

Making climate finance lessons for and from evaluation

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IEG's Climate Evaluation Series




Phase I:
Win-win Energy Policies
2009

Phase II:
Mitigation
Nov 4 2010

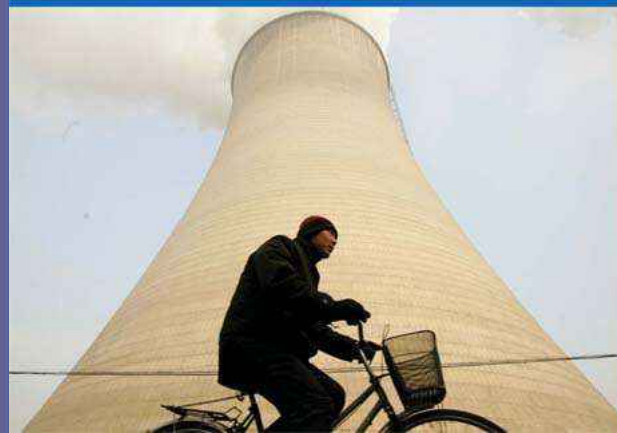
Phase III:
Adaptation
2011

IEG
INDEPENDENT EVALUATION GROUP



Climate Change and the World Bank Group

Phase I: An Evaluation of World Bank Win-Win Energy Policy Reforms



IEG WORLD BANK GROUP / MIGA

PHASE II: THE CHALLENGE OF LOW-CARBON DEVELOPMENT
Climate Change and the World Bank Group

IEG Study Series

A woman wearing a red sari and a colorful headscarf is focused on a task, using a small white tool to work on a piece of material.

Take home messages



- ▶ What works, for climate and development
 - Energy efficiency
 - Forest protection, where local people have use rights
 - Long-tenor loans for renewable energy
 - Technology transfer via deliberate efforts at piloting/demonstration /diffusion
- ▶ **What hasn't worked**
 - Carbon finance has low leverage to induce wind and hydro investment
- ▶ What needs to work
 - Rapid feedback on project and program performance, to inform policies and investments

Outline



- ▶ Investments
 - Energy Efficiency and Renewable Energy
 - Forest protection
- ▶ Financial instruments
 - Carbon markets
 - Loans
- ▶ Technology transfer
- ▶ Feedback and learning

Evaluation challenge: Inadequate monitoring



- ▶ Bank Group has large, rapidly growing portfolio in energy efficiency/renewable energy/urban transit
- ▶ But formal evaluations occur 5 to 10 years after initiation – often too late, sometimes too early to be informative
- ▶ **Even at 'completion', most project lack good** documentation of basic economic impacts (to say nothing of climate impacts)

INVESTMENTS



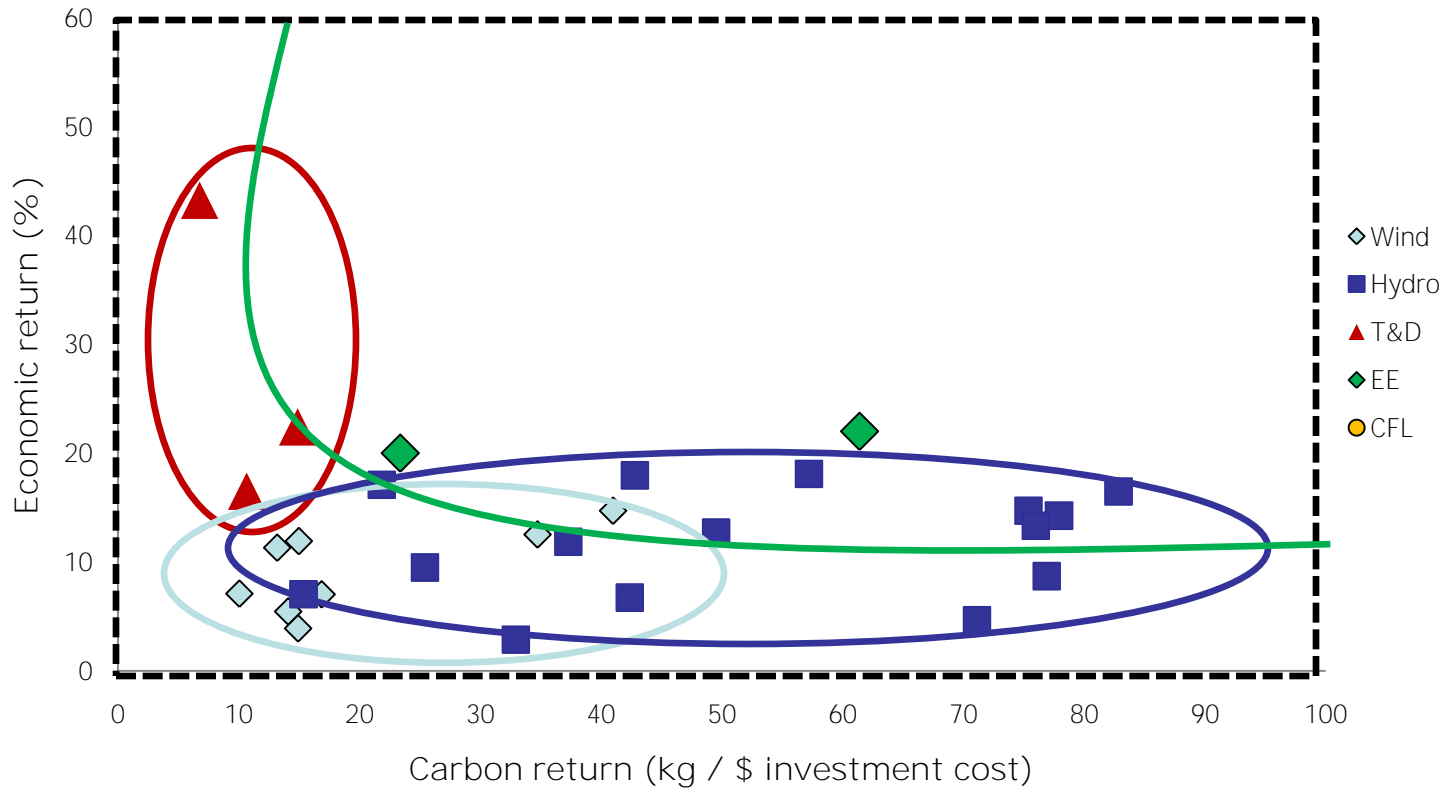
Ashden awards



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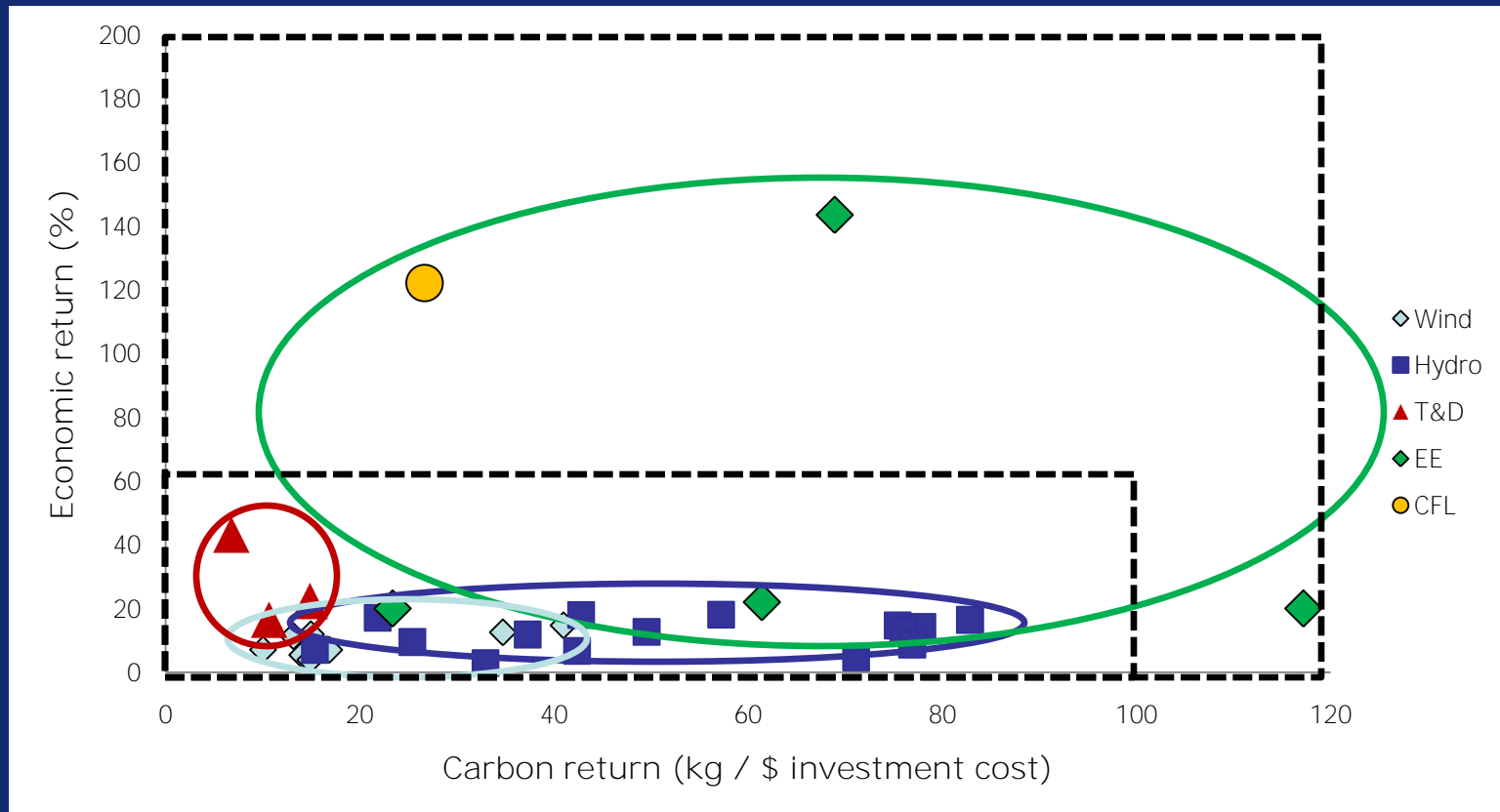


Economic and carbon returns to renewable energy and energy efficiency projects

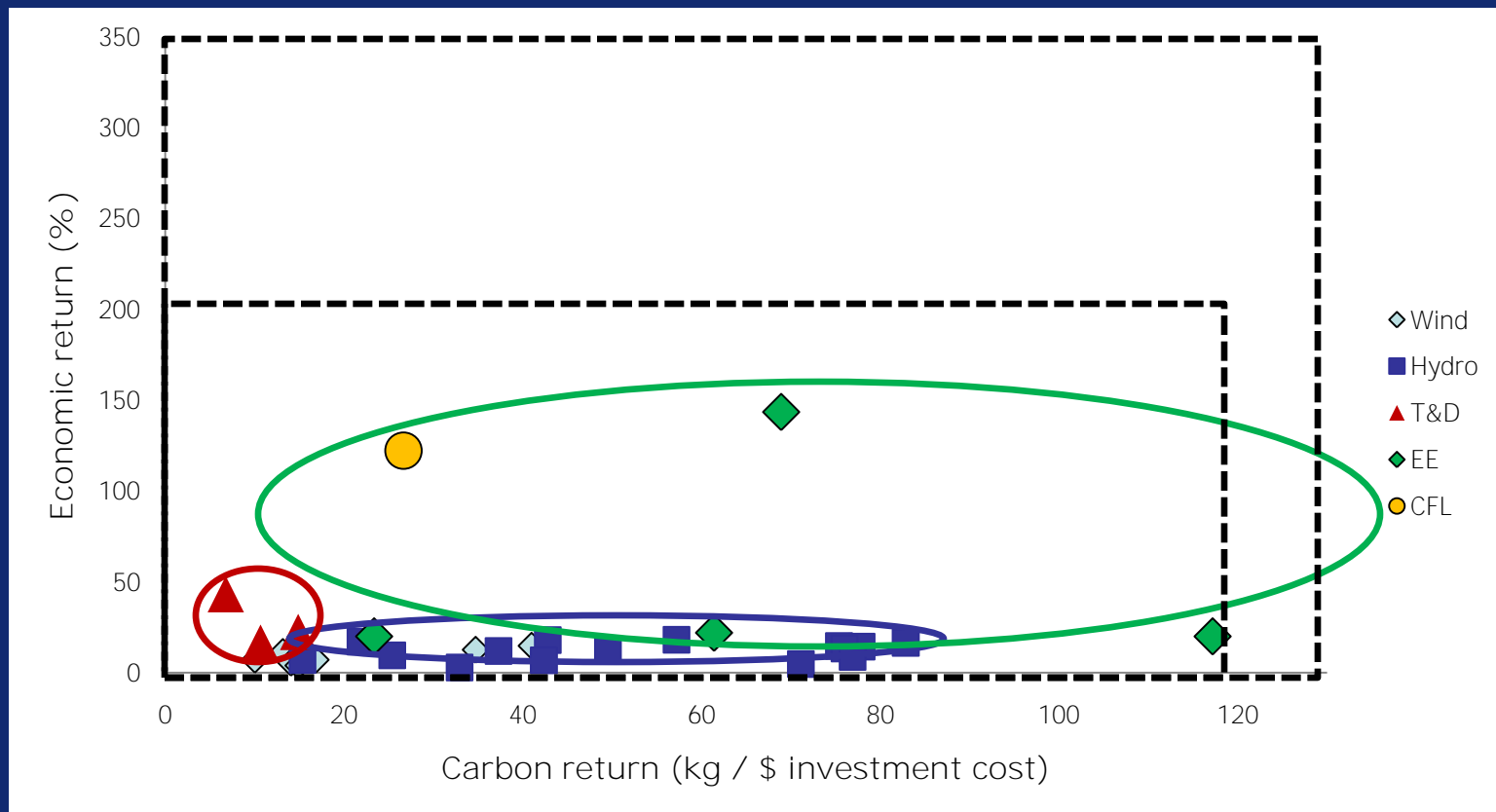


T & D: transmission and distribution loss reduction
 EE: energy efficiency CFL: efficient lighting

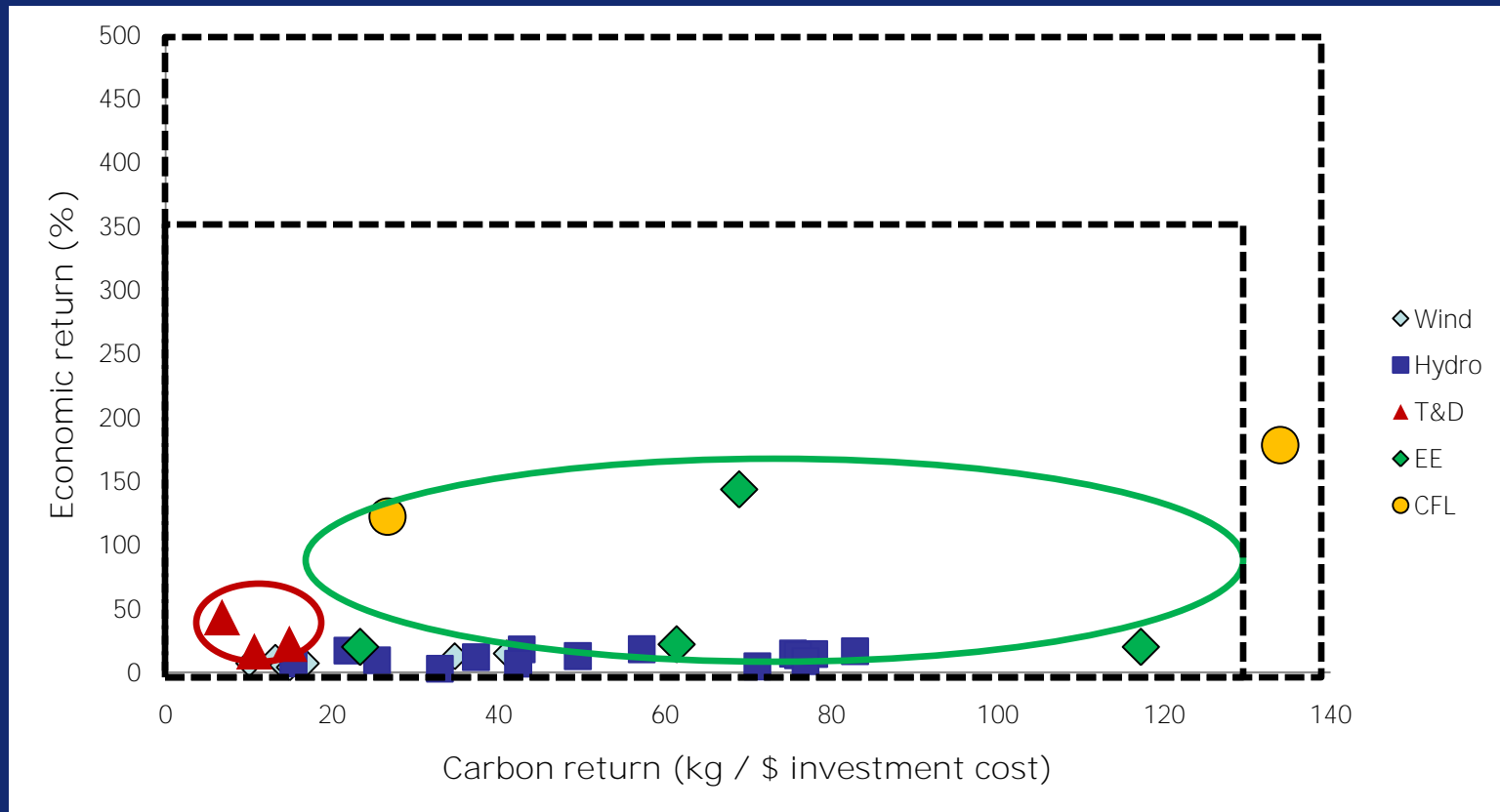
Economic and carbon returns to renewable energy and energy efficiency projects



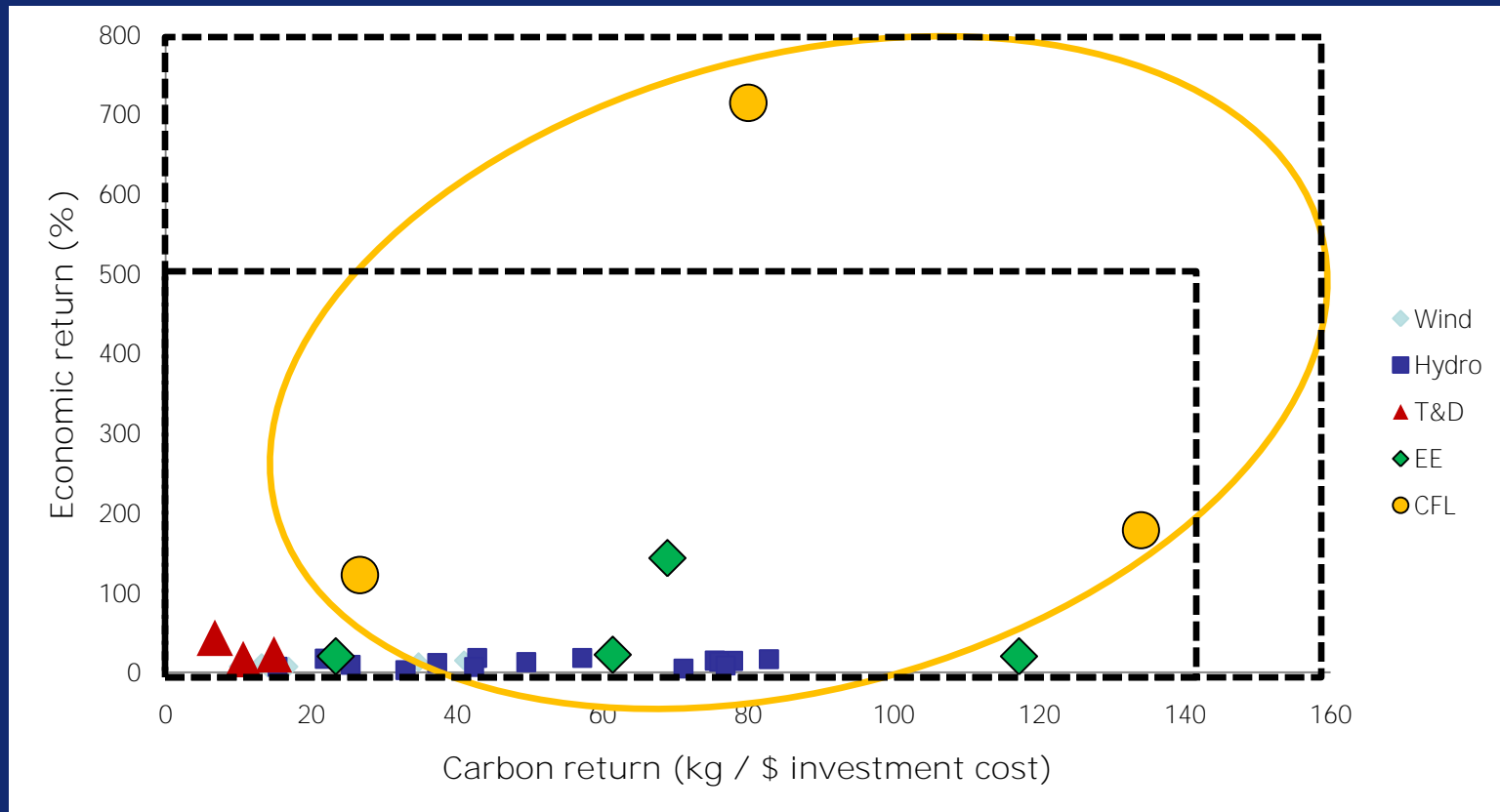
Economic and carbon returns to renewable energy and energy efficiency projects



Economic and carbon returns to renewable energy and energy efficiency projects

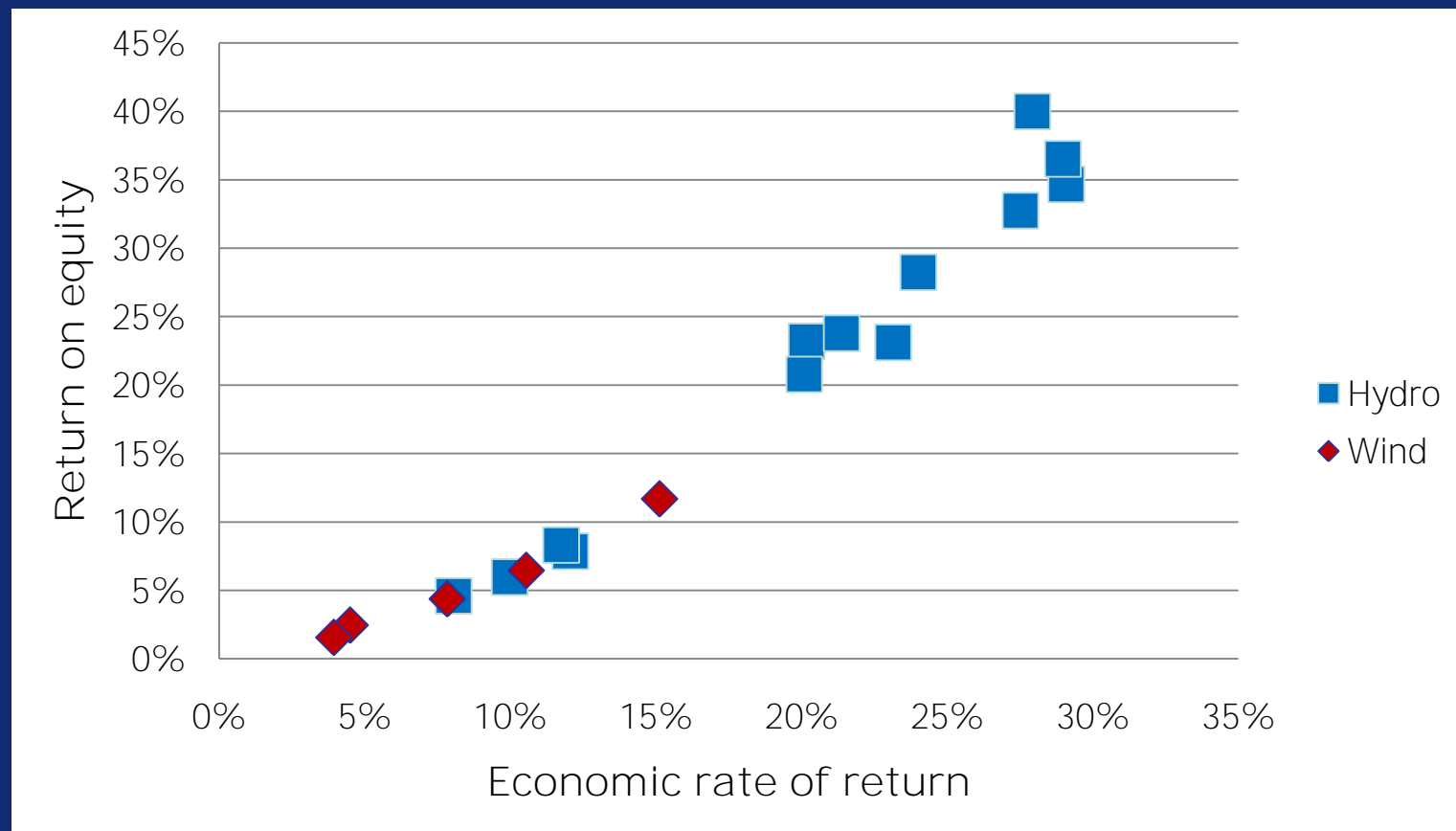


Economic and carbon returns to renewable energy and energy efficiency projects



Efficiency projects offer returns that dwarf most other development projects

Economic returns to wind and hydro projects (at 6 cents/kWh)



Capacity utilization is a big determinant of returns

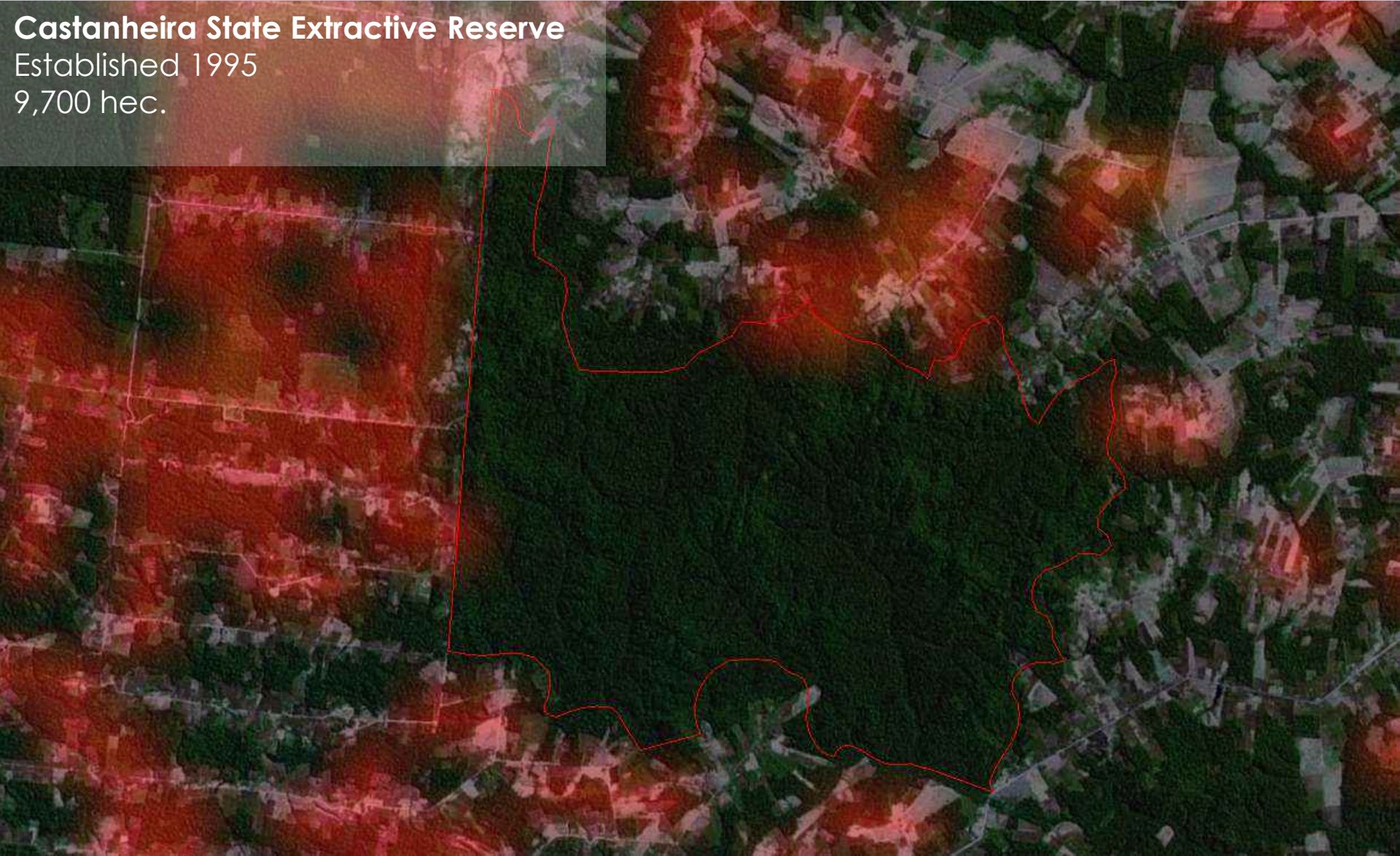
Protected areas seem to be effective



Castanheira State Extractive Reserve

Established 1995

9,700 hec.



Protected areas do reduce deforestation



Multiple use areas on average are even more effective than strictly protected areas

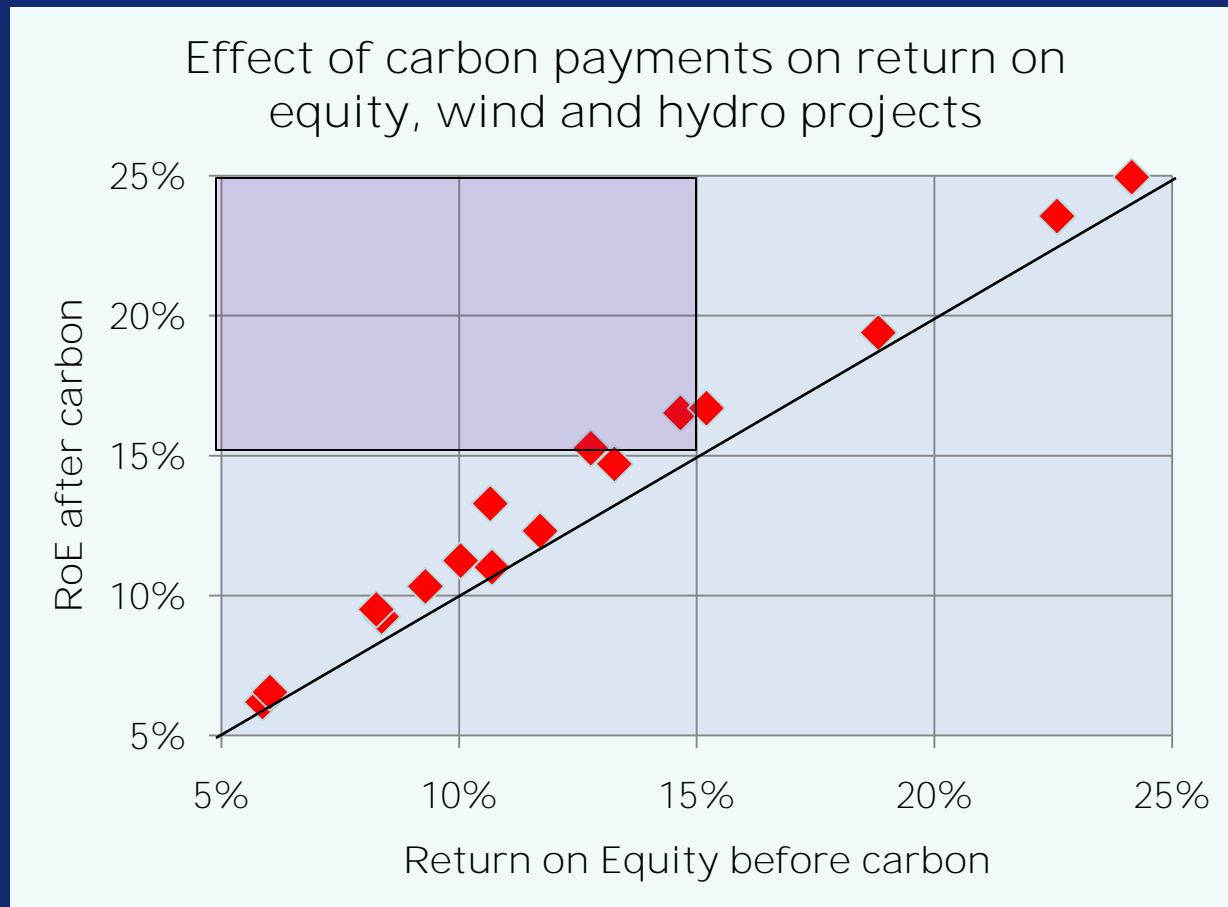
Percentage reduction over 8 years



FINANCIAL INSTRUMENTS



Carbon finance: little impact on incentives, **doesn't address financing constraints**



TECHNOLOGY TRANSFER



▶ Successes

- Silvopastoral systems, Colombia
- Energy service companies , China
- Bus rapid transit, Mexico
- Solar home system manufacture, China

▶ Problematic

- Concentrated Solar Power

▶ Failures

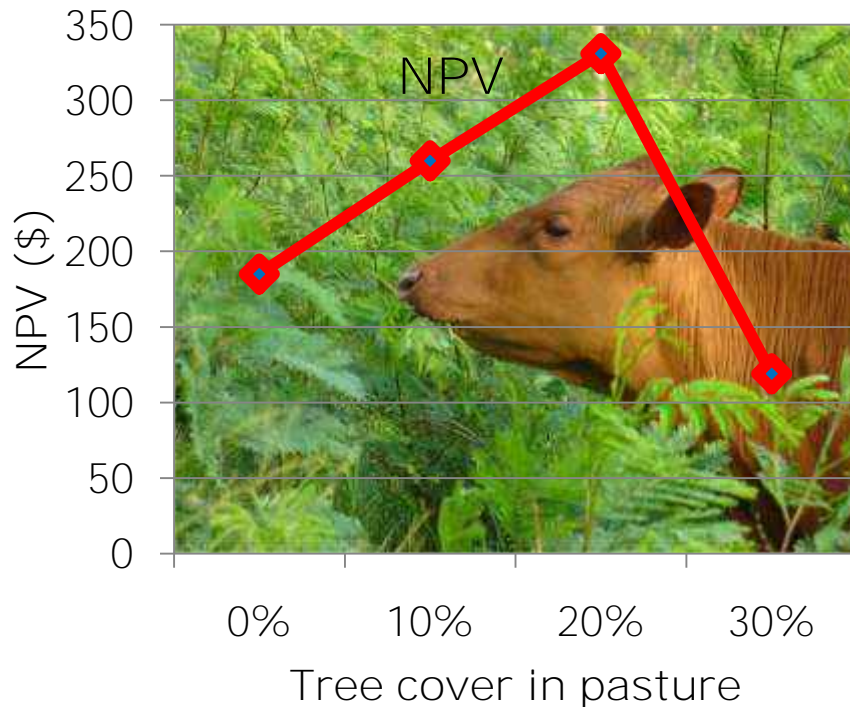
- China Efficient Boiler (IPR transfer)
- IFC off-grid solar photovoltaic projects
- IFC fuel cell project

Successful technology transfer depends on:

- ▶ Non-cutting edge technology
- ▶ Clear design focus: what is being demonstrated, to whom, why
- ▶ Risk mitigation (typically through GEF grants)
- ▶ Extra funds for supporting project preparation and supervision

Silvopastoral systems, Colombia

Assembly of solar home PV systems, China



Why has it taken 14 years to 'accelerate' concentrated solar power technology?



Ain Beni Mathar solar plant

Flawed learning curve rationale

Poor incentives for hosts

Difficult procurement: uncertain cost, few bidders

Technology integration problems

The value of rapid feedback: CDM landfill gas projects as an example



Regular, public reporting on output showed that these projects were underperforming as a class, prompting attention to remedies



Pressing need for rapid feedback/evaluation on:

- ▶ Economic and carbon returns of innovative technologies
- ▶ Adoption of energy efficiency behaviors
- ▶ Social safety nets and energy price reform
- ▶ Social, economic, and environmental impacts of forest interventions
- ▶ Capacity utilization of renewable power

Conclusion: boosting effectiveness of climate finance

- ▶ Focus on high-return sectors
- ▶ Focus on high return instruments
- ▶ **“Public venture capital”, broadly construed: piloting, demonstration and diffusion of innovations**
- ▶ Focus on results, not just inputs.

Further information:

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