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Lessons from the CDM for the role of project-based market mechanisms in the post-2012 regime

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Structure of presentation

- **Key theoretical advantages of project-based market mechanisms in international climate policy**
- **Key risks of project-based mechanisms**
- **Empirical evidence regarding CDM performance**
- **Recommendations for CDM reform and the role of project-based mechanisms after 2012**

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Advantages

- **Use of abatement potential in countries that do not have quantitative commitments**
  - reduces global marginal abatement costs
  - leads to a faster cost reduction of abatement technologies due to more rapid technology diffusion
  - develops interest groups that benefit from mitigation and fast mobilization of activities
- **Generation of global carbon "reserve currency"**

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Disadvantages

- **Increase of global emissions if projects are not additional**
- **Incentive not to introduce policies that reduce emissions**
  - Recognized by regulators: new policies do not change the baseline
- **Incentive not to take on a commitment**
  - Revenue loss
  - Fear that "low-hanging fruits" have been used up
- **Reduced incentive to develop abatement technologies with high costs**
- **Trading is more efficient than projects**

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Reduction of MACs

- **CER price is consistently lower than price of emissions allowances in industrialized countries**
- **Low-cost technologies are used that had not been predicted by any observer 10 years ago**
  - HFC-23 from HCFC-22: 0.2-0.5 €/ t CO_2 eq
  - N_2O from adipic acid: 0.2-0.5 €/ t CO_2 eq
  - N_2O from nitric acid: 0.5-1 €/ t CO_2 eq

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Faster technology diffusion

- **CDM projects have been done in large number for only two years**
- **Technology diffusion effect on costs not likely to be visible in such a short period**
- **Anecdotal evidence is mixed**
  - Landfill gas capture ✓
  - Methane capture from animal farming ✓
  - Wind power ?
  - Catalytic and thermal reduction of N_2O ?

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Interest groups

- **In several host countries, CDM has mobilized key industries**
  - waste heat recovery from heavy industry (India, China)
  - cement blending (India)
  - hydro (China)
  - bagasse cogeneration (Brazil, India)
- **But so far the large scale thermal power industry has not been mobilized**

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CERs as reserve currency?

- **CERs are issued by the CDM EB which is so far seen as credible by regulators**
  - EU Commission (grudgingly) accepted CER imports, but not AAU imports
  - CERs are seen as benchmark currency for voluntary market
- **CER volume increases rapidly and thus is able to satisfy demand**
- **What happens if a supply overhang looms?**

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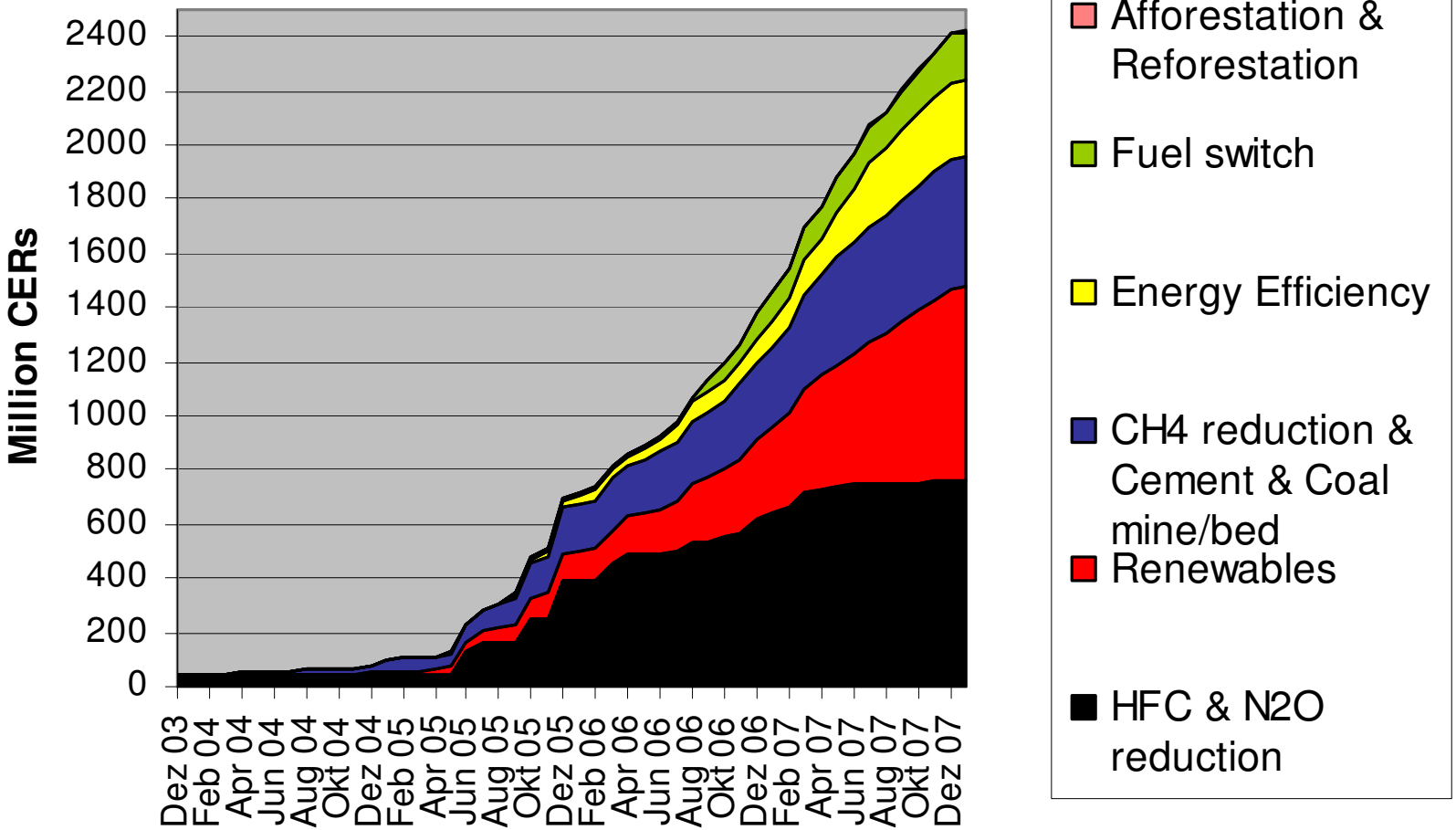
Thrilling rise of the CDM…



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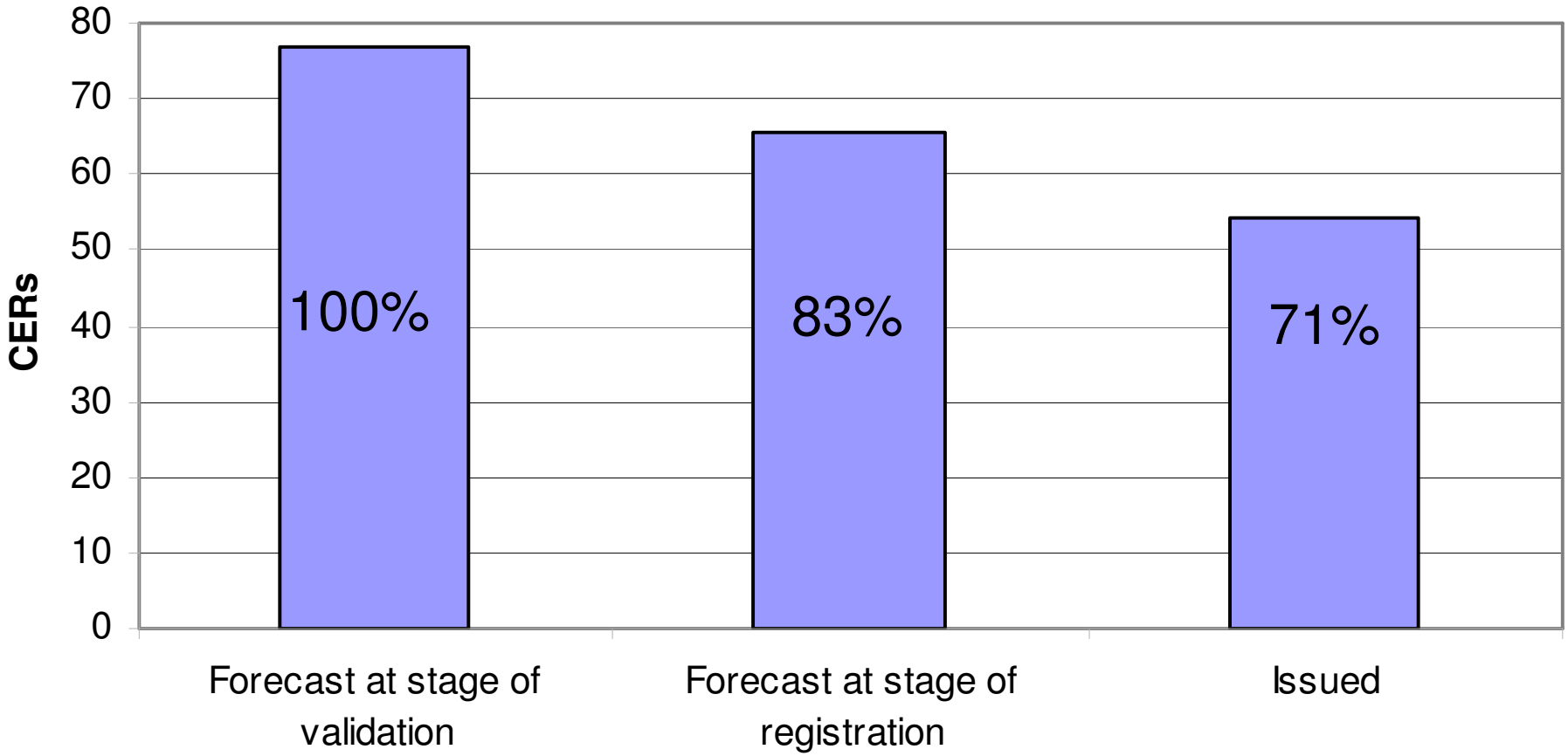
..but generic underperformance

Analysis of 203 CDM projects with issued CERs



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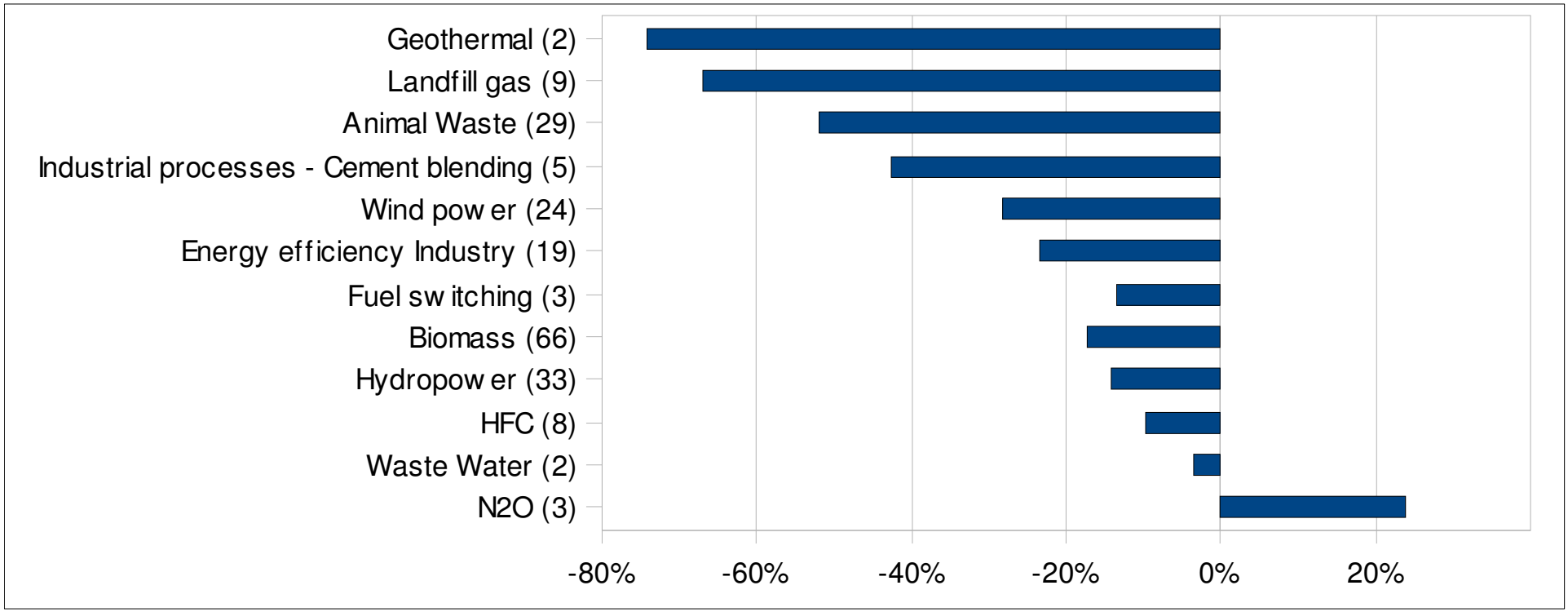
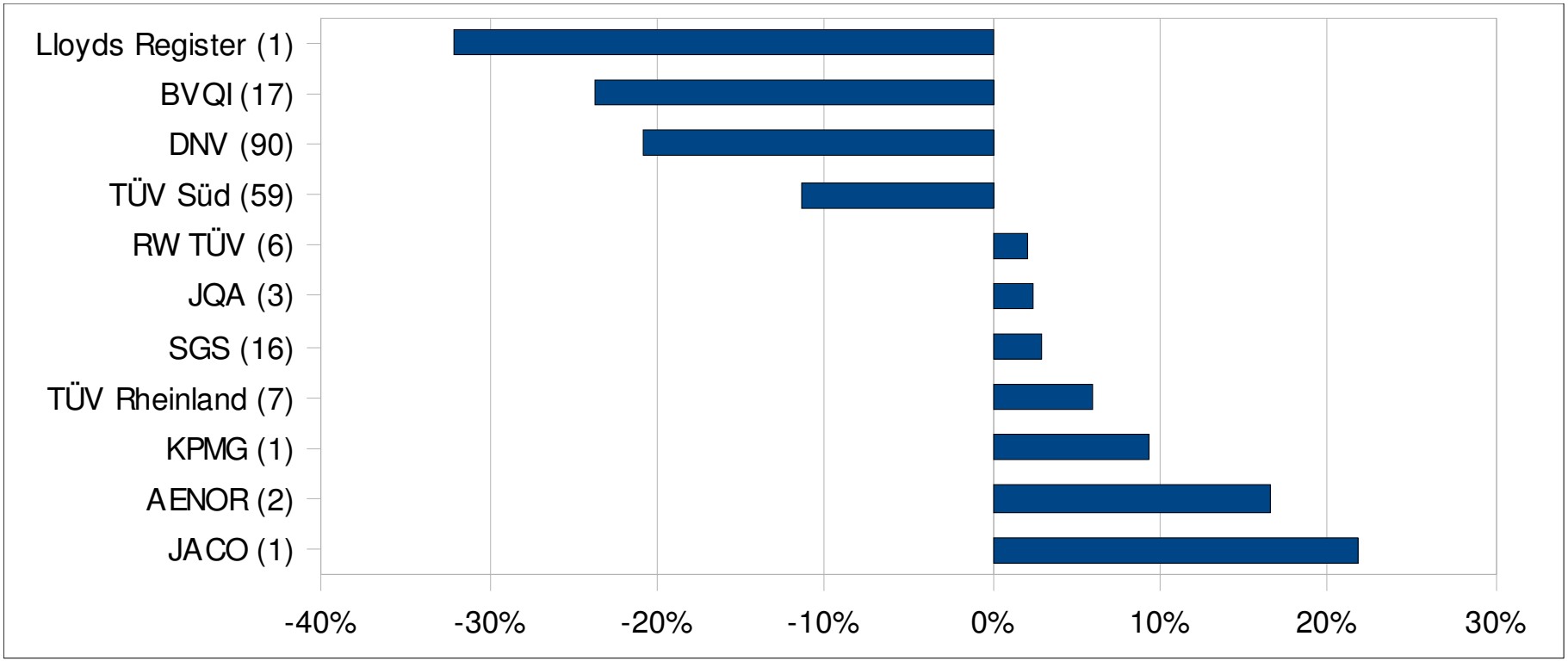
Performance: project types



Variability among projects of the same type is very large, showing the importance of a good project management

Performance: validators



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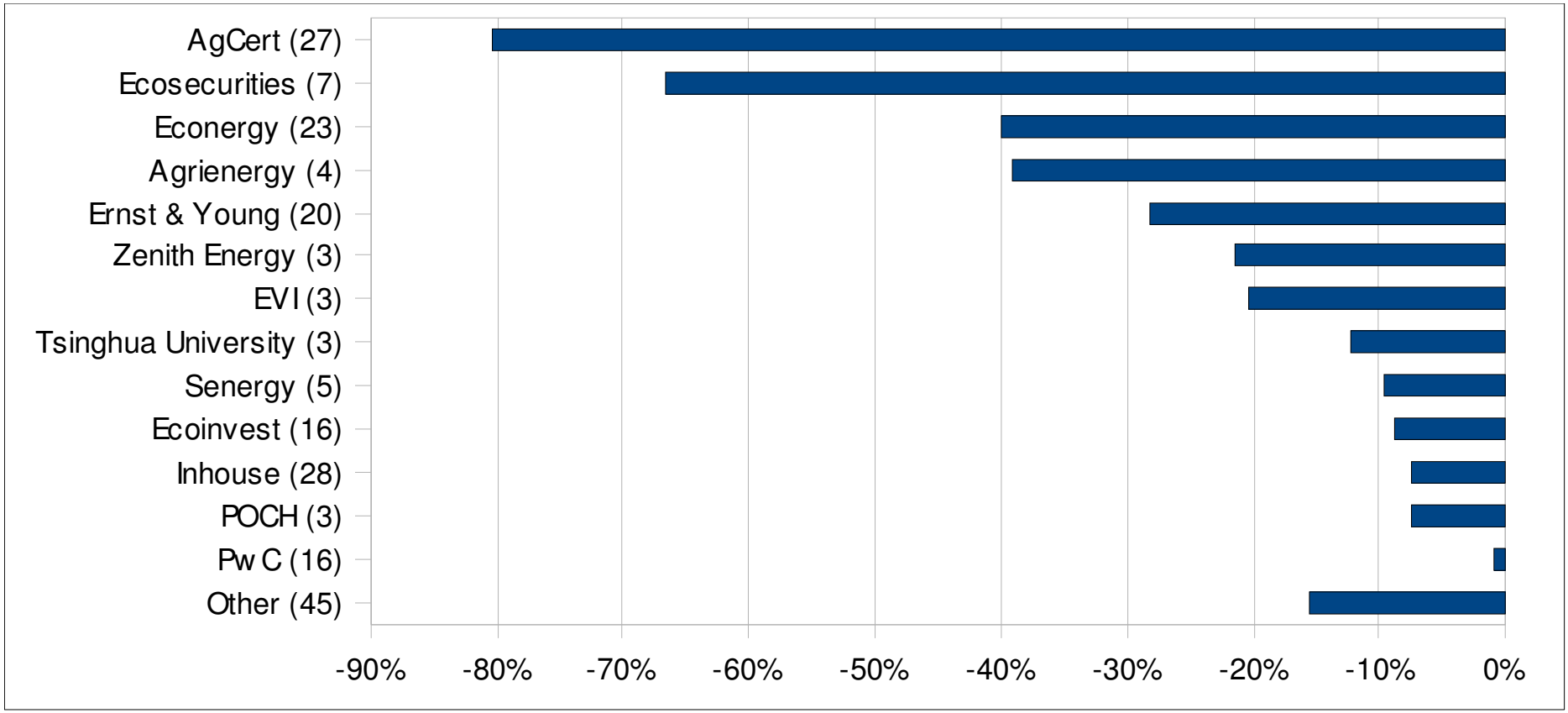
Performance: developers



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Additionality

- **A substantial share of emission reductions done in host countries is likely to be non-additonal**
  - Expansion of renewables to cater for energy security
  - Energy efficiency improvement driven by high energy prices
- **Difficulty to differentiate between additional and non-additional projects**
  - Gaming of financial parameters
  - Existence of non-monetary barriers
- **Regulatory tight-rope walking**

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Are CDM projects additional?

- **Sample of 50 projects registered before May 2006**
  - Substantial share has problems with additionality determination
  - Several case studies also show that the CDM EB is not applying consistent criteria in rejecting projects due to lack of additionality, especially regarding large ones
- **Results corroborated by Schneider (2007) for 93 projects**
  - ~40% of projects and 20% of CERs with doubtful additionality

Analysis of 24 rejected and withdrawn projects

- All projects rejected due to additionality performed just a barrier analysis,
- Most rejected projects are lacking or provide insufficient independent sources of information for substantiating additionality

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CER supply and additionality

Scenario name	Business-as-usual	Strict additionality	Hangover	Accele-ration
Inflow of new projects (billion CERs)	3	2	1.5	5
Probability of validation (%)	75	50	75	90
Probability of rejection (%)	4	10	4	0
Performance rate (%)	85	85	75	80
Total CER volume (billion)	3.1	1.9	2.0	4.4

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Commitment reluctance

- **In the short term, a host country wins from refraining to take up a commitment**
  - CDM allows to generate revenues
  - If a commitment goes beyond business-as-usual, revenues will fall even if the country can shift from CDM to JI without any transaction cost
  - Only in a situation where the commitment entails some "hot air", the revenues might increase
- **Cheap abatement options no longer available to reach commitment**
  - But: "low hanging fruits" can rot and new ones ripen…

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Reduced technology incentive

- **Cheap CERs allow to avoid development of new mitigation technologies with high costs**
  - Depends on political willingness to finance high-cost technologies
- **However, with CDM, industrialized countries are likely to be willing to accept stronger commitments**
  - Strong link between perceived mitigation costs and commitment level
- **Balance of the two effects is difficult to determine!**
  - Short vs. long term…

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Recommendations I

- **CDM EB should become stricter regarding additionality**
  - Mandatory investment test for large projects, barrier test only complementary
- **Clear rules for introduction of new mitigation policies not to impact baseline or additionality determination**
- **Clear rules on transition CDM-JI of projects whose crediting periods are ongoing when a host country takes up commitments**

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Recommendations II

- **Discounting of CERs depending on development level of host country**
  - No discounting for LDCs
  - Moderate (20%) discounting for countries that are likely to take up commitments within the next three commitment periods
  - Substantial discounting (50%) for countries that would be able to take up commitments in the subsequent commitment period
  - Discount classes to be defined by COP

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Research needs

- **What will be the overall level of demand under different variants of emissions commitments for industrialized and selected advanced developing countries? Are policy instruments needed to generate sufficient demand?**
- **How would the CDM relate to sectoral commitments?**
- **Could "policy CDM" address disadvantages?**
- **How do cheap emission reduction options ("low hanging fruits") develop over time and does the CDM deplete them?**