

Tackling Climate Change

PRICING CARBON TO ACHIEVE
GREENHOUSE GAS MITIGATION

Action on climate change is urgently needed. Implementing policy that leads to a price on carbon is part of the solution to mitigating climate change. The World Bank's PMR, bringing together more than 30 countries, provides a platform to explore and implement cost effective and innovative approaches to greenhouse gas mitigation, including domestic emissions trading schemes (ETS), new carbon crediting instruments, and carbon taxes. This event showcases the domestic actions and role of carbon pricing among some of the fastest growing economies.



Shaping the Next Generation of Carbon Markets

Tackling Climate Change

PRICING CARBON TO ACHIEVE GREENHOUSE GAS MITIGATION

Wednesday, March 13, 2013

2:30 PM to 5:30 PM

The Preston Auditorium, The World Bank

PART I

Putting a Price on Carbon: Update from the Partnership for Market Readiness (PMR)

State of Play on PMR Activities: Ms. Xueman Wang, PMR Secretariat


China: *From Piloting to a National Emissions Trading Scheme*, Mr. Wang Shu, National Development Reform Commission, China and Mr. Duan Maosheng, Tsinghua University


South Korea: *Implementing a Domestic Emissions Trading Scheme by 2015*, Mr. Yong Gun Kim, Korea Environment Institute

South Africa: *Pricing Carbon through a Carbon Tax*, Mr. Mpho Legote, National Treasury, South Africa

PART II

High-level Event: Exploring Carbon Pricing to Achieve Climate Change Mitigation

 **Welcome Remarks:** Ms. Rachel Kyte, Vice President, Sustainable Development Network, The World Bank

 **Keynote Address:** *The Role of Market Instruments in Costa Rica's Carbon Neutrality Goal*—H.E. René Castro Salazar, Minister of Environment and Energy, Costa Rica

Panel Discussion: *Market Based Solutions—Challenges and Opportunities*

Moderator: Mr. Fernando Tudela, former Vice Minister for Environment and Natural Resources, Mexico

Australia: Mr. Robert Owen-Jones, Department of Climate Change and Energy Efficiency

California: Ms. Edie Chang, Air Resources Board

China: Mr. Wang Shu, National Development Reform Commission

European Commission: Ms. Vicky Pollard, DG Climate Action

International Emissions Trading Association (IETA): Mr. Dirk Forrister

Closing Remarks: Mr. Min Zhu, Deputy Managing Director, International Monetary Fund

PMR

BUILDING READINESS TO PUT A PRICE ON CARBON

The Partnership for Market Readiness (PMR) brings together about 30 countries to design and pilot market-based approaches, carbon taxes, and other cost-effective mitigation instruments to achieve domestic mitigation objectives. The partnership is a key forum for countries to share experience, pool knowledge, and build common approaches that create a foundation for a globally networked carbon market.

PMR Implementing Country Participants

BRAZIL

Explore options for various types of carbon pricing schemes in order to select suitable instrument for implementation; and build MRV capacity

CHILE

Build capacity and understanding within government and across stakeholders on market-based approaches. Design domestic ETS pilot within the energy sector and support creation of an MRV and GHG registry system

CHINA

Design national ETS with focus on inclusion of the electricity sector and state-owned enterprises (SOE)

COLOMBIA

Explore options for market instruments in the urban transport sector

COSTA RICA

Design and develop a domestic carbon market, including building domestic market “infrastructure”

INDIA

Build an integrated GHG data management system and develop an off-grid Renewable Energy Certificate (REC) program. Expand sectoral coverage of the Perform Achieve and Trade (PAT) system

INDONESIA

Explore various types of market instruments, build domestic carbon market “infrastructure”, and pilot MRV framework in power plants and cement industry

JORDAN

Explore scaled-up crediting for NAMAs in renewable energy, water (energy efficiency in pumping, waste water treatment) and/or solid waste management sectors and support capacity building for data collection, baseline setting and MRV system

MEXICO

Develop and implement crediting NAMAs for urban sector, urban transport, and refrigerant appliances and set up registry/tracking and MRV systems

MOROCCO

Pilot carbon market-based approaches in selected sector and build carbon market infrastructure, including GHG registry and MRV framework. Explore integration with international market

PERU

Map readiness needs and capacity gaps in various NAMAs to select suitable sectors for a market instrument; Develop market readiness “infrastructure” and prepare for piloting

SOUTH AFRICA

Refine design features of proposed carbon tax and complementary offset mechanism, and strengthen MRV capacity

THAILAND

Create an Energy Performance Certificate scheme (EPC) and a pilot Low Carbon City Program (LCC)

TURKEY

Implement robust, installation-level MRV system based on MRV law and lay out road map toward implementation of an ETS

UKRAINE

Design installation-level MRV for energy sector and lay out road map toward implementation of an ETS

VIETNAM

Design and pilot market instruments in the steel, solid waste, and power (EE) sectors and establish a GHG registry and MRV system

*The PMR activities of Chile, China, Costa Rica, Mexico, South Africa, and Turkey are featured in more detail on pages 9–11.

ETS emissions trading scheme
NAMA nationally appropriate mitigation action
MRV monitoring, reporting & verification

PMR Contributing Participants

Australia
Denmark
European Commission
Finland
Germany
Japan

Netherlands
Norway
Sweden
Switzerland
United Kingdom
United States

PMR Observer Countries

Italy
New Zealand
Singapore
South Korea



ETS

EMISSIONS TRADING SCHEMES IN ACTION

From 2013 onward, at least 35 countries, 11 sub-national jurisdictions in the United States and Canada, and 7 cities and provinces in China, are participating or preparing to participate in ETS. Profiled below is a sampling of these schemes.

Australia

POLICY CONTEXT

- Australia's Clean Energy Future package is a comprehensive plan that introduces a price on carbon, promotes innovation and investment in renewable energy, encourages energy efficiency and creates opportunities in the land sector to cut pollution. The Clean Energy Future Package aims to reduce Australia's emissions to 5% below 2000 levels by 2020. This corresponds to a 22% reduction of projected emissions were Australia not to take action. The Australian Government has also committed to reduce emissions by 15 or 25% below 2000 levels by 2020, depending on the scale of global action, and achieve an 80% reduction in emissions from 2000 levels by 2050.

BUILDING TOWARD A MARKET PRICE ON CARBON

- At the centre of Australia's Clean Energy Future package is the carbon pricing mechanism, which began July 1, 2012. The mechanism commenced with a three-year fixed price period, starting at AU\$23/tonne. From July 1, 2015, Australia will have a fully flexible ETS where the carbon price will be set by the market. The carbon pricing mechanism covers 350 of Australia's largest emitters and more than 60% of Australia's total emissions including the stationary energy sector, industrial processes, non-legacy waste, fugitive sources and some transport emissions. The integrity of the Clean Energy

Future package is reinforced by the role of newly established independent organizations and existing, well-respected bodies in its administration, development and review.

Source: <http://www.cleanenergyfuture.gov.au/>

California

POLICY CONTEXT

- California's *Global Warming Solutions Act of 2006* calls for a statewide reduction in GHG emissions to 1990 levels by 2020. This equates to a 15% reduction, compared to a business-as-usual emissions trajectory. California also aims to reduce emissions by 80% below 1990 levels by 2050. The law directs the California Air Resources Board (CARB) to take immediate steps to reduce emissions and prepare a Scoping Plan to identify the best ways to reach the 2020 targets.

IMPLEMENTING CAP-AND-TRADE

- California's cap-and-trade plan—which takes effect this year—sets a state-wide limit on sources responsible for 85% of California's GHG emissions and establishes a price signal to drive long-term investment in cleaner fuels and energy efficiency. The program covers major GHG production sources within California such as refineries, power plants, industrial facilities, and transportation fuels.

Source: <http://www.arb.ca.gov/cc/cc.htm>

European Union

POLICY CONTEXT

- The European Union (EU) has committed to transforming Europe into an energy-efficient, low carbon economy. The EU targets GHG emissions reductions progressively up to 2050: these targets include cuts of 20% by 2020 and 80–95% by 2050, from 1990 levels.

PIONEERING EMISSIONS TRADING

- The EU ETS is a cornerstone of the EU's policy to combat climate change and is a key tool for cost-effectively reducing industrial and power sector GHG emissions. Launched in 2005, the EU ETS is now in its third phase, with significant improvements, running from 2013 to 2020. Covering about 45% of the EU's emissions, the program includes more than 11,000 power stations and industrial plants in 31 countries. The European Commission has agreed in principle to link the EU ETS with Australia's system in stages from mid-2015. Formal negotiations on full linking can start as soon as a mandate (proposal currently being discussed) has been agreed by the EU Member States.
- Since 2009, and as a result of the economic crisis, the EU ETS has experienced a growing surplus of allowances and international credits compared to emissions; this surplus has significantly weakened the program's price signal. As a result, the European Commission has proposed to backload auctioning of 900 million supply/allowances from 2013–2015 to 2019–2020 and launched stakeholder consultations on structural changes to the EU ETS.

Source: http://ec.europa.eu/clima/policies/brief/eu/index_en.htm

Québec

POLICY CONTEXT

- The cornerstone of Québec strategic approach to emissions reduction and increased resilience to the impacts of climate change, *Action Plan 2020*, presents an array of tools to meet the region's goal to reduce emissions to 20% below 1990 levels. Additionally, Québec will bolster the activities in the action plan with other strategies, policies and key directions, in particular in the areas of transportation, land-use planning, and energy.

EXPANDING CARBON MARKET COVERAGE IN NORTH AMERICA

- One of the key measures of Quebec's *2020 Climate Change Action Plan* is a Cap-and-Trade System for greenhouse gas emission in the context of a North American carbon market. Enforced since January 2012, the system will cover by 2015 more than 80% of Québec's emissions. It will also enable the government to benefit from substantial revenue generated by the sale of emissions allowances. A conservative estimate of this revenue is ~\$2.7 billion by 2020, which will be fully reinvested in other emissions reduction and climate change adaptation measures featured in Quebec's *2020 Climate Change Action Plan*.

Source: http://www.mddep.gouv.qc.ca/changements/plan_action/index-en.htm

Regional Greenhouse Gas Initiative (RGGI)

POLICY CONTEXT

- The Regional Greenhouse Gas Initiative (RGGI) is the first market-based regulatory program in the United States to reduce GHG emissions. Developed to cap and reduce emissions from power generation, RGGI is a cooperative effort among the U.S. states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. For a variety of reasons, emissions from regulated sources have fallen by more than one third since the program started in 2009. In February 2013, RGGI released a comprehensive program review and accompanying proposed amendments. By January 1, 2014, RGGI member states must update their commitments to the ETS in accordance with the new rules in order to continue participating in the program. The amended program will cap emissions at current levels in 2014, then reduce the cap by 2.5% annually through 2020.

RECYCLING REVENUES TO IMPROVE THE REGION'S ENERGY FUTURE

- States in the RGGI program sell nearly all emissions allowances through auctions. Through September 2012, proceeds from the RGGI auction have yielded US\$1.08 billion. Participating states commit to use a minimum of 25% of these proceeds for a “consumer benefit or strategic energy purpose.” In practice, all nine of the RGGI participating states have exceeded that commitment.

Source: <http://www.rggi.org/>

South Korea


POLICY CONTEXT

- South Korea pledges to reduce its emissions by 30% below business-as-usual by 2020. An ETS is central to achieving this target cost-effectively and the country has designed its scheme such that it also promotes green growth and low-carbon energy-efficient technologies. The country's ETS legislation passed with bipartisan support at the National Assembly and became law in November 2012.

IMPLEMENTING EMISSIONS TRADING BY 2015

- The South Korean ETS will have three phases: 2015–2017, 2018–2020, and 2021–onward; from 2021, there will be a compliance period of five years. The scheme covers about 60% of the country's emissions from the energy and industry sectors. Participation is mandatory for emitters that reach a defined threshold. Trade-exposed industries will have 100% free allocation of allowances. Domestic and foreign offsets will be allowed during each phase—though only for a portion of total allowances. South Korea will accommodate market intervention through sales of strategic reserves, price ceilings and floors, regulation of trades, and offsets. Further, a penalty for non-compliance equivalent to about US\$113/tCO₂e will be imposed.

Source: <http://eng.me.go.kr/main.do>



“Achieving a predictable price on carbon that accurately reflects real environmental costs is key to delivering emission reductions at scale.”

Jim Kim, President of the World Bank
The Washington Post, January 24, 2013

The Market Readiness Proposal (MRP) provides a framework for planning, designing, and piloting a market mechanism, as well as for identifying capacity gaps that need to be addressed in order to implement such a mechanism. The five countries profiled below have completed an MRP.

Chile

POLICY CONTEXT

- By 2020, and with sufficient international support, Chile pledges to reduce emission by 20% below its business-as-usual emissions growth trajectory in an effort to support its low carbon development goals. A primary focus is deriving emissions savings from energy efficiency and renewable energy development, as well as land use change and forestry measures.

RECONCILING ECONOMIC GROWTH WITH A COMMITMENT TO CARBON MITIGATION

- Like many emerging economies, Chile's economy is growing fast. Such growth will mean an increase in emissions and an increase in the cost to mitigate them. Chile recognizes the important role that cost-effective, market-based instruments can play in limiting the growth of carbon emissions.

PMR WILL SUPPORT CHILE...

- Prepare for a political decision on the potential implementation of an ETS within the energy sector. Furthermore, the PMR will support (i) capacity-building for regulatory, economic and institutional analyses needed to design the energy sector ETS; (ii) design and implementation of a MRV and GHG registry systems; and (iii) stakeholder engagement.

Source: PMR Market Readiness Proposal submitted by the Chilean Ministry of Energy, February 2013

China

POLICY CONTEXT

- China's climate change strategy is integrated into its social and economic development planning. Action on climate change mitigation will be an important catalyst for the restructuring of key aspects of the Chinese economy, including the power sector. China pledges to reduce its carbon dioxide emissions per unit of GDP by 40–45% by 2020, compared with 2005 levels, and increase non-fossil-based primary energy consumption to 15% by 2020.

PILOTING EMISSIONS TRADING

- China is exploring and piloting domestic ETS to achieve its mitigation target cost effectively. These pilots cover 5 cities and 2 provinces, accounting for 18% of China's population and 28% of its national GDP. Several pilots will become operational in 2013.

PMR WILL SUPPORT CHINA...

- Design and prepare for a national ETS, including work on cap setting, allocation, MRV, mechanisms for price containment, market oversight and a legal framework. Specific analytical work will be carried out on the inclusion of SOEs and the power sector. A national ETS is targeted to launch between 2016 and 2020.

Source: PMR Market Readiness Proposal submitted by the Chinese National Development and Reform Commission, February 2013

Costa Rica

POLICY CONTEXT

- Costa Rica aims to achieve a “carbon neutral” economy by 2021. This commitment is incorporated into both the *National Development Plan, 2011–2014*, the country’s highest-level policy statement, and the *National Climate Change Strategy*, a long-term strategy for sustainable development that seeks to align the country’s low carbon growth and eco-competitiveness strategies.

LEVERAGING MARKET INSTRUMENTS TO DRIVE AN ECO-ECONOMY

- Central to achieving a carbon neutral economy is the establishment of a domestic carbon market to meet the goal in a flexible, cost-effective way, while providing financial incentives to the private sector for investment in low emissions technology and to develop the country’s eco-competitive strategies.

PMR WILL SUPPORT COSTA RICA...

- Complete the design for Costa Rica’s domestic carbon market; build capacity for GHG data reporting and registry; strengthen domestic demand for emission reduction units; and consolidate supply of emission units across a range of sectors.

Source: [PMR Market Readiness Proposal submitted by the Costa Rican Ministry of Environment and Energy, February 2013](#)

Mexico

POLICY CONTEXT

- Mexico’s *General Climate Change Law*, passed in 2012, creates an unprecedented legislative mandate to transition towards a competitive, sustainable economy that generates environmental, social and economic benefits. Internationally, Mexico pledges to reduce up to 30% of its emissions by 2020 compared to its baseline scenario, dependent on international support and participation in external markets.

EXPLORING OPPORTUNITIES WITH NEW MARKET MECHANISMS

- Mexico is helping to define the role of new market mechanisms by leading the design of crediting Nationally Appropriate Mitigation Actions (NAMAs), which enhance the scale of their emissions reduction activity, address entire sectors of the economy and allow the development of a series of co-benefits like the development of national capacities.

PMR WILL SUPPORT MEXICO...

- Support the design of an MRV framework and the institutional design of three crediting NAMAs. In addition, the PMR will support the development of a NAMA tracking tool to record transactions and emissions reductions—key for the prevention of double counting and to ensure transparent accountability.

Source: [PMR Market Readiness Proposal submitted by the Mexican Ministry of Environment and Natural Resources, February 2013](#)

Turkey

POLICY CONTEXT

- Turkey seeks to integrate its climate change agenda with its economic development goals. The country's *National Climate Change Action Plan* specifically identifies market-based approaches as a key tool to achieve carbon mitigation. Turkey is currently exploring options for crediting NAMAs and emissions trading. In April 2012 Turkey passed national legislation requiring energy and industry sector installations to report GHG emissions.

PMR WILL SUPPORT TURKEY...

- Design key aspects of an installation-level MRV system to be implemented in Turkey's energy and industry sectors and explore other sectors to which the system can be expanded. In addition, the PMR will support the design of a GHG data management and registry system to monitor GHG inventories. Finally, Turkey will lay out a possible road map for the implementation of a domestic ETS.

Source: PMR draft Market Readiness Proposal submitted by the Turkish Ministry of Environment and Urbanization, February 2013

South Africa¹

POLICY CONTEXT

South Africa seeks to reduce its reliance on fossil fuels and to reduce the carbon intensity of its growing economy. The country has a dual objective to make these reductions while ensuring economic growth, increased employment, and reduced poverty and inequality. South Africa pledges to reduce domestic emissions by 34% by 2020 and 42% by 2025 from business as usual, subject to the availability of adequate financial and technological support.

PRICING CARBON THROUGH A TAX

South Africa will introduce its first carbon tax in January 2015. The tax will be equal to R120/tCO₂e (approximately US\$13.6/tCO₂e). A tax-free exemption threshold of 60% will be set, with additional allowances for emissions intensive and trade-exposed industries. An offset program will be included to allow these industries to invest in projects outside their normal operations to help reduce their carbon tax liabilities.

PMR WILL SUPPORT SOUTH AFRICA...

Assess the impact and refine the design features of a proposed carbon tax and complementary offset mechanism. The PMR will also support the design of an MRV framework for GHG emissions at the facility level.

Sources: PMR Organizing Framework for Scoping of PMR activities, submitted by National Treasury, May 2012 and 2013 Budget Speech, Ministry of Finance, February 27, 2013.

¹ South Africa will present its carbon tax plan during Part I of this event.



Carbon Finance Unit
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