firstclimate

Opportunities for Thai CDM projects in the post-2012 carbon market

CDM seminar organized by Thai DNA and the Industry Association of Thailand

Lukas Heer, Regional Manager Southeast Asia
First Climate Group

Bangkok, 1 Dec 2010

www.firstclimate.com

Disclaimer

The opinions, estimates and projections in this presentation are the current judgment of First Climate, at the date of this presentation. However, they may change without notice and neither First Climate nor the author of the presentation has any obligation to update, modify or amend this presentation or to notify any recipient thereof in the event that any opinion, forecast or estimate presented, changes or subsequently becomes inaccurate.

This presentation is not an offer or a solicitation of an offer to buy or sell any carbon asset or carbon asset related financial instruments or to participate in any particular carbon asset trading strategy. It is made for informational purposes only. The matters discussed may not be suitable, relevant or pertinent to the circumstances of particular receipients, who should make their own informed decisions in relation thereto.

First Climate Group

www.firstclimate.com

Integrated Carbon Asset Management

Carbon Investment Advisory	Sales & Trading	Climate Neutral Services	Project Finance

Carbon Asset Development (Project Sourcing & Development)

Climate Change Investment I S.A.

Climate Change Investment II S.A.

POST 2012 CARBON CREDIT FUND

Vertically integrated Carbon Asset Management company head-quartered at Frankfurt/Germany with 120+ professionals in 14 offices worldwide.

Pioneer in innovative carbon finance and monetization instruments: carbon funds, a first-of-its-kind Post 2012 Carbon Fund, VER products, carbon swaps, carbon collateralization and guarantee structures.

Currently over €250m of carbon assets under management.

Offers financing solutions for the underlying renewable energy and energy efficiency projects through a combination of project and carbon financing.

Offers custom carbon credit portfolio solutions for compliance buyers.

 firstclimate 3

Outline

- Are there still opportunities post-2012 ?
- Demand and supply scenarios for carbon credits up to 2010
- Possible price developments
- What Sellers and Buyers are there in the future ?
- The Post 2012 Carbon Credit Fund
- Using post-2012 carbon contracts to mobilize bank financing
- Summary and conclusion

 firstclimate 4

Introduction: The window of opportunity is closing fast

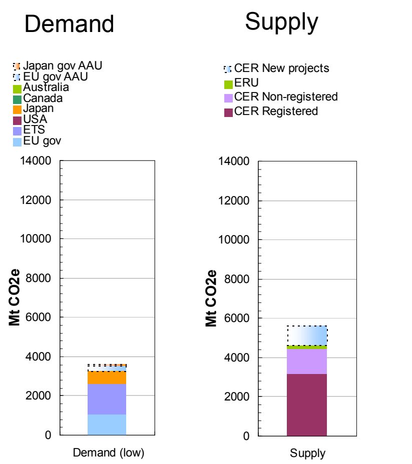
- **First committment period of the Kyoto Protocol ends in 2012**
- **New International agreement on gloabl emissions reductions not in sight anytime soon:**
  - Mexiko 2010: Agreement most unlikely
  - South Africa 2011: ???
- **Main demand center for CDM credits (CER) post-2012:**
  - European Emission Trading Scheme (EU ETS)
  - EU governments
- **EU rules are main CER market drivers now and post-2012, BUT EU will not accept CER from projects registered after 2012**
  - except from Least Developed Countries (in SEA: Laos, Cambodia, ...)
- **AND it takes typically 1.5 – 2.5 years for early stage projects to reach CDM registration**
  - Only 2 years and 1 month left until December 2012 !!!

 firstclimate

Carbon credit market: Demand-Supply balance 2008-2020 - Scenario 1 (no internat. agreement)

NO international agreement reached

- **Supply**
  - Kyoto credits issued post-2012
    - as Kyoto Protocol does not expire
  - Few new projects entering pipeline due to EU restricting projects registered post-2012
  - Low annual growth of issuance from 2012 onwards
- **Demand**
  - Main demand from the EU (ETS and Govt)
    - risk of ban of industrial gas CERs
  - No US demand for Kyoto credits
  - Low demand from Japan
    - commits only to meagre reductions
    - large part of demand satisfied through bilateral projects



Demand-supply balances for CERs 2008-2020

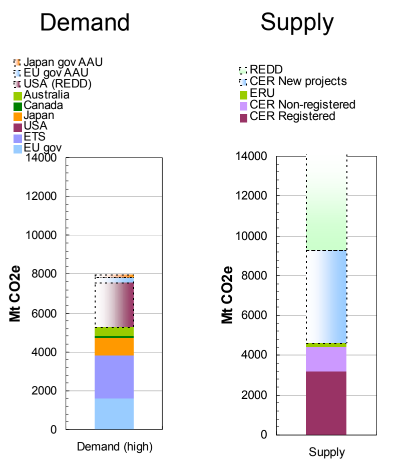
In megatons, total for period 2008-2020. Shaded column represent demand or supply subject to important uncertainties. Source: First Climate

 firstclimate

Carbon credit market:
Demand-Supply balance 2008-2020 - Scenario 2 (internat. agreement)

International agreement reached

- **Supply**
  - Kyoto credits issued post-2012
    - as Kyoto Protocol does not expire
  - Bottlenecks on CERs issuance
    - 5% annual growth of issuance from 2012 onwards
  - Large potential supply of REDD credits
- **Demand**
  - Stronger demand from the EU (-30% reduction target)
  - US accepts offset credits, but offset regime unclear – not necessarily CDM
  - Japan commits to 25% reduction target and buys mostly CERs
  - Australia adopts 25% target and no limit on offset usage



Demand-supply balances for CERs 2008-2020

In megatons, total for period 2008-2020. Shaded column represent demand or supply subject to important uncertainties.

Source: FirstClimate calculations based on UNFCCC and UNEP data

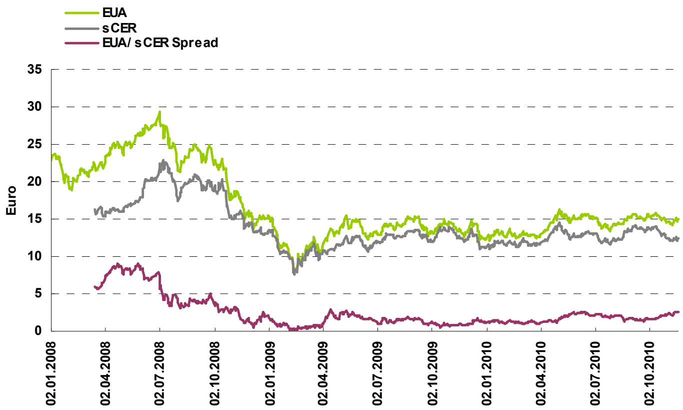
Key factors influencing the demand-supply balance (post-2012)

- **Demand**
  - Ambition of commitments post-2012
  - New ETSs being set up (US, Australia, Japan…)
  - Preference for CER or other credit types (REDD, sectoral credits…)
  - Uncertainty of eligibility rules Post-2012 (EU-ETS quality restrictions, discounts)
- **Supply**
  - Registration and issuance bottlenecks
  - Possible new technologies entering the CDM (nuclear, REDD, CCS…)
  - Tighter or looser rules for additionality
  - Supply from non-CDM sources (sectoral crediting)

Certain is…
- CDM will not expire in 2012
- Registered projects continue to generate CERs

CER price development

Certain is also…
…CER prices don‘t always go up !



ECX Dec 08 future (until 11.08.2008); Bluenext Spot thereafter.

Watching into the crystal ball: Possible price developments

Pre-2013

- EUA to remain the key price driver of CER pre-2013
- Due to recession, EU-ETS is long in Phase 2
  - real demand for CERs only post-2012
  - **EU‘s emission reduction targets for Phase 3 supports Phase 2 prices**
- Other factors: Depth/length of recession, AAU trading, EB issuance bottlenecks

Post-2012

- **No agreement in Mexico / South Africa:**
  - strong risk of CER oversupply after 2012
  - CER prices likely to stay depressed, EUA not driver anymore (< 10 EUR/CER)
- **Internat. agreement reached**:
  - healthier demand *and* supply => tight commitments but large RE / EE project potential, possibly new project types (REDD, LULUCF, CCS, etc.)
  - CER prices not likely to skyrocket, EUA possibly not driver anymore (~15 EUR/CER)
- US-EPA modelling of US allowance price: 9-12 EUR in 2015
  - who would buy a CER for 15 EUR in the US?

Conclusion: We expect to see
- continued high volatility
- no skyrocketing post-2012 prices

Who are the Sellers and Buyers of carbon credits ?

Pre-2013 (Kyoto, EU ETS phase 2)

- **Sellers:**
  - Projects in Non-Annex I countries (CDM), i.e. China, India, SEA countries, etc.
  - Countries with excess AAUs, e.g. Economies in Transition (EITs)
- **Buyers:**
  - Compliance buyers in Annex I countries (as today), i.e. mainly installations in the EU
  - Japan, and potentially Italy and Spain... (to reach Kyoto target!)
  - Financial intermediaries (carbon funds and multilateral institutions)

Post-2012 (post-Kyoto, EU ETS phase 3)

- **Sellers:**
  - CDM Projects in Least Developed Countries only
  - Projects from bilateral crediting schemes (Japan, EU)
  - Projects from domestic offset schemes (EU, Japan)
- **Buyers:**
  - EU ETS installations and airline operators (flying to/from EU)
  - EU and Japan governments
  - Marine transport operators sailing to EU ports (volume is a fraction of EU installations)
  - ETSs in emerging economies: China, South Korea (but at much lower prices)
  - Financial intermediaries (carbon funds and multilateral institutions)

Bridging the uncertainty: The Post 2012 Carbon Credit Fund

- **Forward purchase of carbon credits (CERs) generated after 2012 (up to 2020)**
- Assets of EUR 125 million (non-leveraged)
- Established in March 2008 by five leading European public financing institutions (AAA rated)

European Investment Bank | KfW Bankengruppe | Caisse des Dépôts | Instituto de Crédito Oficial | NIB

CONNING
- Investment Manager
- A subsidiary of the global insurance company Swiss Re

firstclimate
- Investment Adviser
- A leading European carbon asset manager with international presence

Offtake of CERs by the Fund is not conditional upon the entry into force or shape of a post-Kyoto regime

The Post 2012 Carbon Credit Fund: Investment Criteria

Offtake of CERs by the Fund is not conditional upon the entry into force or shape of a post-Kyoto regime for climate change mitigation !

Criteria	Requirements
Eligible types of carbon credits	▪ Certified Emission Reductions (CER) ▪ Emission Reduction Units (ERU)
Eligible vintages	▪ 2013 up to 2020
Project start date	▪ Projects must be operative before 2013
Target Sectors	▪ Renewable energy ▪ Energy efficiency and fossil fuel switch ▪ Fugitive methane (e.g. solid and liquid wastes, coal mines, etc.) ▪ On request only: industrial gases (but not HFC23) ▪ Not yet: land use change and forestry, carbon capture and storage
Minimum contract volume (TOTAL)	▪ 250,000 tonnes of carbon dioxide equivalent ▪ 100,000 tonnes for special projects (bundles; sellers with follow-on potential)
CDM development stage	▪ Any stage from PIN to registered projects
Construction stage	▪ Projects may be in any construction stage (i.e. planning, construction, commissioned)

© First Climate, Lukas Heer – Regional Manager SEA   firstclimate   13

Contracted post-2012 CDM projects: Examples (1/2)

Solar Cooker project
- Country: China
- Technology: Renewable Energy – Solar
- CER volumes: 30'000 CER per year

Waste gas recovery in coke production
- Country: China
- Technology: Energy Efficiency
- CER volumes: 400'000 CER per year

© First Climate, Lukas Heer – Regional Manager SEA   firstclimate   14

Contracted post-2012 CDM projects: Examples (2/2)

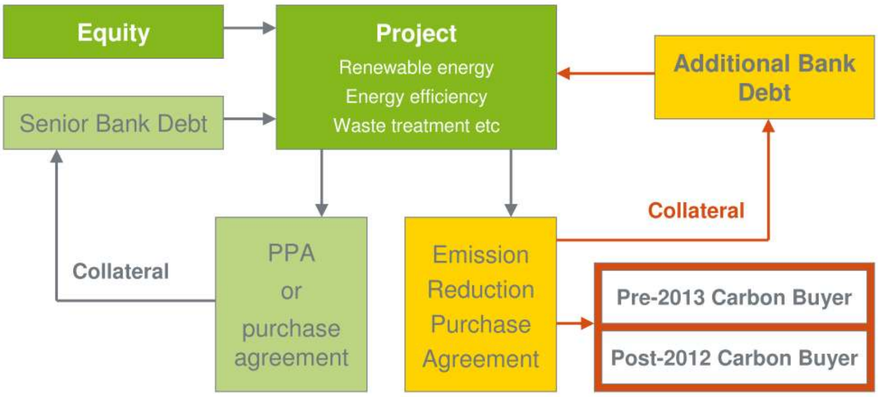
Methane capture from swine manure

- Country: Philippines
- Technology: Waste management
- CER volumes: 80'000 CER per year

Methane capture at landfill

- Country: Colombia
- Technology: Waste management – Landfill gas flaring
- CER volumes: 100'000 CER per year

Additional loans through a carbon ERPA (post-2012 & pre-2013)



Carbon purchase agreement as collateral:
Long-term revenue stream, in EUR, highly rated counterparty

Summary and conclusion: CDM opportunities post 2012 ?

Yes,

- there are still opportunities for Thai CDM projects to earn money from selling carbon credits (CER) post-2012
- but there's only 2 years and 1 month left until December 2012 !!!
- we expect in 6-7 months' time a decreasing interest to contract early- or mid-stage projects

As a consequence,

- act NOW and develop your CDM project asap
  - => it must reach registration before 31.12.2012 !
- contract the carbon credits NOW until 2020 (or beyond) with a reputable Buyer (such as the Post 2012 Carbon Credit Fund)
  - => it allows you to „sleep well", irrespective what happens in the market
- use the post-2012 ERPA in the negotiations with your bank
  - => and get additional finance or better lending conditions for your project

 firstclimate

We're glad to assist you… www.firstclimate.com

Lukas Heer, Regional Manager
First Climate Singapore
Mobile: +65 929 788 10
Phone: +65 621 978 79
Email: **lukas.heer@firstclimate.com**

Julia Pashchenko, Project Manager
First Climate Germany (Headquarters)
Mobile: +49 171 977 88 05
Phone: +49 6101 556 58 41
Email: **julia.pashchenko@firstclimate.com**

 firstclimate