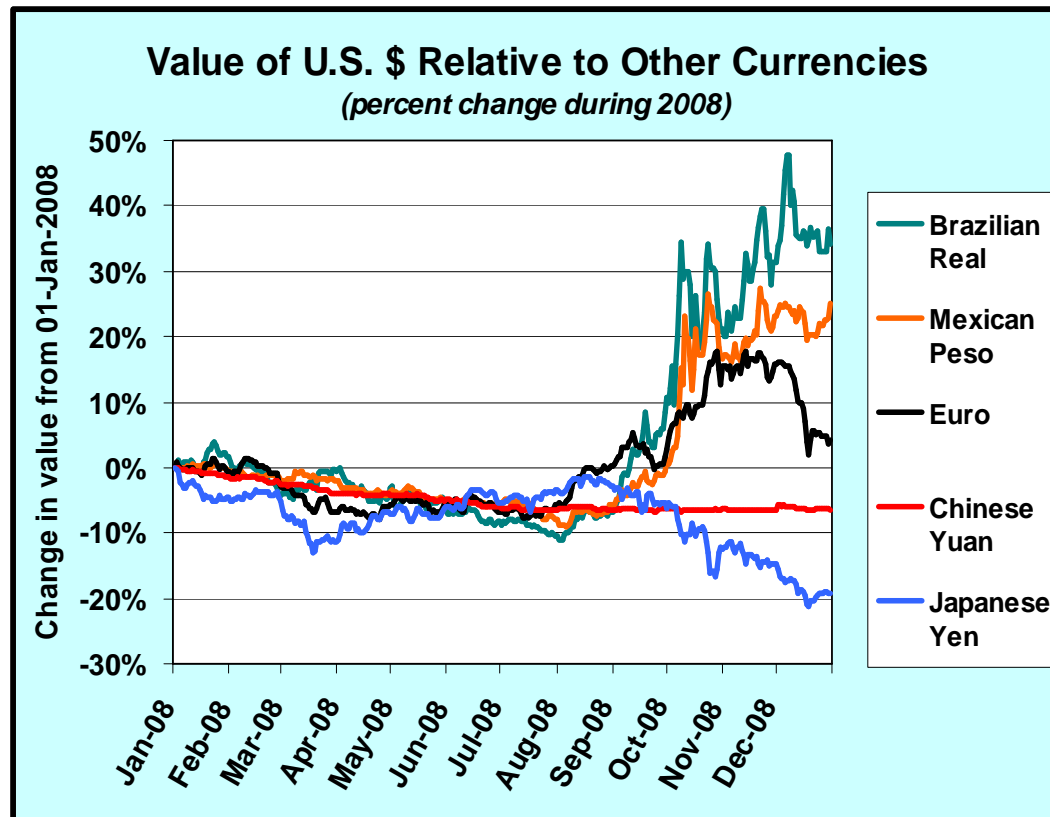
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**CE3**

**more carful language**

Christian Egenhofer, 2/22/2009

# ... but carbon is but one factor



- Long-term global trends in energy-intensive industries
- Many factors at play:
  - » Resource endowment
  - » Currency exchange rates
  - » Labor costs
  - » Taxes, etc.
- Developing country production is mostly meeting growing domestic demands
- GHG goals should seek to moderate GHG leakage from GHG policies, but not be a basis for redressing other trade concerns



Source: FXHistory®: historical currency exchange rates, Oanda.com, <http://www.oanda.com/convert/fxhistory>

# ***Overview of the Sectoral Analysis Project***

# Next steps for Sectoral Approaches: Exploring “Proof of Concept”

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- European Commission – DG Enterprise & Industry
  - » Call for Proposal ENT/CIP/08/C/N02S00/1: *Global Sectoral Approaches: sectoral approaches as part of a post-2012 framework*
  - » Aim is to provide proof of concept of how international sectoral approaches could work and fit into a post-2012 international framework on climate change
  - » What actions would be necessary for sectoral approaches to become a tool in the mitigation of GHG emissions and necessary links to the global carbon market?
- Projected initiated in May 2008 (running until

# Key Questions: Design and Institutional Issues

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- How do you create maximum incentives for action?
- What level and incentive structure would encourage additional emission reductions?
- What barriers/issues are associated with the various types of sectoral approaches?
- What capacity-building (e.g., in monitoring and reporting GHG emissions) will developing countries need?
- Criteria for evaluating Sectoral Approaches
  - » GHG environmental effectiveness
  - » Contribution to sustainable development
  - » Cost effectiveness
  - » Equity
  - » Operational feasibility
  - » Political feasibility

# Sectoral Study Partners

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- Center for Clean Air Policy – Europe (CCAP)
- Centre for European Policy Studies (CEPS)
- Climate Change Capital (CCC)
- Institut du développement durable et des relations internationales (IDDRI)
- Zentrum für Europäische Wirtschaftsforschung GmbH (ZEW)



# Focus of Efforts

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- Four sectors
  - » Iron & Steel
  - » Aluminum
  - » Cement
  - » Electric Power

***To be coordinated with other industry efforts***
- China, Brazil, Mexico + India
- Three primary sectoral approaches
  - » Transnational Sectoral Approach
  - » Sectoral Bottom-up Approach
  - » Sectoral Carbon Finance Approach
- Quantitative analysis
  - » Mitigation cost curves
  - » Baseline forecasts
  - » Financial analysis
  - » Technology benchmarks
  - » Int'l trade & competitiveness analysis

# Workshops

Events	Place	Date
China technical workshop	Beijing	July 2008
Mexico workshop	Mexico City	September 2008
Benchmarking technical EU workshop	Brussels	September 2008
Brazil workshops	Under reconsideration	
Events in Poznan - Side event - Media briefing on Mexico's role	Poznan	December 2008
Japan stakeholder workshop	Tokyo	February 2009
Second China workshop	Beijing	27-29 April 2009
Second Mexico workshop	Mexico City	August 2009
India stakeholder workshop	New Delhi	October 2009
US technical workshop	Washington	October 2009
Events during AWG-KP and AWG-LCA and SB30 meeting	Bonn & Bangkok	March/April, June, August 2009
Final Conference	Brussels	Early 2010



## Some next steps (planned)

- Interim Report (November 2008)\*
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- Finance design options
  - Mexico sectoral target-setting process
  - Developing country capacity-building needs
  - China technology targets
  - International trade impacts of implementing sectoral approaches in the cement sector in China and Mexico
  - US legislative options for financing developing country mitigation efforts
  - The role of industry
  - Recommendations
  - Final Report



\*<http://www.ccap.org/docs/resources/560/FINAL%20CCAP%20Sectoral%20Study%20and%20Exec%20Overview.pdf> or: [www.ccapeurope.org](http://www.ccapeurope.org) → sectoral study

# ***What Are Elements of Sectoral Approaches?***

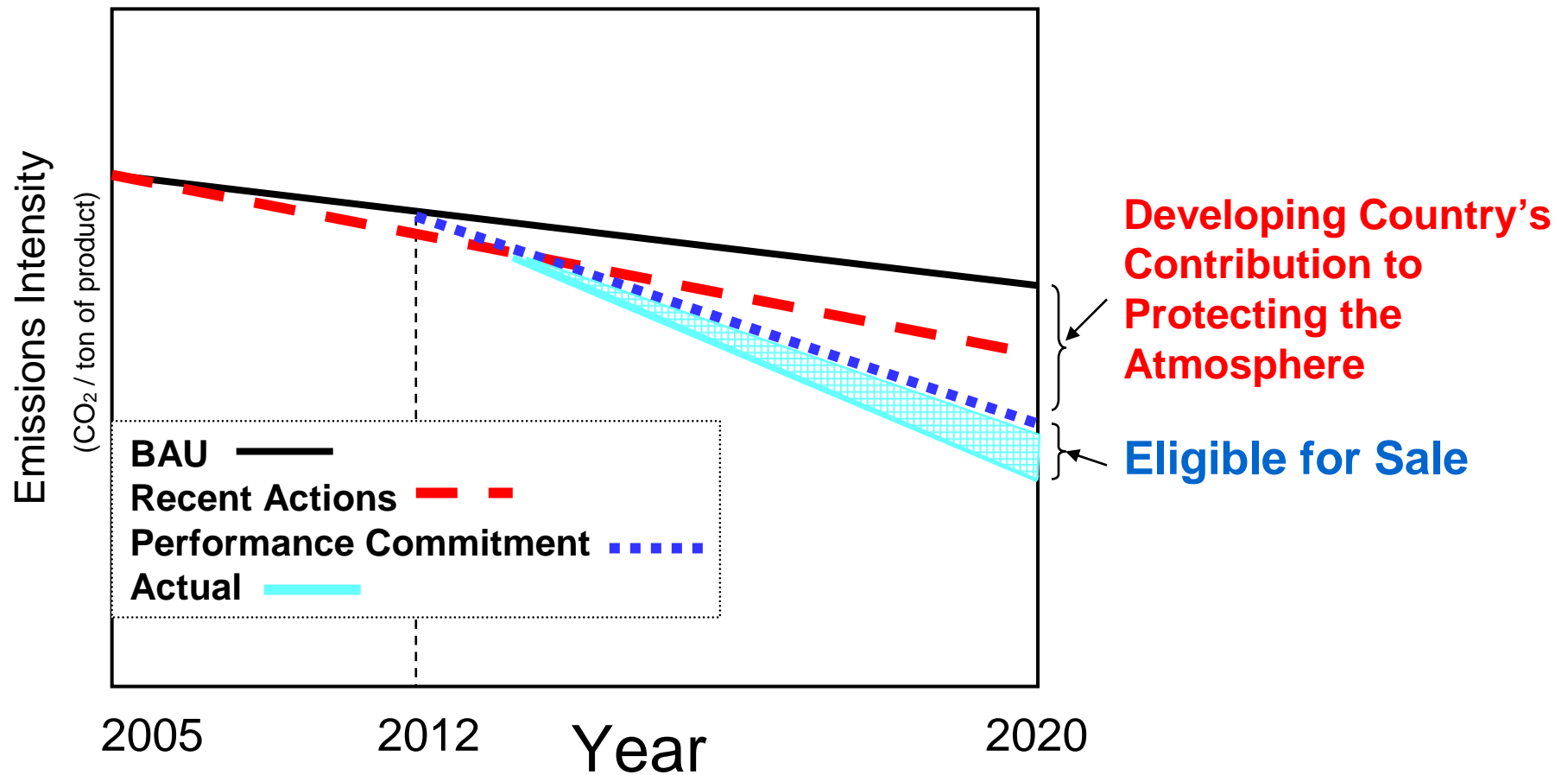
# Elements for a Sectoral Program: lessons learned from previous work

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- **Build on developing country unilateral actions**
    - » Place importance on both encouraging sustainable development and on achieving GHG reductions
  - **Build goals from the *bottom-up***, recognizing industry and country-specific circumstances
    - » Encourage developing countries to take actions & provides incentives for going further
    - » Maintain “common but differentiated responsibilities and respective capabilities”
- Can moderate GHG leakage in energy-intensive and trade-sensitive sectors
- » Bend developing country near-term emissions growth
  - » Relieve political opposition in Annex I countries

# Sectoral “Performance Goals”



# Developed Country Role

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- The role of developed countries is to provide *verifiable* assistance, i.e.
  - » Capacity building for monitoring, reporting, verification; and
  - » Sharing knowledge on advanced technologies and best practices (e.g. APP)
  - » Financial incentives (direct budgetary resources or through International Finance Institutions) to overcome barriers
  - » Carbon market access (through eligibility or sectoral crediting mechanisms)
  - » Technology transfer



**To enable more ambitious developing country targets**

# Sources of Finance and Technology

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- Countries could provide financing by setting aside a portion of allowances or auction revenues in domestic trading systems, e.g.,
  - - » German Parliament has earmarked 30% of auction revenues
    - » EU has agreed that 50% of auctioning revenues will be used for climate change (internal and external) including int'l EE/RE, and measures to avoid deforestation.
    - » Norwegian Finance Minister has proposed use for international programs including adaptation, technology, and reducing deforestation
    - » Lieberman-Warner bill uses such an approach for int'l forestry

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# ***Lessons Learned to date***

# Advancing from the Theory to a “Proof of Concept”

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- Reality is often messier than theory
  - » Data availability remains a challenge
  - » Setting benchmarks is non-trivial (product, process, sector boundaries ...)
  - » National differences (availability of fuel, energy policies)
  - » Variations within each industry (production patterns)
  - » Political obstacles
  - » ***Monitoring, reporting and verification (MRV)***
- MRV is especially important when incentives are introduced
  - » High level of accuracy of measurement is key (if financial incentives are provided)
  - » *What* you measure, and *how* you measure, affects how rewards/penalties are distributed

# Gauging an Industry's Suitability for Sectoral Approaches

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- No “one size fits all” for sectoral approaches (national and sectoral variation)
- Some characteristics suitable for sectoral approaches
  - » Energy use and emissions large enough
  - » Relatively uniform product
  - » Limited number and/or range of co-products
  - » Production processes that can be compared
  - » Abilities to measure, report & verify data
- “Proof of concept” may reveal that some industries are not suited for sectoral approaches

# General Lessons

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Sectoral approaches should:

- » have clearly defined objectives
- » build on ongoing unilateral mitigation actions
- » Produce material participation and material emission reductions across sectors and countries
- » Support national sustainable development strategies

# General lessons

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As a result .... sectoral approaches must:

- » Be flexible and take national and local circumstances into account
- » Produce technological innovation and transfer
- » Offer sufficient incentives to both governments and industry in both developing and developed countries

# Target Setting

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- Lack of plant-specific data, cost data and confidentiality problems  
→ we cannot create “objective” intensity targets – targets can be based on status of technology penetration in a given country
- Example of phase 1 ETS – data on industry emissions and costs was lacking
- Targets should not be limited rigidly to carbon per ton of production sector-wide goals
- Technology-based targets can be more effective in some settings and more easily implemented (e.g. Chinese cement)

# Target Setting (II)

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- Key question will be what policies and measures will country implement to achieve the targets
- Process of setting targets in developing countries will be like that in Annex I – a policy and political negotiation process
- International process will also be a negotiation between developing country and A1 donor countries where level of effort is tied to level and nature of up-front financial support

# Design of Incentives

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- Bottom-up analysis of barriers reveals need for tailored incentives (e.g. Mexico and cogeneration)
- Sectoral programs may require third party entities (IFIs) that can tailor incentives and financing to maximize effectiveness
- There is no substitute for in-depth bottom-up analysis and consistent data – capacity building for developing countries needs to begin immediately

# The workshop agenda

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- Results and lessons from phase I of the study
- Data collection and benchmarking issues as the backbone
- Country and sector-specific data and benchmarking challenges for MRV actions
- Enhancement of capability to implement sectoral approaches effectively in the post-2012 architecture
- MRV actions based on sectoral approaches in the post-2012 architecture
- The role of business
- Concluding discussion

# Thank you!

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***For more information:***

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