Lessons from the CDM for low-carbon development and NAMAs

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Contents

- Study on the extent to which the CDM has "captured" mitigation potential in advanced developing countries
  - Methodology
  - Findings

- Lessons for LCDSs and NAMAs

The study - methodology

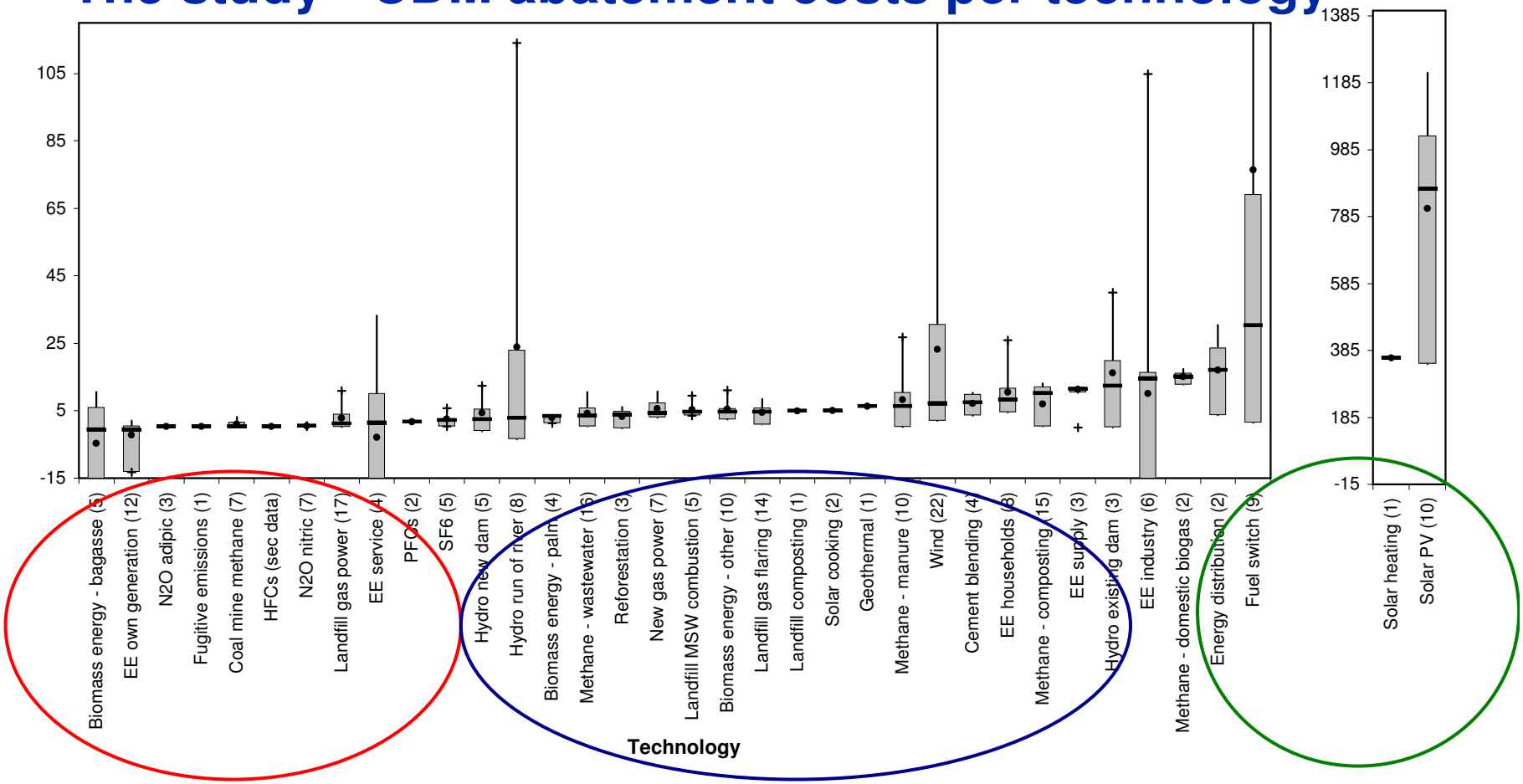
- CDM-specific Marginal Abatement Cost (MAC) curves for six countries:
  - China, South Korea, South Africa, Mexico, Thailand, Argentina
  - Financial data from Project Design Documents
  - Abatement potential data from the UNEP Risoe CDM Pipeline
  - Our definition of abatement costs:

$$\frac{\text{NPV(costs - revenues) (USD)}}{\text{Amount of GHG emission reductions (tCO2e)}}$$

The study - methodology

- Theoretical MAC curves in the respective countries
  - Based on a combination of data from existing literature (e.g. National CDM Strategy Studies, mitigation potential assessments, bottom-up MAC curves for specific countries and/or or sectors)
  - Provide size of potential emission reduction options in each country
- Compare both (CDM & theoretical MAC curves) and draw conclusions

The study - CDM abatement costs per technology

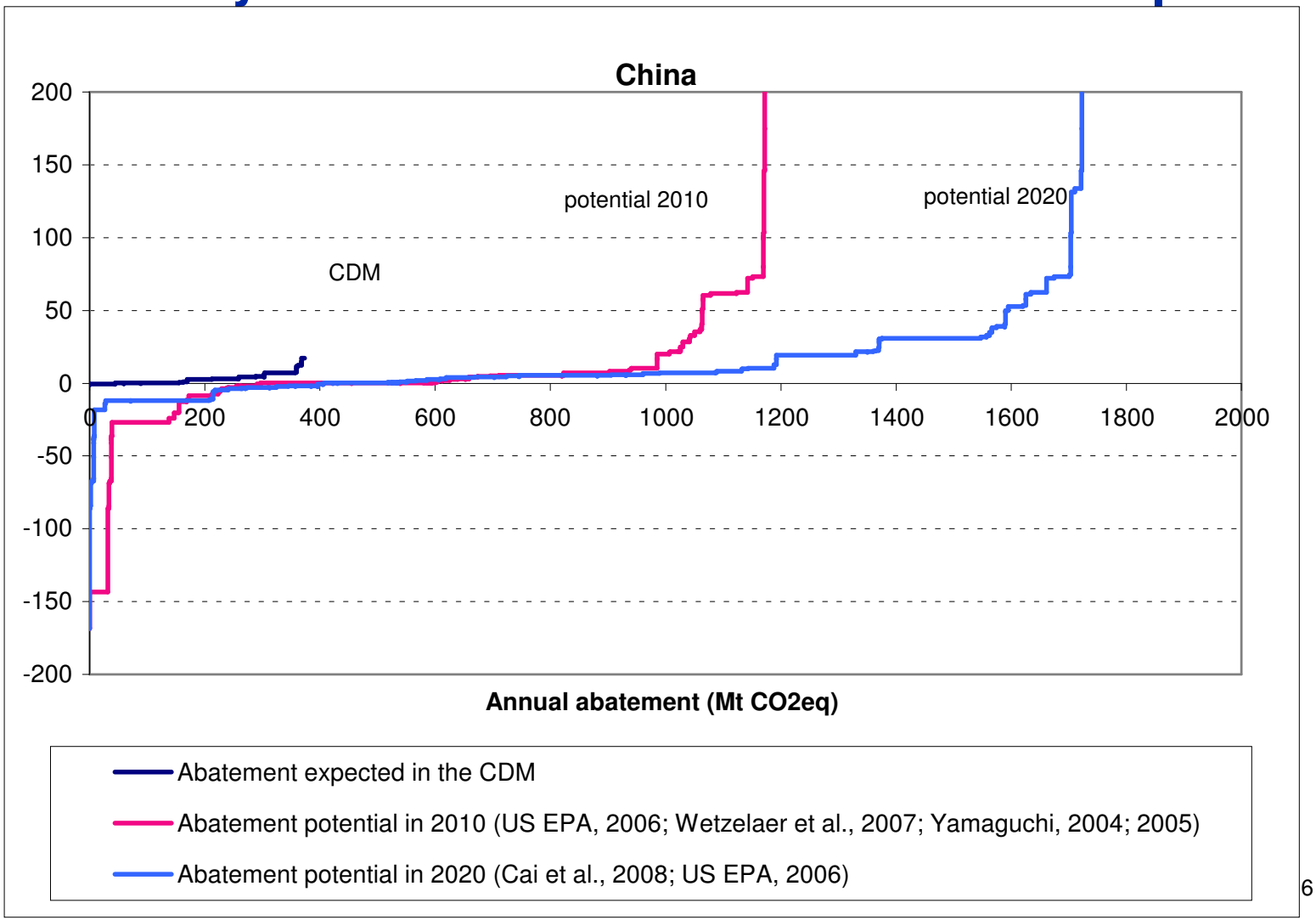


Non-CO2 emissions

EE, methane, renewables, forestry

Solar, fuel switch, energy distribution

The study - CDM and theoretical curves compared



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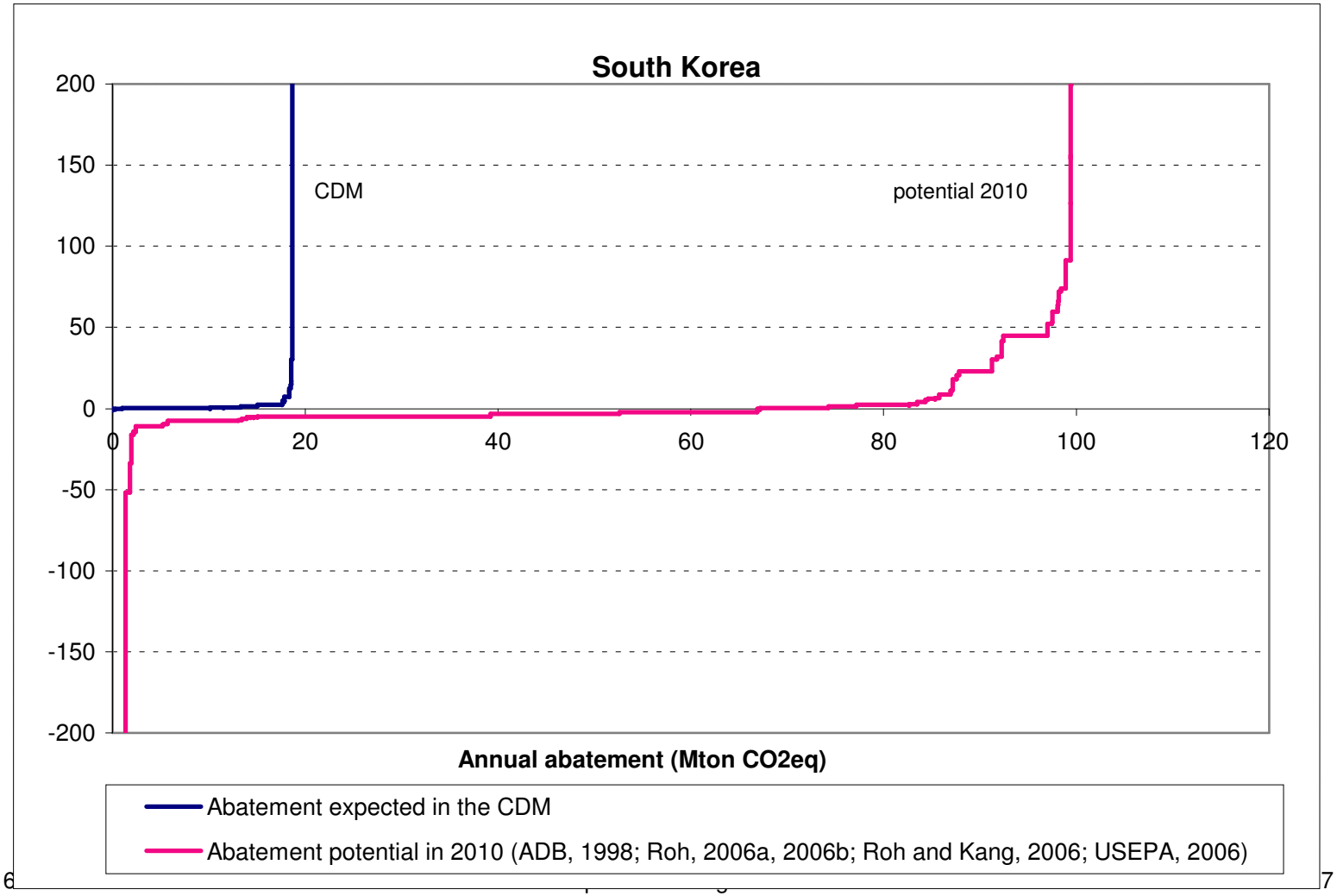

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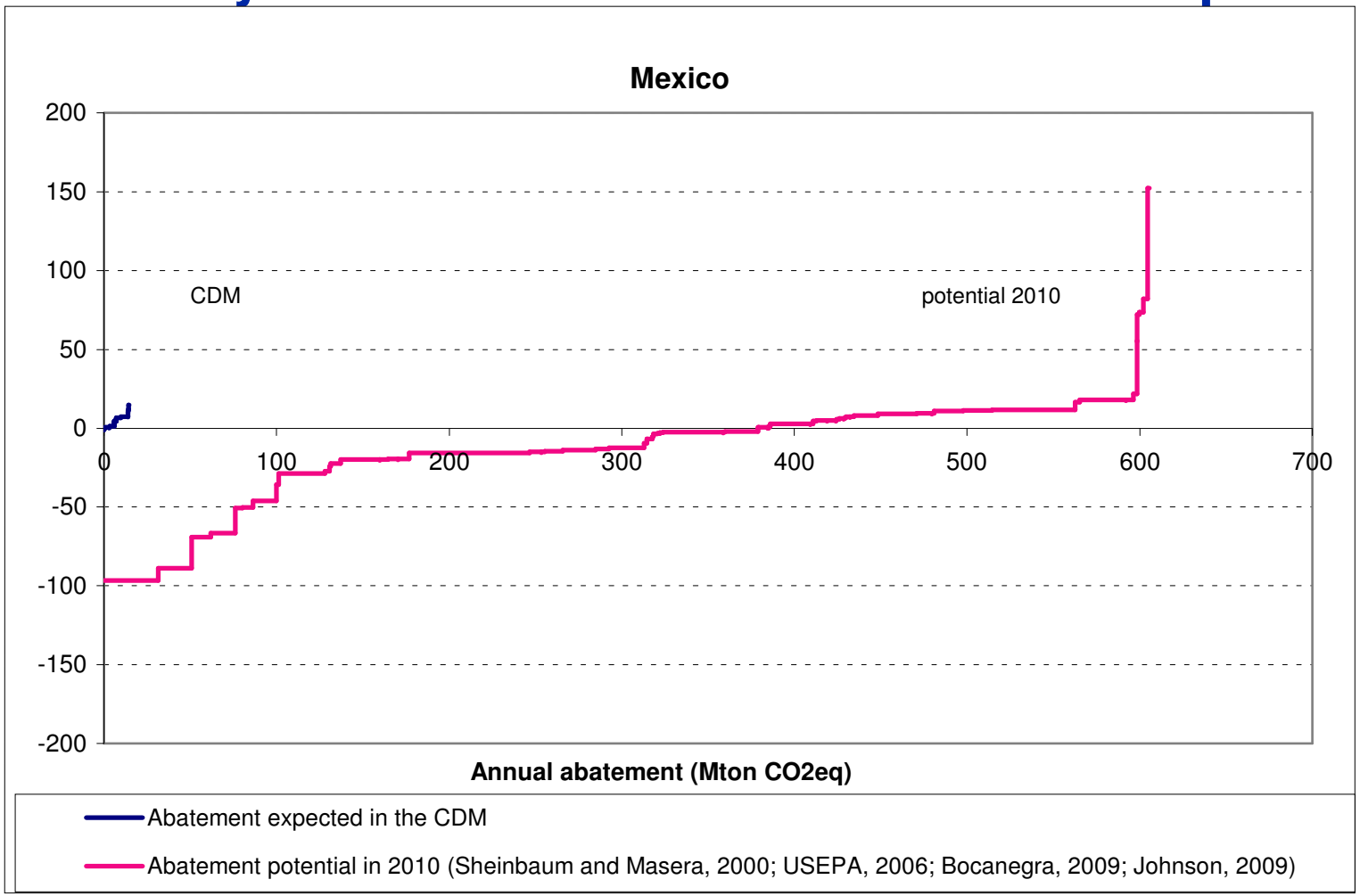

The study - Results by technologies

Technological category	Percentage of abatement potential captured by CDM					
	China	South Korea	Mexico	South Africa	Thailand	Argentina
Agriculture	0.0%	0.0%	0.0%	-	-	-
Coal mine methane	15.9%	-	25.7%	0.0%	-	-
Energy efficiency in households / commercial buildings	0.1%	0.0%	0.0%	0.0%	0.0%	-
Energy efficiency in industry	0.3%	0.2%	3.4%	0.3%	0.0%	2.2%
Energy efficiency in own generation	19.0%	0.0%	0.4%	infinite	20.2%	75.4%
Thermal power	27.7%	0.0%	0.1%	2.9%	0.0%	-
Forestry	116.3%	0.0%	0.0%	0.0%	0.0%	2.2%
Fugitive emissions	3.2%	0.0%	2.2%	infinite	-	-
Industrial gases	73.5%	218.6%	171.9%	infinite	infinite	infinite
Renewable energy	678.2%	infinite	4.4%	4.5%	infinite	0.9%
Other energy	880.7%	6.6%	0.0%	0.1%	0.0%	35.0%
Waste	7.6%	9.4%	38.1%	64.4%	infinite	48.5%
Transport	Infinite	0.0%	0.0%	0.0%	0.0%	0.0%

The study - Results by cost categories

Cost category	Percentage of abatement potential captured by CDM					
	China	South Korea	Mexico	South Africa	Thailand	Argentina
< 0 USD/tCO2e	3.0%	0.1%	0.1%	0.4%	8.6%	18.9%
0 - 10 USD/tCO2e	27.9%	82.6%	11.0%	2.5%	10.2%	30.2%
10 - 20 USD/tCO2e	148.5%	288.7%	0.2%	0.3%	infinite	55.8%
20 - 30 USD/tCO2e	89.4%	0.0%	137.8%	0.0%	-	3.7%
30 - 40 USD/tCO2e	126.9%	2.6%	-	-	-	-
40 - 50 USD/tCO2e	0.0%	0.0%	-	0.0%	0.0%	0.7%
50 - 60 USD/tCO2e	2392.1%	0.0%	0.0%	-	-	0.2%
60 - 70 USD/tCO2e	0.2%	65.8%	-	infinite	0.0%	-
70 - 80 USD/tCO2e	0.2%	0.0%	0.0%	-	-	0.0%
> 80 USD/tCO2e	2.7%	13.8%	0.0%	0.0%	infinite	0.9%

What does this have to do with LCDSs?

What has happened?

- Previously unidentified mitigation opportunities were found by the market
- "Theoretical" least-cost opportunities still there
  - Non-market barriers imply hidden costs
  - CDM transaction costs prohibitive for small projects
  - CDM rules discourage certain projects, e.g. in forestry
- More expensive mitigation opportunities are also available

→ **Large room for developing NAMAs**

What does this have to do with LCDSs?

Lessons for LCDSs and NAMAs:

- Scoping studies need to be more detailed and find all opportunities
- Relationship between CDM and NAMAs not clear yet
  - Double counting needs to be avoided
- Possible strategy: focus NAMAs on the sectors that were not touched upon by the CDM
  - Theoretically cheap options with substantial non-market barriers
  - More expensive options that still need market and technology development
- **CDM needs to be included in LCDSs** for transparency, but should not be counted towards national goals from developing countries

Thank you for your attention!

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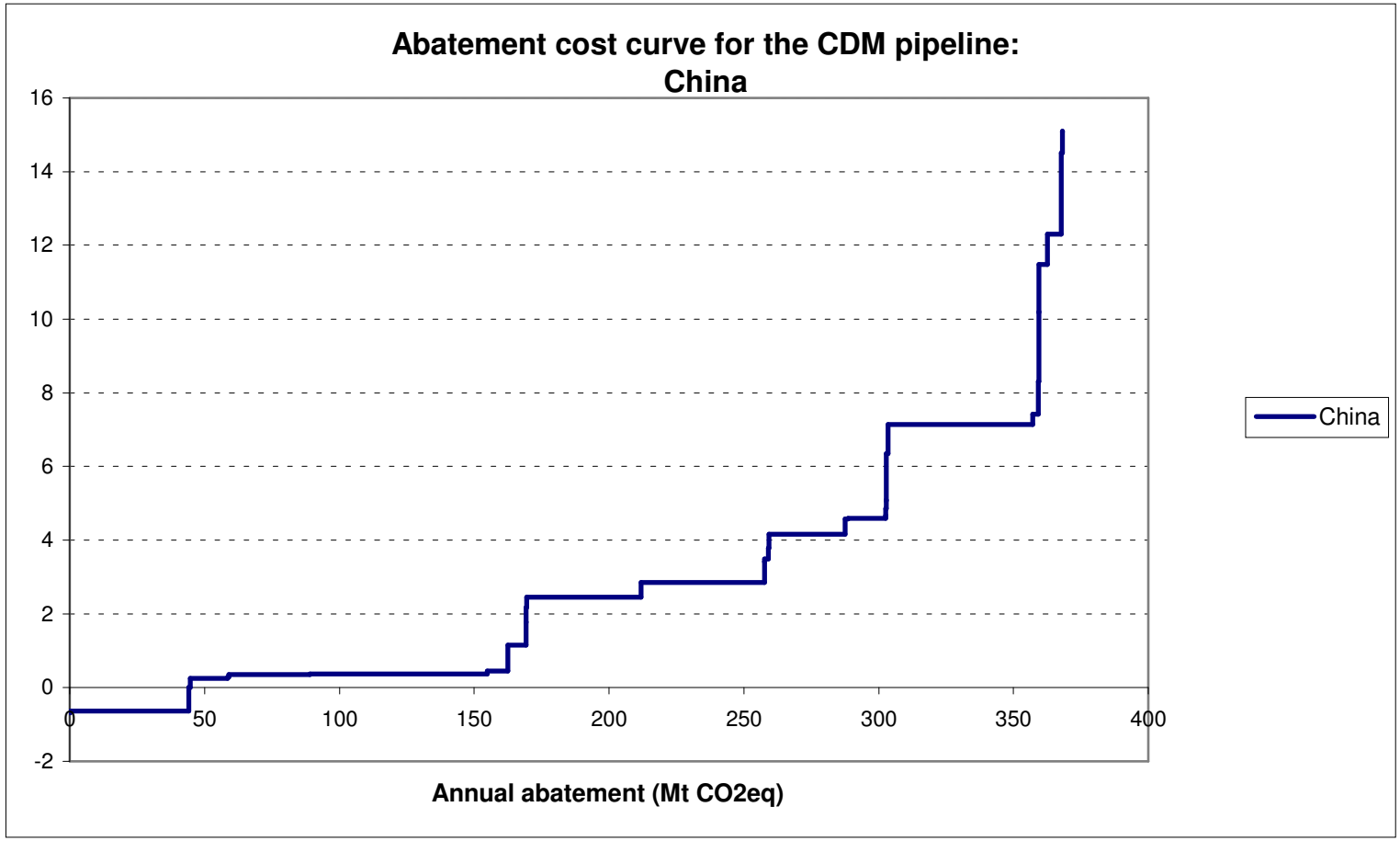
Some limitations of the study

- Theoretical emission reduction potentials not complete
  - Becomes obvious when observed that CDM captured options not previously identified
  - Important gap for renewable energy technologies
- Cost data for CDM projects likely to be biased

The study - CDM MAC curves



The study - CDM MAC curves