

Investment in Large Energy Production Facilities

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CEPS TF The CDM & Future Flexible Mechanisms Post-2012

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Issues

- Project scale
- Project timing
- Energy projects & the CDM
- Way forward?

Neubauprojekt Datteln 4 - Architekturstudie



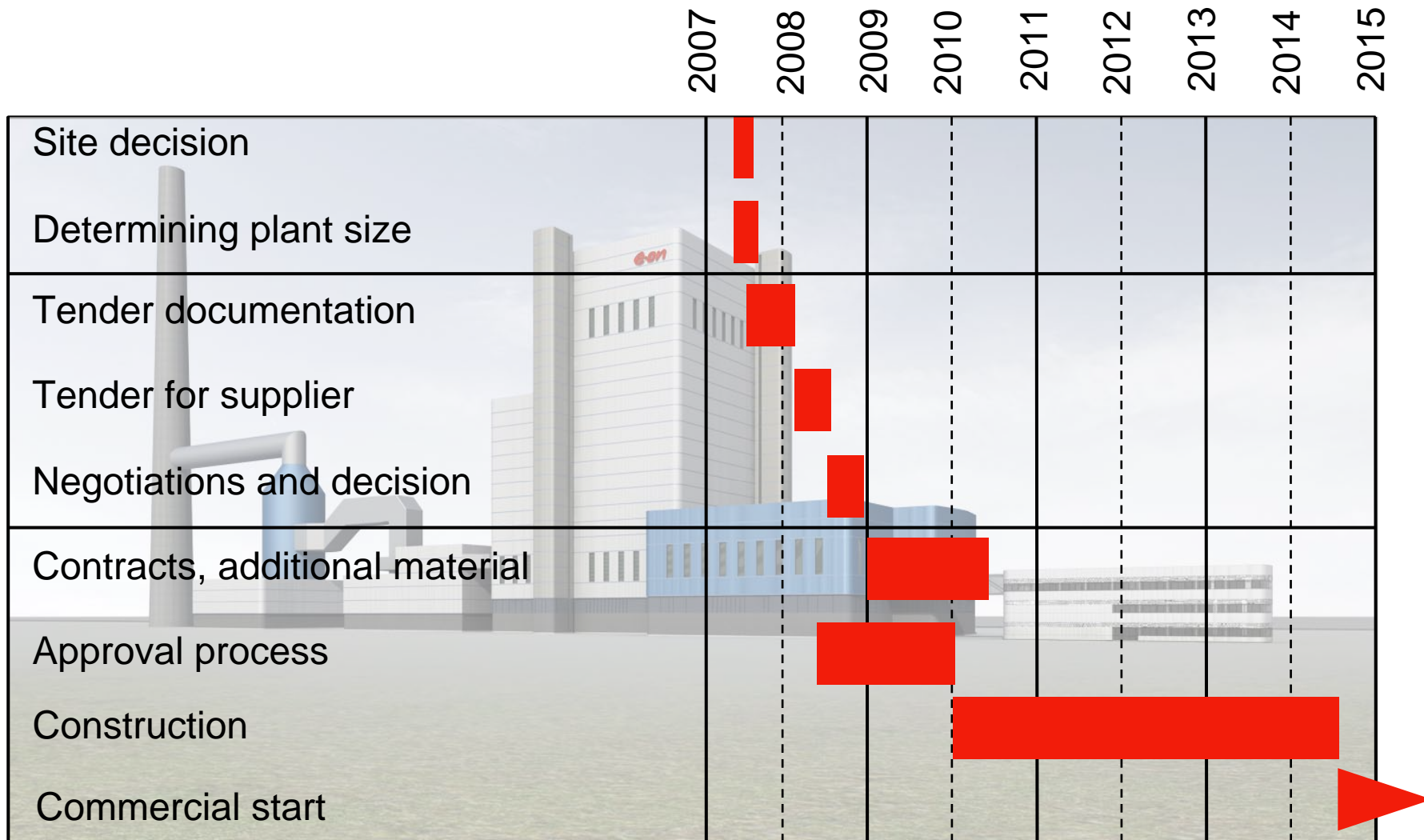
Neubau Datteln 4 – Luftbild der Baustelle (Stand 05/2008)



Some Statistics

- 1100 MW
- 45% efficiency saving 20% CO₂
- 360 t/hr coal
- 3,000 t/hr steam
- 30 t/s cooling water
- 560,000 t soil to be moved
- 25 km of tunnels for cables
- 185 m high cooling tower
- Boiler as large as a 25 storey hotel

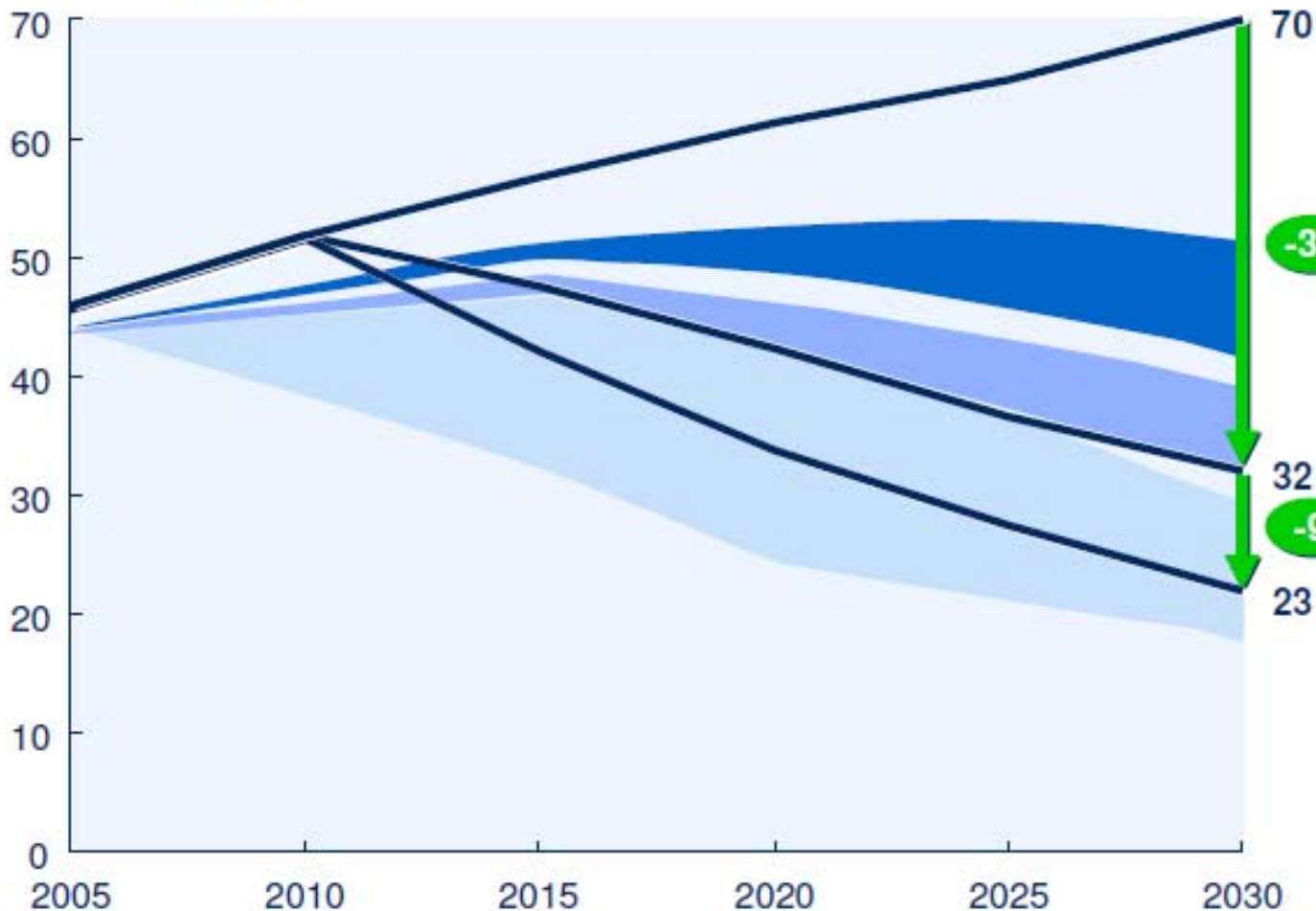
Planning project power plant 50plus





Possible to contain global warming below 2°C

Global GHG emissions
GtCO₂e per year



- Peak at 550 ppm, 3.0°C
- Peak at 510 ppm, 2.0°C
- Peak at 480 ppm, 1.8°C

**Current pathway /
Business-as-usual**

**Technical measures
< €60 per tCO₂e**
Focus of the study

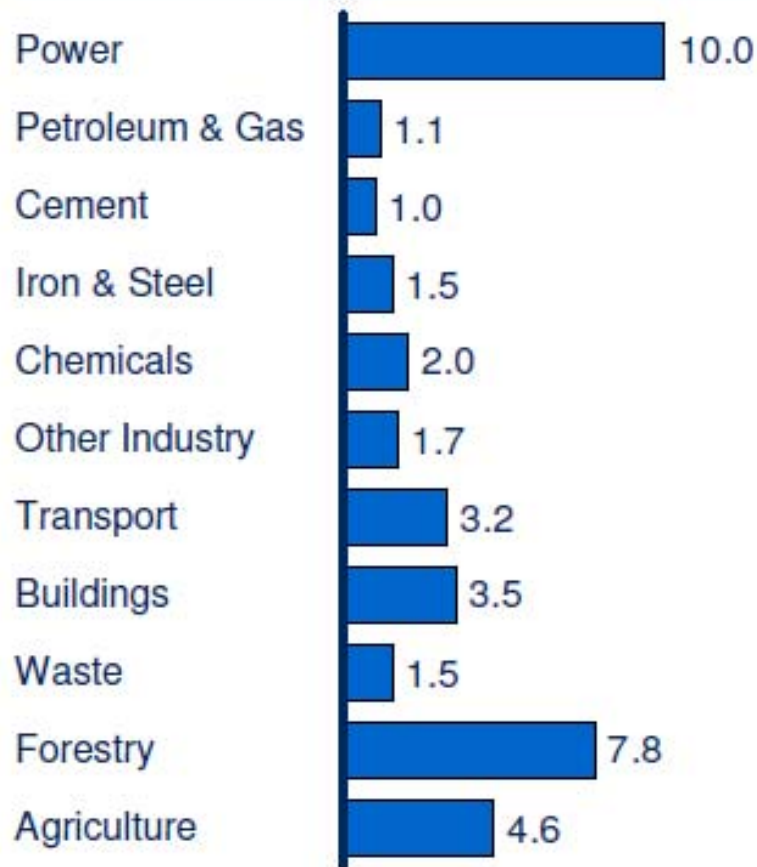
Additional measures
*Behavioral changes &
expensive measures*



Global cross-sectoral action required to reach full potential

Abatement potential; GtCO₂e per year; 2030

By sector



Total

38

By region



Total

38

Significant CDM potential in global energy market

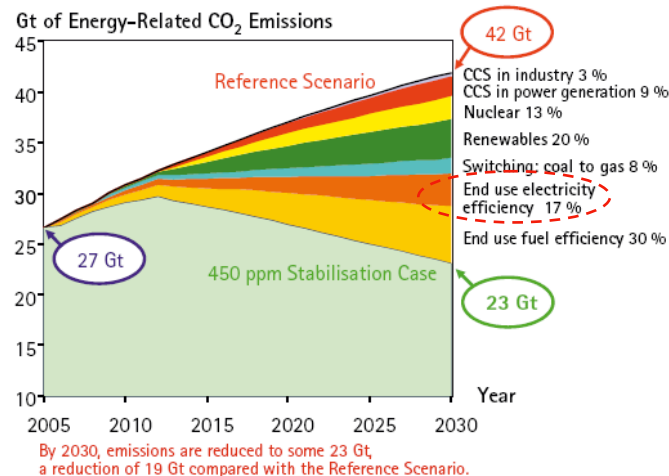
Renewables additions in developing countries¹

		Reference scenario 2004-2030	Alternative scenario 2004-2030
	€m CAPEX / MW	Additional GW	Additional GW
Hydro	3	437	479
Biomass and waste	4,5	42	68
Wind	1,7	91	152
Geothermal	3,5	7	8
Solar	3,5	20	42
Tide and wave	4,2	0	0
Total CAPEX potential (bn €)		1.749	2.176

- Additions vary from 300-375 GW until 2020
- Investments in renewable market up to 2020 worth between 800-1,000 bn€¹

Worldwide energy efficiency -1.7 GT CO2 until 2020

CO₂ Emissions – 450 ppm Stabilisation Case Achievable or Science Fiction?



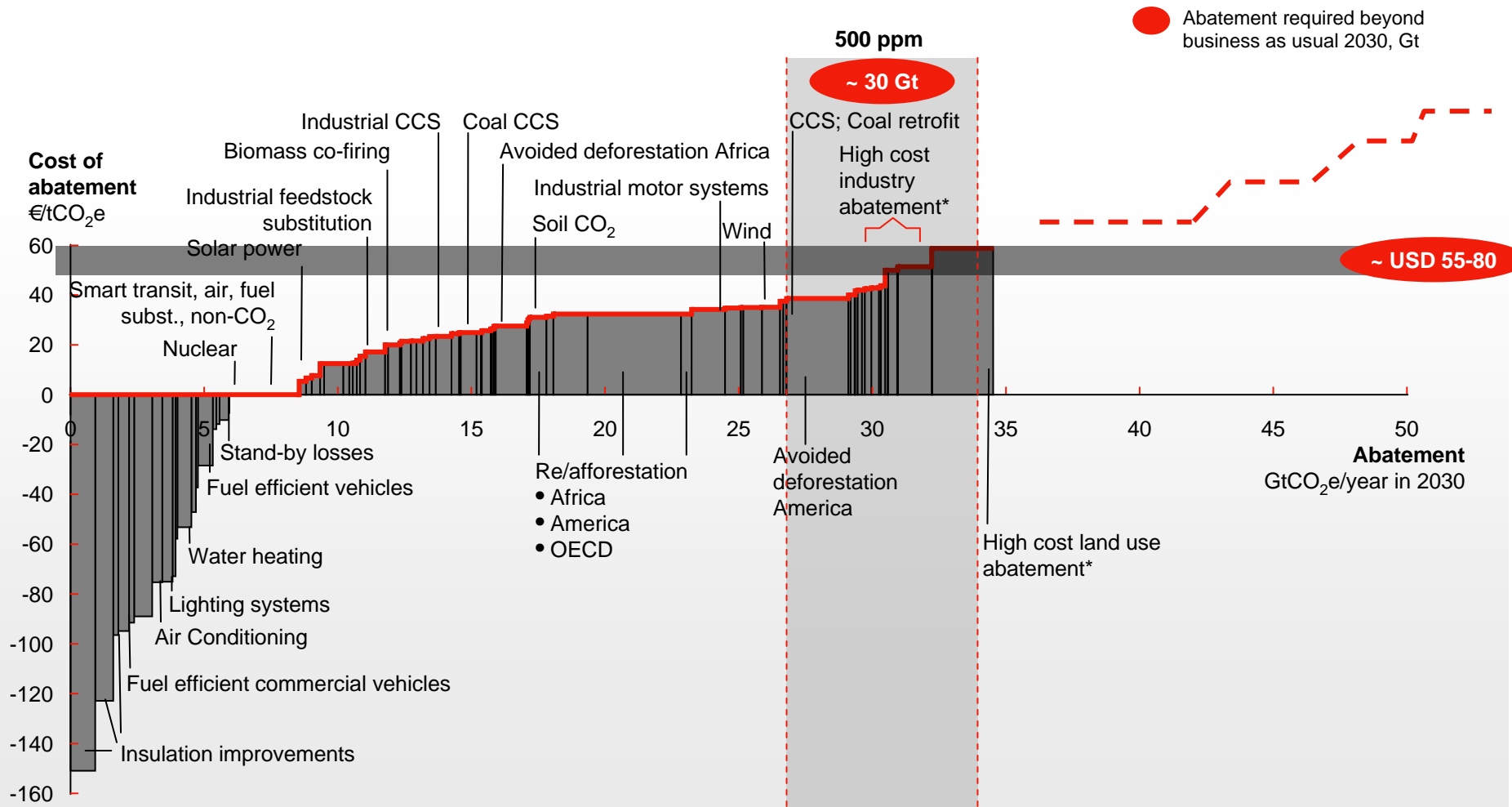
Worldwide investments in energy efficiency market up to 2020 worth ~270 bn€^{1,2} of which a large part is to be from CDM countries

1. Assumption: 2020 represents around half point on the way to 2030 scenario

2. Based on ~10k CER / MW saved and ~1.5m€/MW installed

Sources: World Energy Outlook 2006, 2007, IEA, E.ON Research

To face the challenge of 30 Gt of abatement would lead to a marginal abatement cost of at least \$55/ton (~ €40 – 50/ton)



* Assuming opportunities are addressed in order of increasing cost

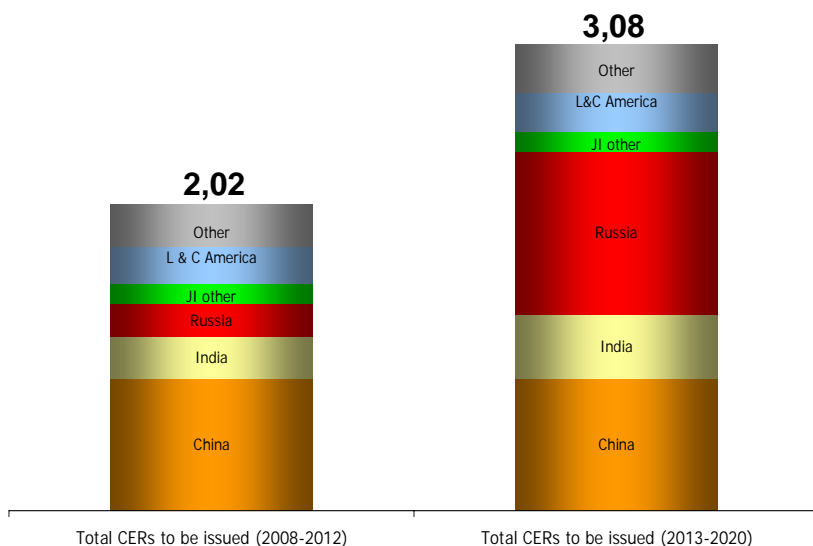
Source: Stern stabilization paths, McKinsey analysis

Post 2012

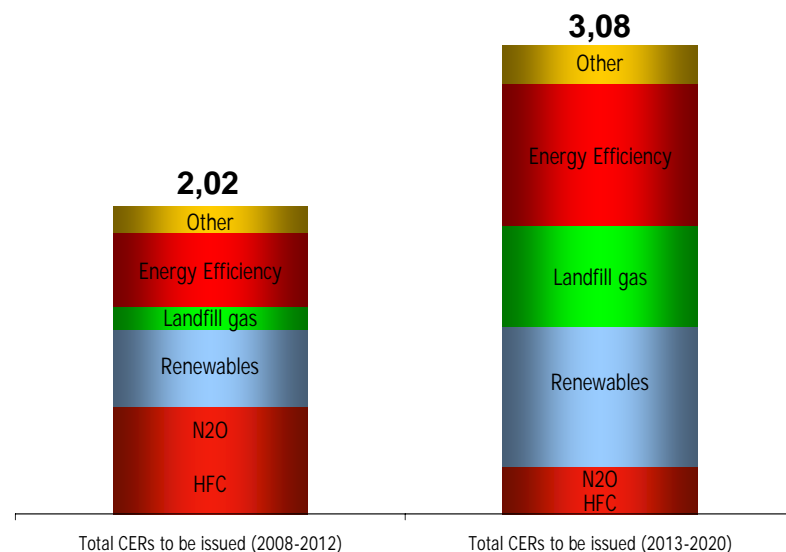
Global emission reduction opportunities

Risk adjusted CER/ERUs to be issued (Billion Ton)

By country

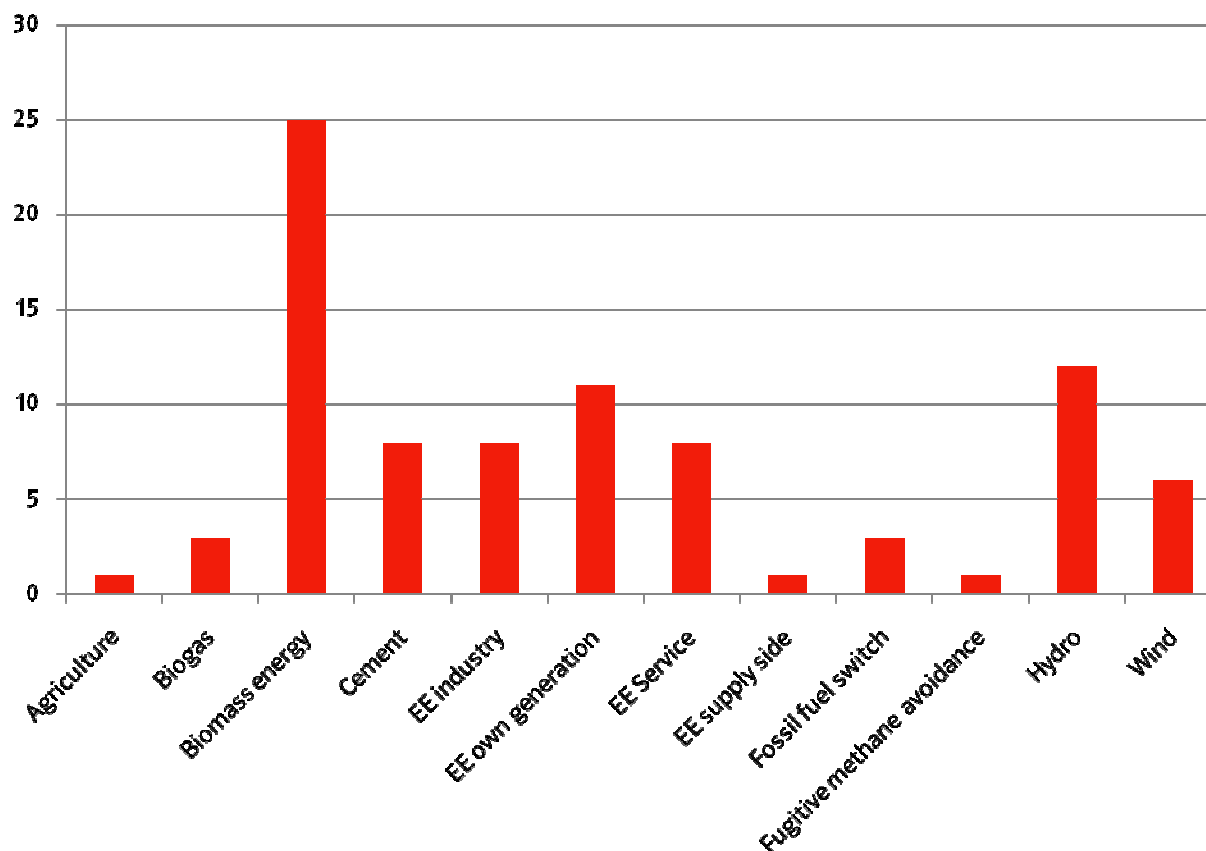


By technology



- Russia's predominant role in providing ERUs for post-2012
- Great potential for generation of energy efficiency projects
- Estimated a generation in post-2012 of nearly 400 Mton per year vs. reduction demand in Europe between 500 and 700 Mton per year (according to international existing agreements)

Rejected CDM Projects by Technology



What is the issue?

- Financial additionality
- Environmental additionality

What is needed post-2012

- CDM will not deliver the large low-carbon energy projects needed
 - CCS, nuclear, hydro, renewables
- Need for new drivers or incentives
 - carbon caps
 - credits against benchmarks or baselines