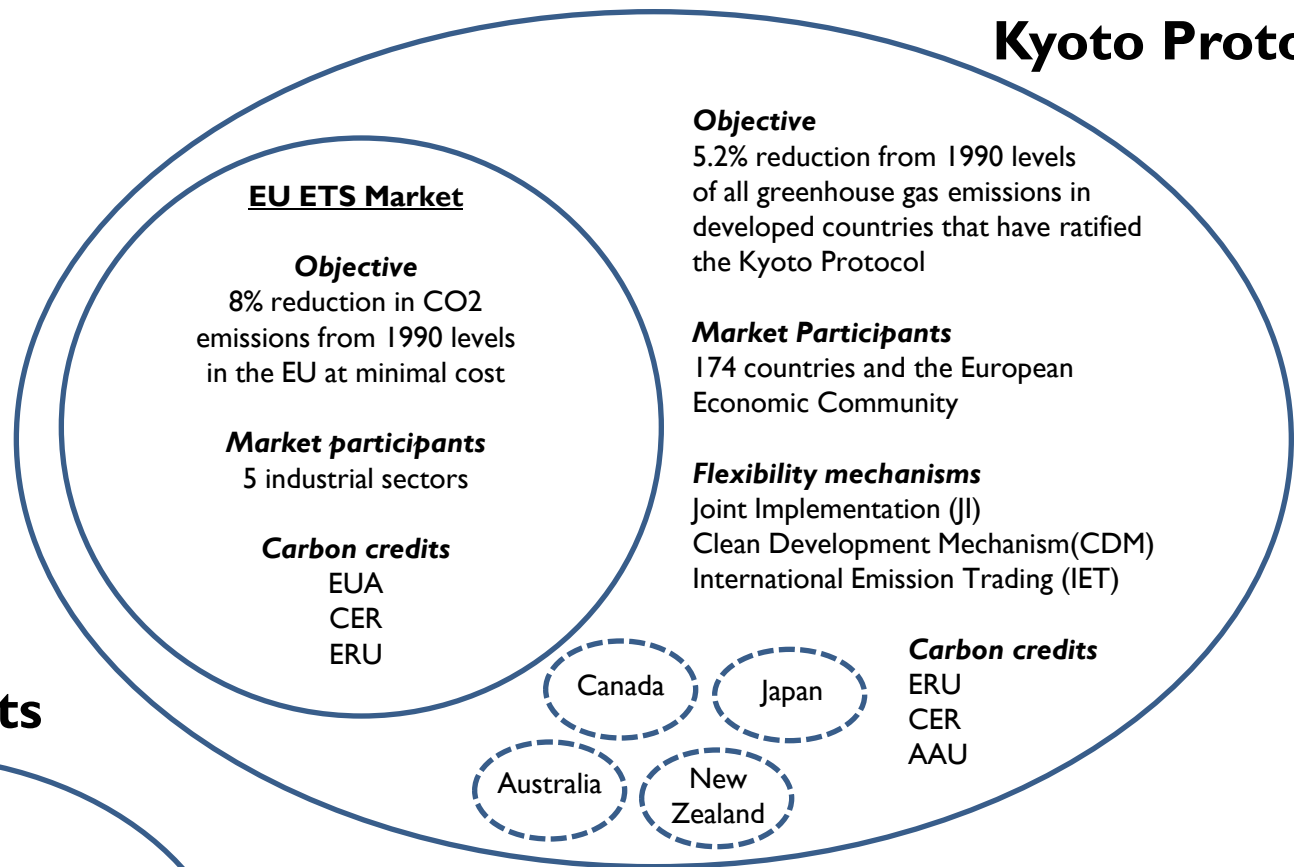


Leveraging the Clean Development Mechanism – Opportunities for Clean and Sustainable Technologies in the Developing World



The Global Context – Carbon Markets

Kyoto Protocol



EU ETS Market

Objective
8% reduction in CO2 emissions from 1990 levels in the EU at minimal cost

Market participants
5 industrial sectors

Carbon credits
EUA
CER
ERU

Objective

5.2% reduction from 1990 levels of all greenhouse gas emissions in developed countries that have ratified the Kyoto Protocol

Market Participants

174 countries and the European Economic Community

Flexibility mechanisms

Joint Implementation (JI)
Clean Development Mechanism(CDM)
International Emission Trading (IET)

Carbon credits

ERU
CER
AAU

Canada

Japan

Australia

New Zealand

Voluntary Markets

Objective

Offset greenhouse gas emissions on a voluntary basis

Market Participants

Companies, local authorities, individuals

Carbon credits

VER, VCU

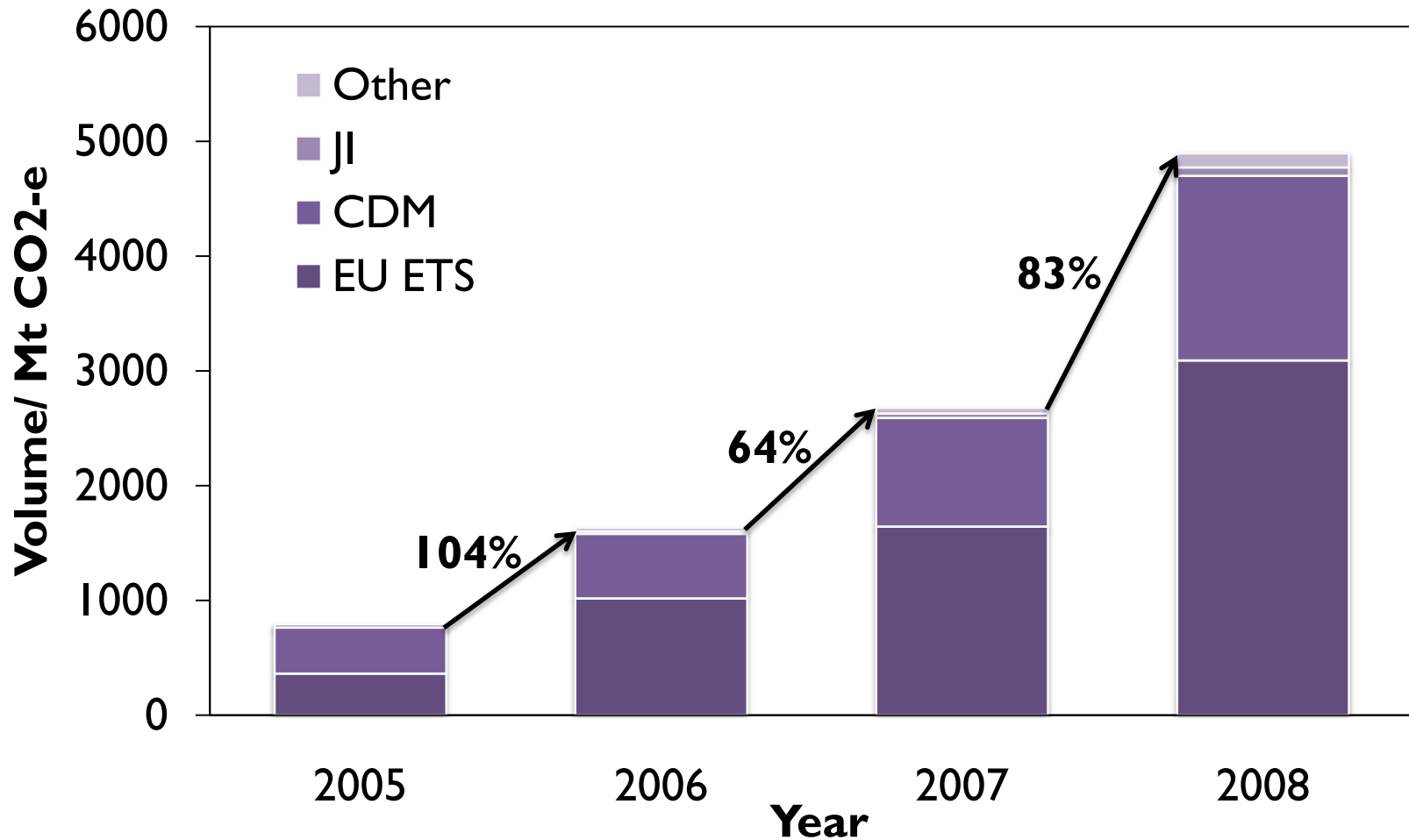
Other local markets

United-States: RGGI, WCI etc
Australia

Global Carbon Markets –current state of play

- Total value of global carbon markets
 - 2008 US\$125 billion
 - 2007 US\$62 billion
 - 2006 US\$34 billion
- EU ETS, 3.1 billion t CO₂e traded in 2008, total value of €67 billion
- CDM , 1.6 billion t CO₂e traded in 2008, total value of €24 billion.
- JI, 72 million t CO₂e traded in 2008, total value of €720 million.
- National and regional emissions trading systems are being developed rapidly. The US, Japan and Australia are expected to be particular areas of growth.
- Less than 12 months until Copenhagen where post 2012 agreement to be negotiated

Carbon Markets – Traded Volumes



Kyoto Project Based Mechanisms

- Kyoto Protocol Project based, or flexibility, mechanisms:
 - Clean Development Mechanism
 - Joint Implementation
- The Kyoto project mechanisms stimulate sustainable development and emission reductions, while giving industrialised countries some flexibility in how they meet their emission reduction limitation targets
- The goal of CDM is for developing countries without a target to:
 - Reduce their emissions
 - Attract foreign investment in projects
 - Promote sustainable development
 - Provide access to new technologies

CDM in closer detail

Principle

A project-based approach whereby parties in 'developed' countries can create carbon credits from GHG reduction projects implemented in 'developing' countries.

Requirements

- Create real, measurable, and long-term emission reductions
- Be 'additional'
- Contribute to sustainable development in host country

Carbon asset

Certified Emission Reductions (CERs)

Buyers

- Annex I Governments, companies under the EU ETS.
- Voluntary buyers
- Future regional schemes (US, Australia) will accept CERs for compliance.

CDM Project Cycle

Planning

- Project screening and evaluation

Project Design Document

- Documentation of project activity, baseline and monitoring

Party Approval

- Written approval from Host (developing) country and developed country

Validation

- Independent evaluation of the PDD against the requirements of the CDM

Registration

- Project submitted to the CDM Executive Board

Monitoring

- Implement project, collect data & calculate actual emissions reductions

Verification & Certification

- Emissions reductions verified & written certification given

Issuance of CERs

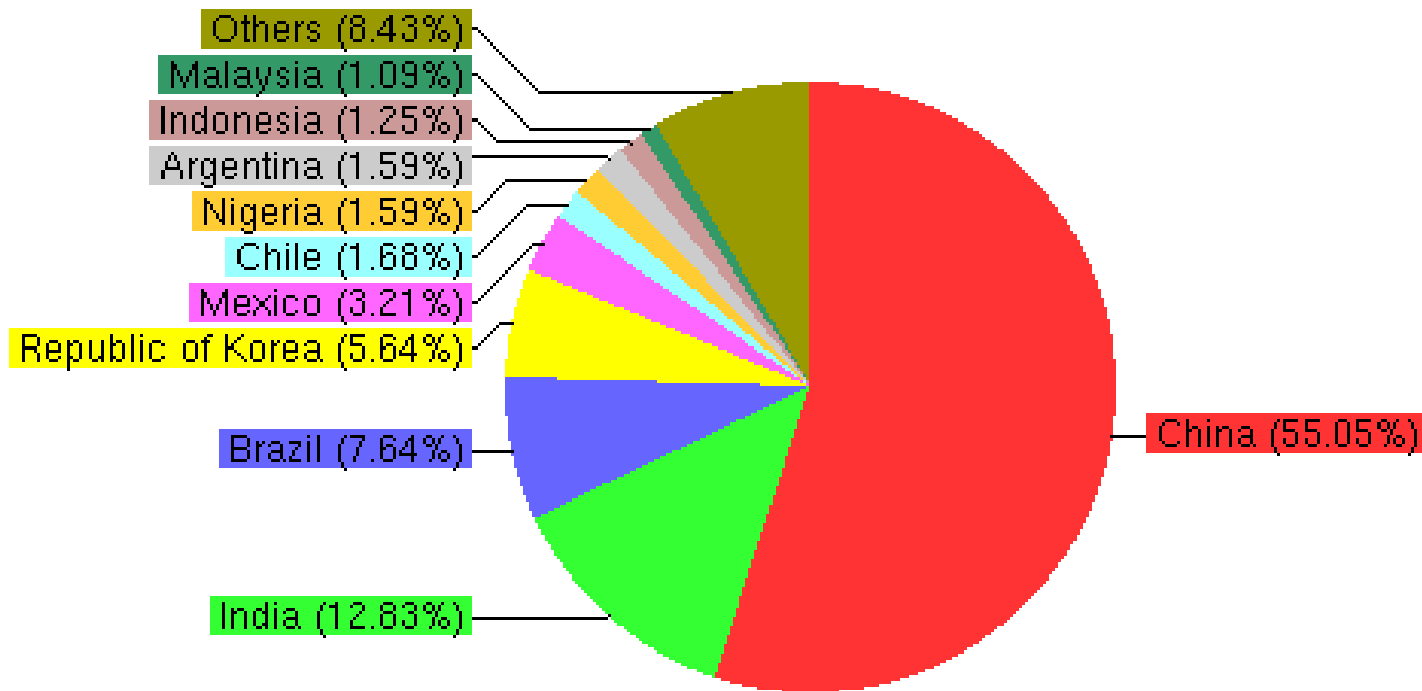
- Certified Emissions Reductions (CERs) are issued

Distribution of CERs

- CERs distributed to Project Participants

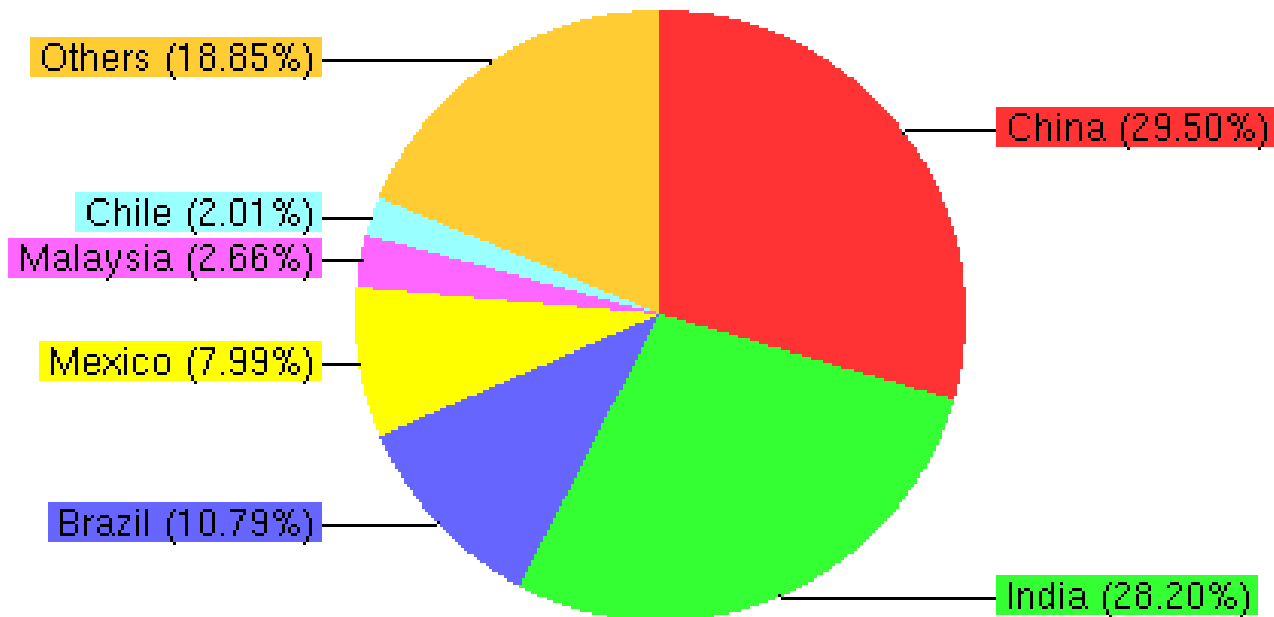
Expected CERs from Registered Projects

Expected average annual CERs from registered projects by host party. Total: 258,985,240



Registered Project Activities by Country

Registered project activities by host party. Total: 1,390



CER Demand Post 2012

- Point Carbon estimates that under a comprehensive global agreement 10.5 billion t of emissions reductions against business as usual will need to occur between 2013-2017, and 23 billion t between 2018-2022
- New measures from EU parliament will allow companies covered by the EU ETS to import 1.7 billion t of Kyoto Credits from 2008 - 2020
- US developments are encouraging
 - President Obama supports cut to 80% below 1990 levels by 2050
 - CERs are to be used for regional schemes: Western Climate Initiative, Regional Greenhouse Gas Initiative
- Australian and New Zealand schemes both allow for the use of CERs

Australian CPRS

- Medium-term target to reduce emissions by between 5 and 15% below 2000 levels by 2020
- Cap and Trade scheme due to commence in 2010
- Direct compliance obligations on around 1000 companies
- ***Unlimited use of CERs for compliance***

Global Carbon Management

Company's Developing Country Operations

- Identify and implement in-house carbon reduction projects within operations
- Accreditate and verify project according to CDM methodology
- Creation and issuance of carbon assets

Company's Australian Operations

- Meet compliance requirements under CPRS
- Generate additional income through sales of excess carbon assets
- Development of carbon neutral products and services

Leveraging the CDM for your business

- Actively seeking out and implementing greenhouse gas reduction project activities within global operations will present the following opportunities:
 - Potential to create carbon assets at a low cost that can be used for compliance under various world-wide emissions trading schemes (including the EU and Australia)
 - Improve energy efficiency, reducing expenditure and contributing to security of supply
 - Potential to increase quality and quantity of product as a result of the project;
 - Generate additional revenue streams from creating and selling carbon assets excess to own compliance needs

Leveraging the CDM for your business cont.

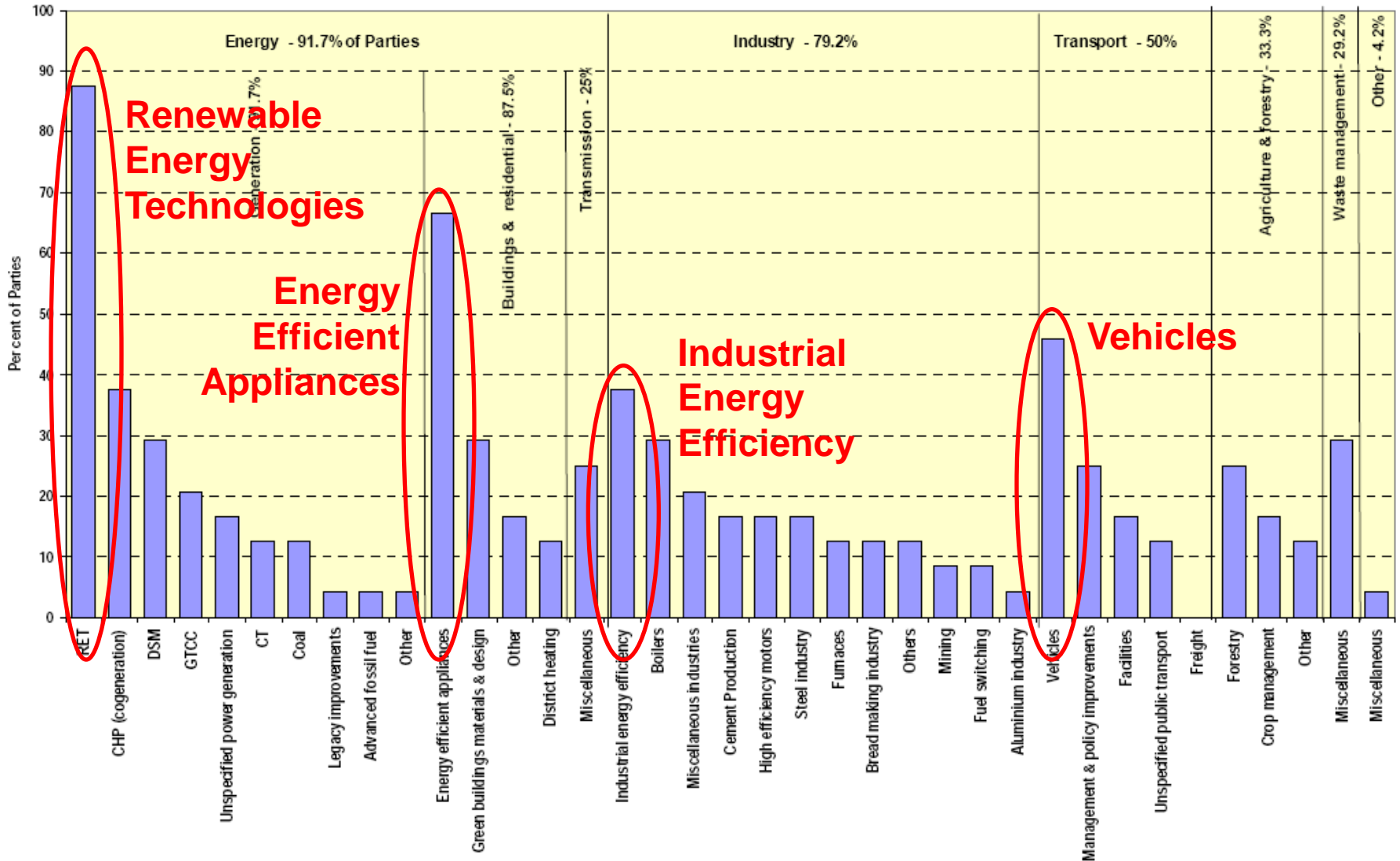
- Actively seeking out and implementing greenhouse gas reduction project activities within global operations will present the following opportunities:
 - Contribution to corporate responsibility and sustainability through technology transfer, reduction in local pollution and possible improvements in living conditions of local inhabitants
 - Potential for creating reduced carbon products
 - Added value for shareholders

Technology Transfer

- Around 39% of CDM projects involve technology transfer, representing 64% of CERs¹
- Host country government can impose technology transfer requirements as a condition of approval
 - Eg. Korea: “environmentally sound technologies and know how shall be transferred”
- To date has been more common in larger projects
- Other factors to consider include tariffs or other barriers to import, perceived and effective protection of intellectual property rights and restrictions on foreign investment

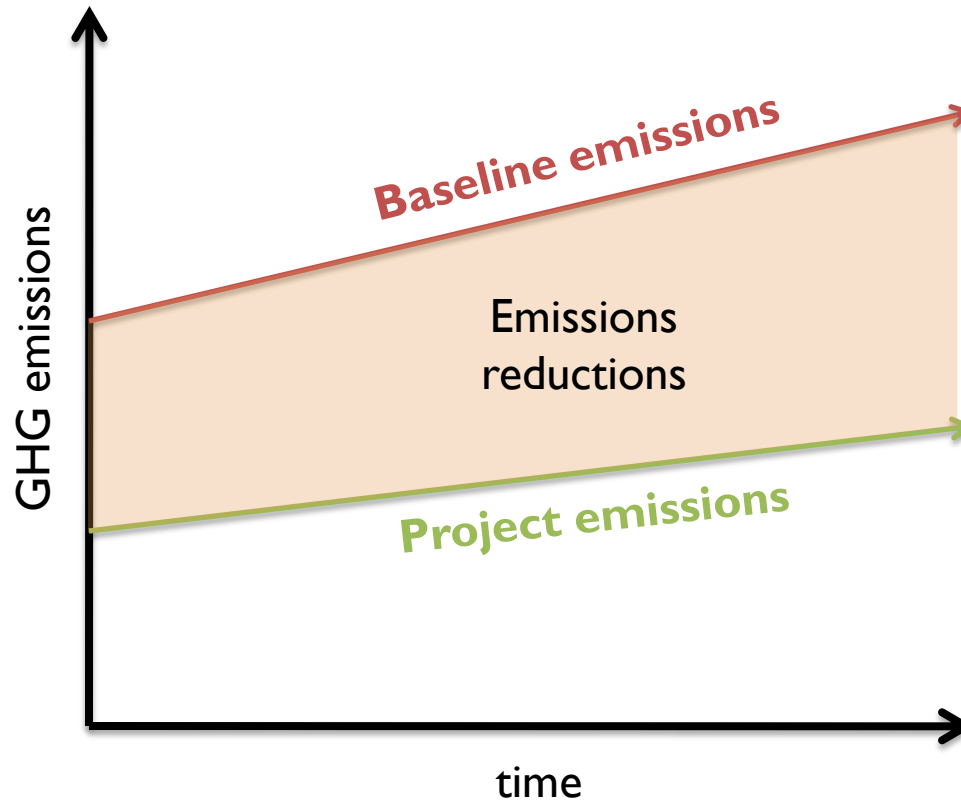
¹ S. Seres, 2007

Technology Needs Assessments



Note: RET - renewable energy technology; CHP - combined heat and power; DSM - demand side management; GTCC - gas turbine combined cycle; CT - combustion turbine.

CDM Project



CDM - Additionality

- A CDM project activity is additional if GHG emissions are reduced below business as usual
- Demonstrating additionality:
 - Investment analysis, to show the project is not the most economically or financially attractive without the revenue from the sale of CERs

OR

- Barrier analysis, to show that barriers exist that prevent the project without the revenue from the sale of CERs

Technology Barrier Examples

- Skilled labour to operate and maintain the technology is not available
- Lack of infrastructure for implementation and logistics for maintenance of the technology
- Risk of technological failure significantly greater than for other available technologies
- Technology used in the proposed project activity is not available in the relevant region
- Prevailing practice: activity is the “first of its kind”

Financing CDM Projects

- Increasingly, more sophisticated buyers are bringing new financing methods to the market
- Funds such as the European Kyoto Fund, Trading Emissions Plc employ a portfolio approach to purchasing in order to minimise their delivery risk
- The use of call option premiums, credit enhancement with issued CERs, multi-market hedging models and other structures is becoming more common-place
- Contracting is becoming more precise and attuned to executing business in developing countries - standardised
- Carbon is increasingly recognised as an asset class in itself and can contribute to the cash flow financial viability of many Developing Country energy projects

Sustainable Development Benefits of CDM

- Increased energy efficiency and conservation
- Transfer of technologies and financial resources
- Local environmental benefits, e.g. cleaner air and water
- Other environmental benefits, such as health benefits from reduced local air pollution
- Poverty alleviation and equity considerations through income and employment generation
- Sustainable energy production
- Private and public sector capacity development



Efficient Stove Project in Zambia

Project

- Community-based Clean Development Mechanism project
- Currently, households depend on charcoal for cooking and hot water, consuming approximately 1.3 tonnes of charcoal per year, which consumes approximately 8 tonnes of biomass
- Stage I is to provide 30,000 households of Lusaka city with highly efficient cooking systems based on renewable biomass, saving 150,000 tonnes CO₂-e year

Sigma's Role

- Project management
- Financial management, including raising project capital
- Managing legal facets of the project's implementation
- Managing carbon assets and portfolio
- Developing and managing poverty reduction and microfinance activities



Key Activities

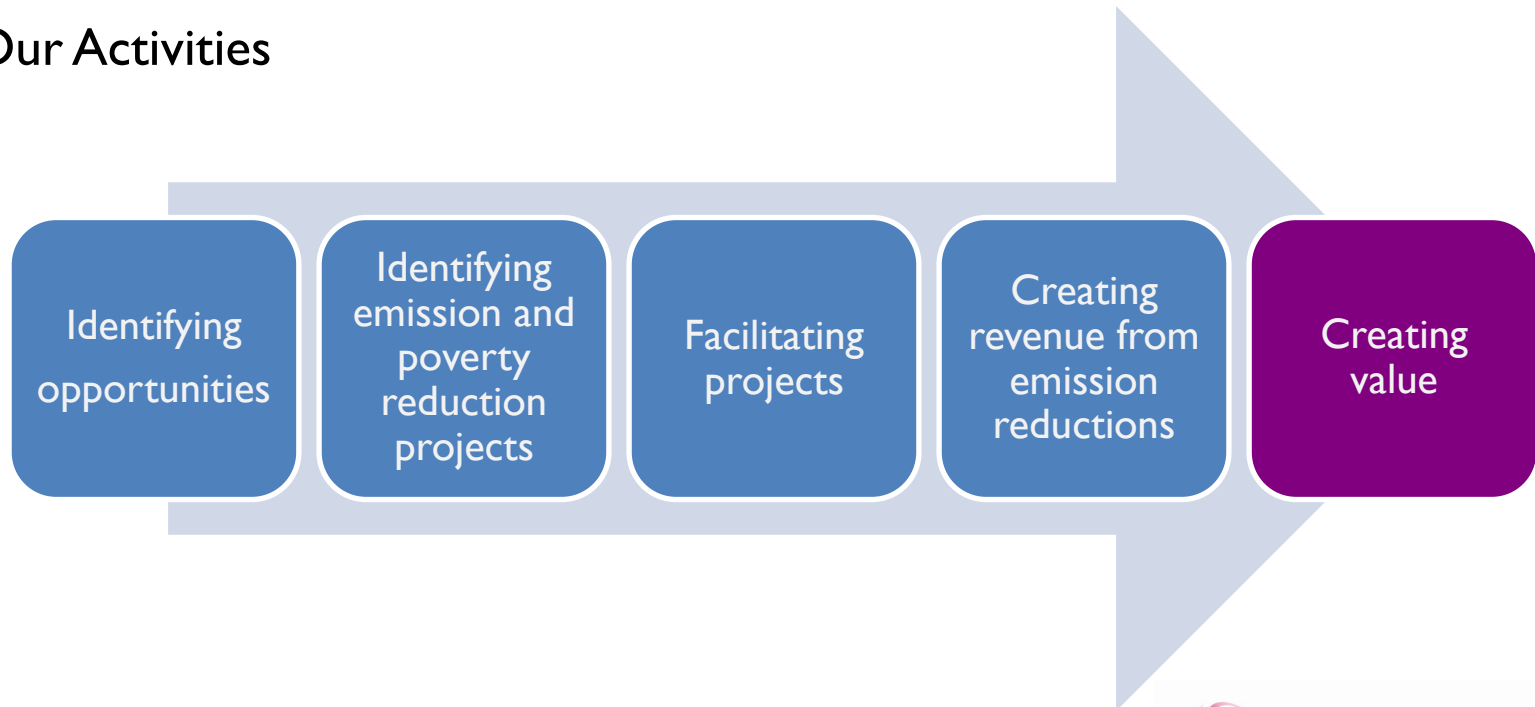
- Sigma Global are Xstrata Technology's exclusive carbon managers, working with their customers to derive the maximum carbon benefit from its high efficiency grinding technology, the IsaMill™.

Sigma's Role

- Demonstrated carbon accreditation opportunities and market value of potential carbon assets
- Identified carbon opportunities available for its customers implementing the efficient IsaMill technology
- Assisting in the sale of the technology and managing all carbon aspects of carbon reduction projects globally

About Sigma Global

- Sigma Global partners with companies to derive value from the emerging climate change and emissions trading arenas. Using the combined commercial, legal, transactional and carbon project expertise of its team, Sigma Global is able to provide a broad range of opportunities for its partners.
- We create value through partnerships and help to manage risk
- Our Activities



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