

Sectoral, NAMA-based: defining new instruments for the future carbon market

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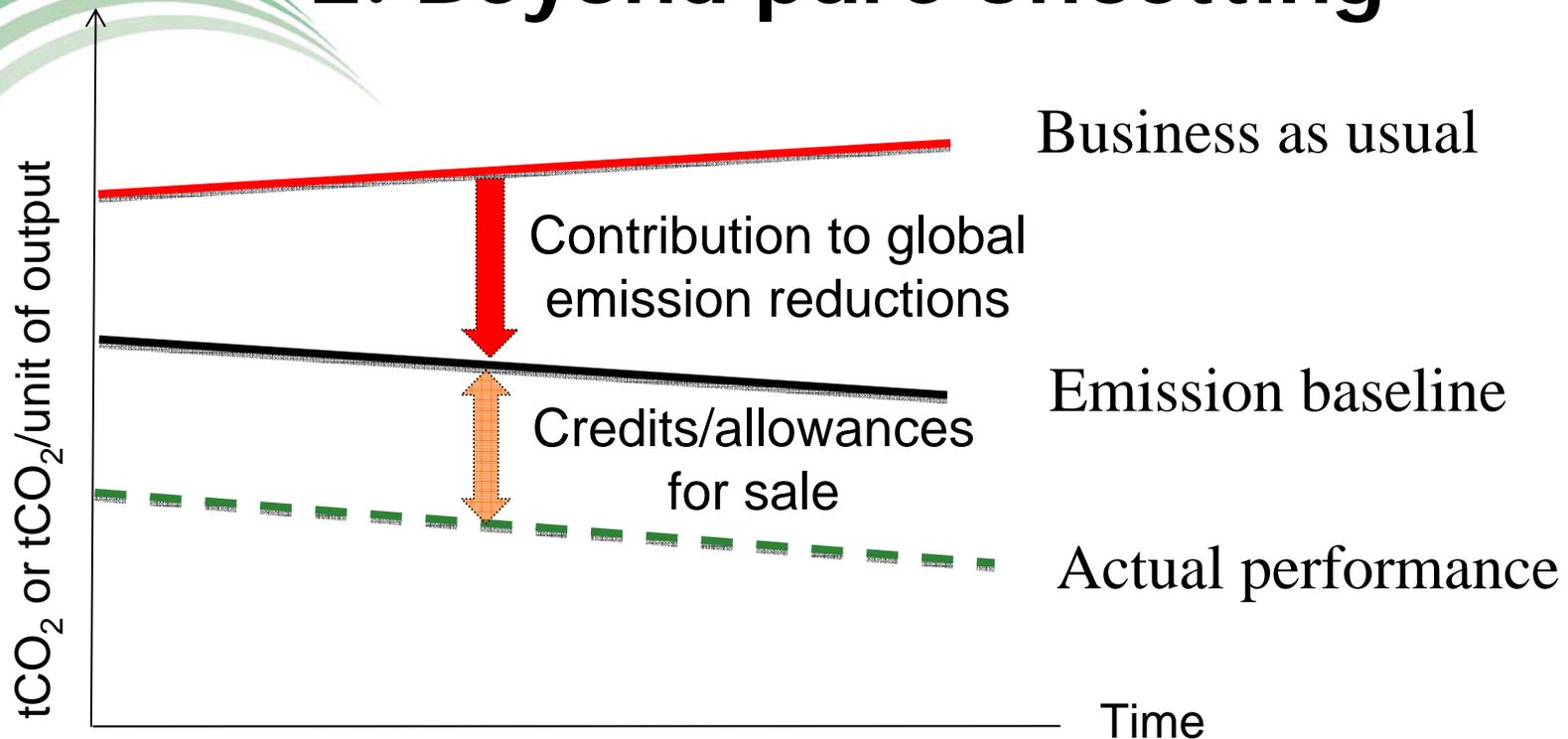
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Outline

- **Definitions – *whatever works?***
- **Incentives – *not exactly a bigger CDM***
A project on electricity in China (IEA-ERI)
- **Possible evolutions**

1. From projects to sector

2. Beyond pure offsetting



CDM: cost-effectiveness, not global emission reduction

beyond Kyoto countries' goals: pure offsetting

Scaled-up market mechanisms *also* aim for enhanced global mitigation

Require environmentally-ambitious baselines

Definitions

- **Coverage: Sector?**
Nationally appropriate mitigation actions?
- **Target type: Intensity / absolute**
- **Mechanism: Crediting / trading**
- **Legal nature: Binding / non-binding**

[Not all combinations may work]

Coverage

- **Possible candidates: large sectors with relatively few sources, within a country**
 - Power generation
 - Heavy industry (cement, steel, aluminium?)
 - Forestry – REDD+ readiness (MRV critical)
 - Decisions needed on what is ‘in’ and ‘out’ the sector.

- **Nationally-appropriate mitigation actions?**
 - Proposal: any policy that performs beyond stated emission reduction objective could be rewarded with credits
 - ➔ Can sources be identified at the outset? How to draw a precise policy perimeter? How easy is it to define the baseline?
 - See lack of success with transport in CDM
 - ➔ Definition of NAMAs? From feed-in-tariffs for renewables, technology-goals to a country-wide CO₂ intensity goal?
 - The nature of NAMAs likely to decide whether they will be financed, or supported by the international carbon market mex.

Intensity / absolute targets



■ Intensity target

- Emissions per unit of output
- The practice in many CDM projects
- Attractive as it removes risk from unexpected high production
- Examples: tCO₂/MWh, tCO₂/ton of steel
- Could be measured annually, or averaged over several years (e.g. during a set commitment period)

■ Absolute target (a.k.a. hard caps)

- Absolute emissions of the defined sector, or NAMA perimeter
- 'Absolute' could be 'growth' targets

■ Potential design issues

- What is in and out? Direct and indirect emissions?
- What is the proper measurement of output for an intensity target? Does it ensure a good environmental outcome? To be addressed on a case-by-case basis

Mechanism: Crediting vs. Trading



■ Crediting: follows some features of CDM

- Evaluate performance against the emissions baseline
- Deliver credits corresponding to observed emission reductions from the sectoral or NAMA baseline
- An ex-post issuance of emission units – credits

■ Trading: follows cap-and-trade logic

- Allocate trading units at the beginning of the period
- Compliance assessed at the end of the commitment period
- Facilitates devolution of units to individual entities
- Facilitates financing of mitigation – units can be traded before reductions have occurred
- An ex-ante issuance of emission units – allowances

Binding or non-binding?

■ Binding target

- A country/sector/NAMA that emits above its target – or oversells allowances – must “make good” on its commitment or face a penalty (see Kyoto Protocol)
- Note: assumes ‘*seller beware*’ liability rule

■ Non-binding (or ‘no-lose’*) targets

- A country/sector/NAMA gets credited when emissions are below the baseline
- Emissions above the baseline trigger no penalty, no obligation to buy
- Rationale: create clear incentives for emerging countries to join. Can encourage more ambitious goals.

* See CCAP, and Philibert, 1999.

International options for scaled-up market mechanisms



	Crediting	Trading	Monitoring variables
Intensity-based target	<i>Ex-post</i> issuance of credits based on GHG performance per unit of output (tons of product, megawatt-hour or other indicator of GHG intensity)	Intensity-based trading is difficult as the <i>ex-ante</i> allocation requires a forecast of output levels and <i>ex-post</i> adjustments of total allocation once actual output is observed	Emissions plus output level or other indicator
Absolute target	<i>Ex-post</i> issuance of credits based on an absolute quantity of GHG emissions	<i>Ex-ante</i> allocation of allowances to the sector/country	Emissions
Binding nature of target	Could be a no-lose/non-binding target	Binding target needed (if <i>ex-ante</i> allowance allocation is pursued)	--

- Intensity or absolute-based crediting (binding or non)
- Absolute-based trading (binding, to facilitate transactions)
- Limited interest in intensity-based trading – how to allocate *ex ante* trading units for performance expressed as tCO₂/unit of output?

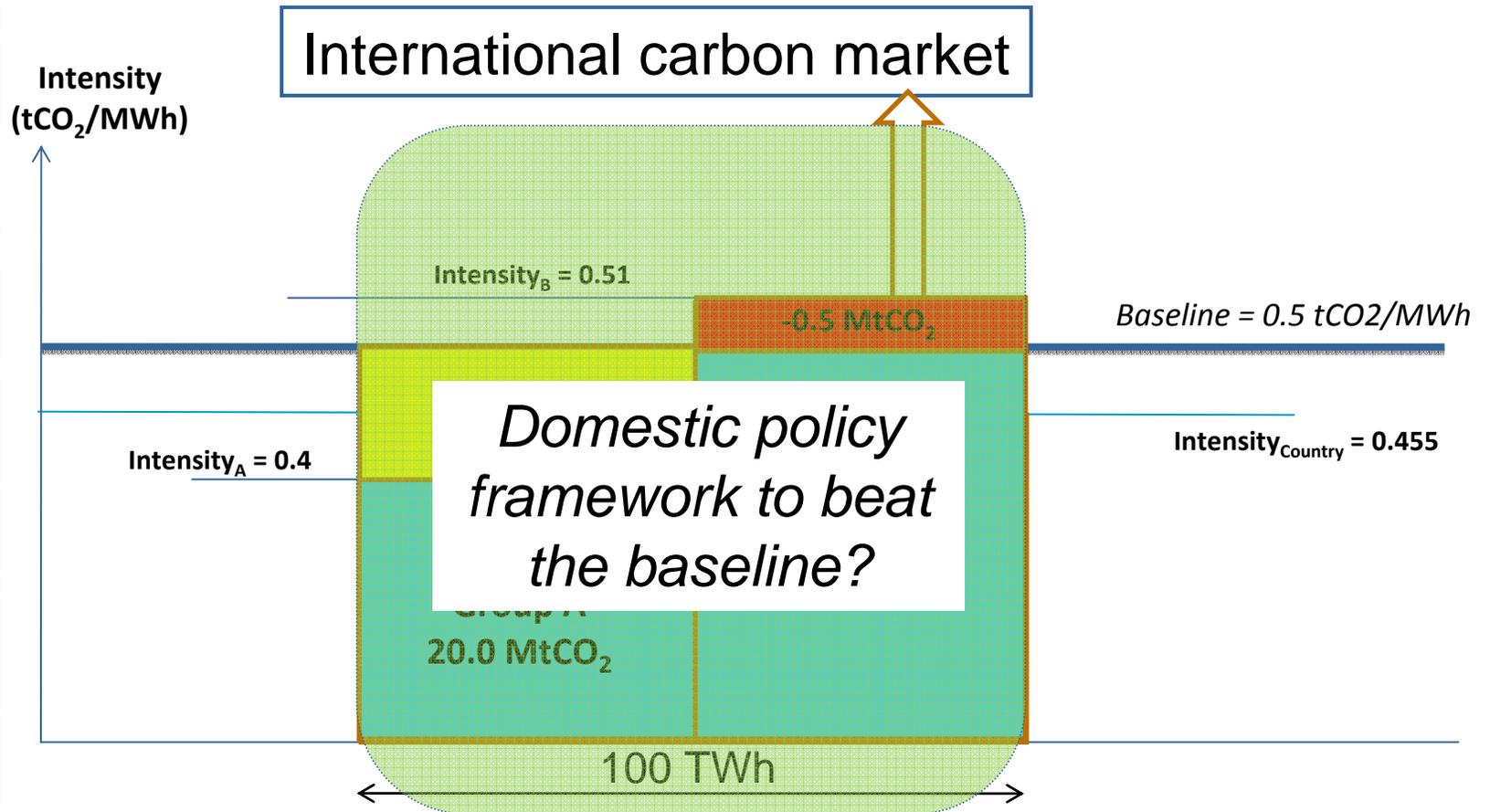
Implementation questions

- **Are these international options conducive to effective *domestic* market mechanisms?**

- **Example: no-lose intensity-based crediting**
 - Baseline: tCO₂/unit of output – e.g. tCO₂/MWh of grid electricity
 - Performance evaluated for the whole electricity sector in a given country (however ‘whole’ is defined)
 - Credits issued once performance has been measured, reported and verified to be better than the baseline
 - How does this work for individual entities?

Not quite like project-based CDM

Sectoral crediting: how would carbon market revenues encourage efforts?



*No guarantee for Group A investor that it will be credited, as Group B can deteriorate the country's overall performance → **no action?***

Implementation questions (2)



■ Example: no-lose intensity-based crediting

- Cannot just agree on a national baseline and let domestic sources 'run with it':
 1. Credits hinge on overall performance
 2. Credits are issued to government, not entities
- In most cases, the country baseline cannot be applied uniformly to all installations in a sector
 - 0.5tCO₂/MWh immediately penalises coal and rewards existing renewables and other non-carbon technologies
- Other domestic policies can deliver the environmental outcome (support to renewables, mandated performance, etc.)
- Or: entity-by-entity baseline setting with some government guarantee on environmental outcome: **binding** intensity target

■ Sectoral trading

- Facilitates implementation of domestic cap-and trade, i.e. entity-by-entity allocation and access to int'l market

Sectoral crediting – China's electricity

- **Sector's structure: 5 large producers & a few other medium players & a myriad of small plants**
- **Multiple sectoral goals: renewables, nuclear, closure of small and inefficient coal plants**
 - Likely to be met!
- **A rather inefficient power system (more CO₂ than needed)**
 - Generators compete for market share via capacity additions
 - Hence, low running hours (4500 hours/year v 6000+ ideally)
 - Missing critical transmission trunks
- **Incomplete incentives**
 - Both prices received by generators and paid by end-users are set by NDRC
 - No real merit order to dispatch plants
 - Coal prices de-regulated (inefficient p. plants driven out)

China's electricity (2)

- **Work out how a CO₂ price or a CO₂ revenue stream could affect investment choices**
 - **At present, end-users pay for extra cost of renewables, nuclear, hydro, etc. via grid rates**
 - **Coal-based price are benchmarked, and vary according to local development stage**
 - **Would the CO₂ price address transmission problems and perverse incentives to add (more) capacity (than necessary)?**
- **Baseline: Copenhagen pledge applied to electricity?**
- **More fundamentally: any interest on China's side to link at all?**
 - **National Development & Reform Commission encourages provinces to look into market instruments to implement pledge**
 - **Who are the potential buyers?**

Whereto from here?

Two options for future development of scaled-up market mechanisms under the UNFCCC

■ Simply allow 'trading' among all Parties

- Model: first came Article 17 under the Kyoto Protocol, then came the EU ETS (without any intervention from UNFCCC Parties)
- Countries and regions would need to elaborate the conditions for international trading (i.e. linking), which will consider environmental ambition, MRV, etc.
- How to measure compliance? Copenhagen (or other) pledges?

■ A full-fledged international oversight mechanism

- Model: CDM. Parties propose baselines, other Parties assess (again, in context of pledges)
- Common methodologies could be developed for given sectors – leaving environmental ambition up for negotiation

Important factors in future development: treatment of surplus AAUs? Demand for credits from the US?

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