



# **Lesson on energy efficiency from evaluation**

Ken Chomitz, Independent Evaluation Group  
Kchomitz [at] worldbank.org

Durban, 6 December 2011

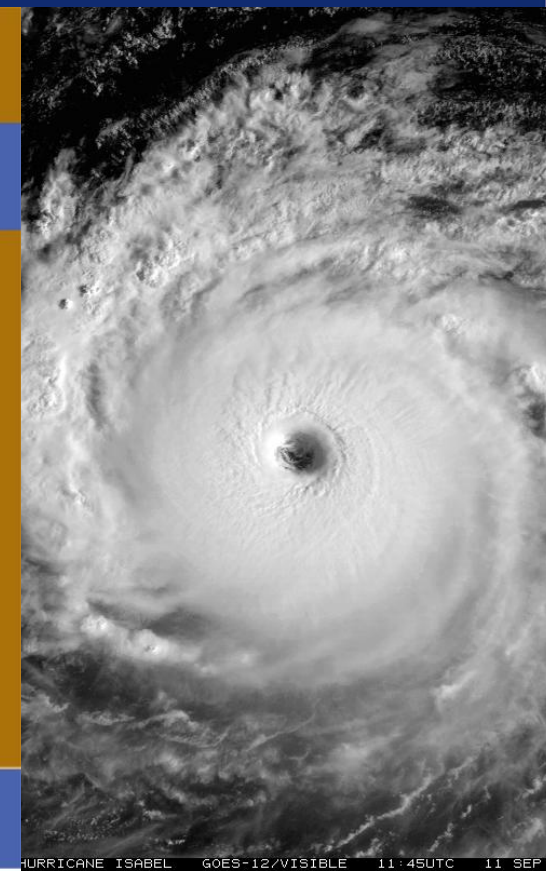
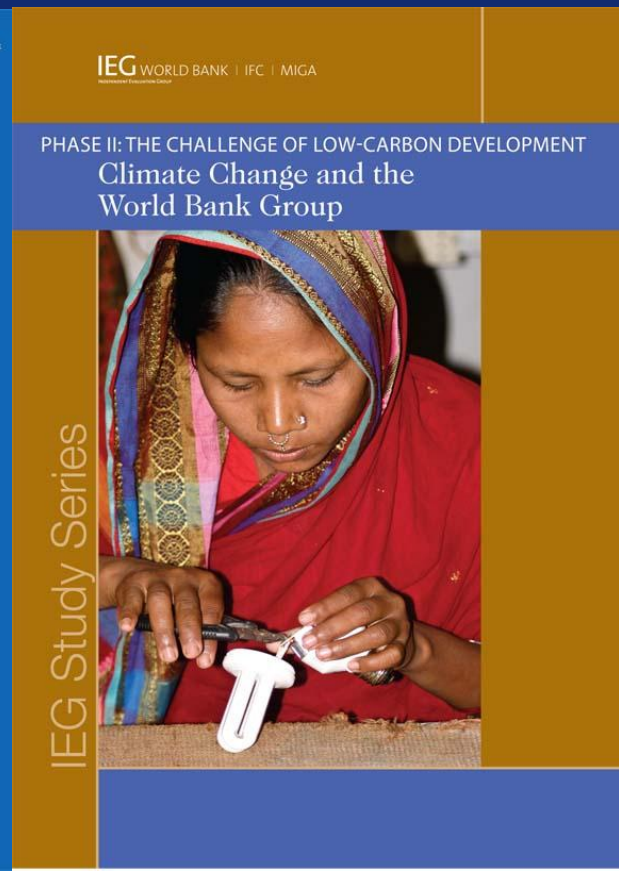
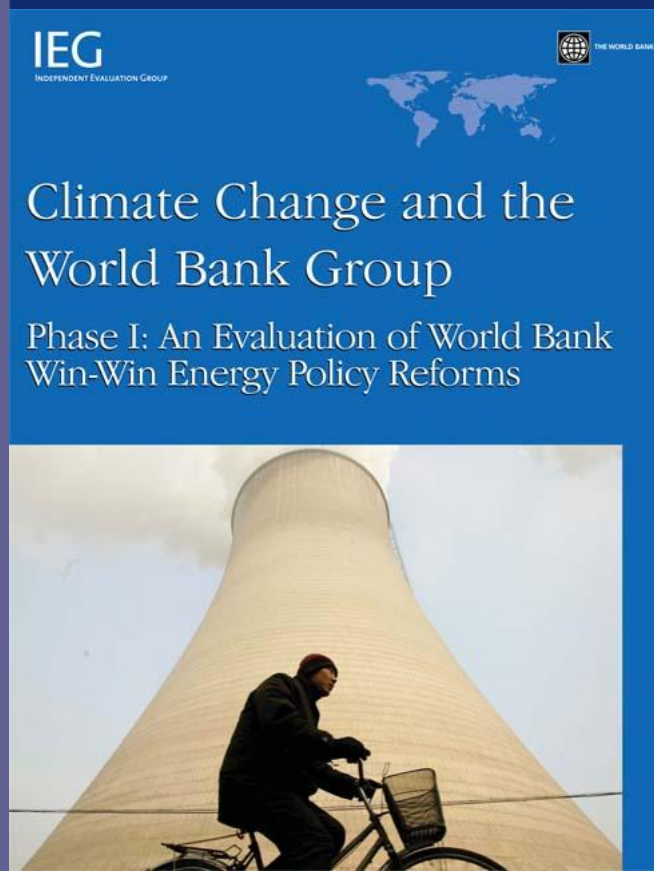
# IEG's Climate Evaluation Series



Phase I:  
Win-win Energy Policies  
2009

Phase II:  
Mitigation  
2010

Phase III:  
Adaptation  
2012



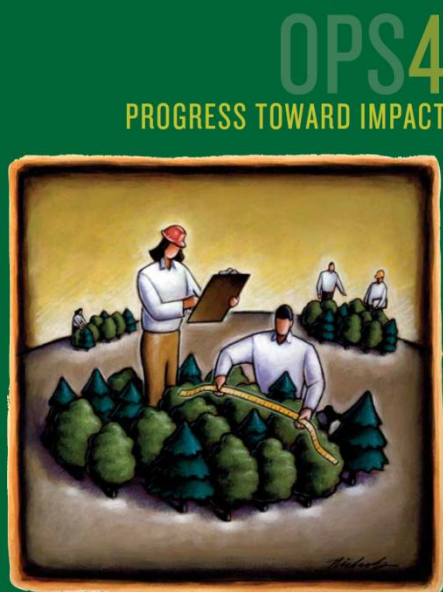
HURRICANE ISABEL GOES-12/VISIBLE 11:45UTC 11 SE

# GEF Evaluation Office, ADB and ECG Evaluations



## GEF Evaluation Office:

OPS 4: Progress Towards Impact  
GEF Evaluation Office



FOURTH OVERALL PERFORMANCE STUDY OF THE GEF  
FULL REPORT



## ADB Independent Evaluation Department:

Greenhouse Gas Implications  
Of ADB's Energy Sector Operations



Evaluation Study

Reference Number: EKB: REG 2009-38  
Evaluation Knowledge Brief  
October 2009

Greenhouse Gas Implications of ADB's  
Energy Sector Operations

Independent Evaluation Department

Asian Development Bank

## ECG:

Overcoming Barriers to Energy  
Efficiency: New evidence from  
independent evaluation



Overcoming barriers to energy  
efficiency: new evidence from  
independent evaluation

Based on recent findings from the independent evaluation departments of the Asian Development Bank, the European Bank for Reconstruction and Development, the Global Environment Facility, and the World Bank Group, an ECG workshop on the subject in Manila in March 2011 and subsequent discussions. The note does not necessarily reflect ECG policy

Draft Briefing Note, version 8  
November 20 2011

This note does not reflect ECG policy

### About the Evaluation Cooperation Group

The Evaluation Cooperation Group is dedicated to harmonizing evaluation work among multilateral development banks. Its members are the evaluation departments of the African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, European Investment Bank, Inter-American Development Bank, International Fund for Agricultural Development, International Monetary Fund, the Islamic Development Bank, and the World Bank Group. Observers are the evaluation departments of the Council of Europe Development Bank, the Organisation for Economic Cooperation and Development, and the United Nations.

[www.ecgnet.org](http://www.ecgnet.org)

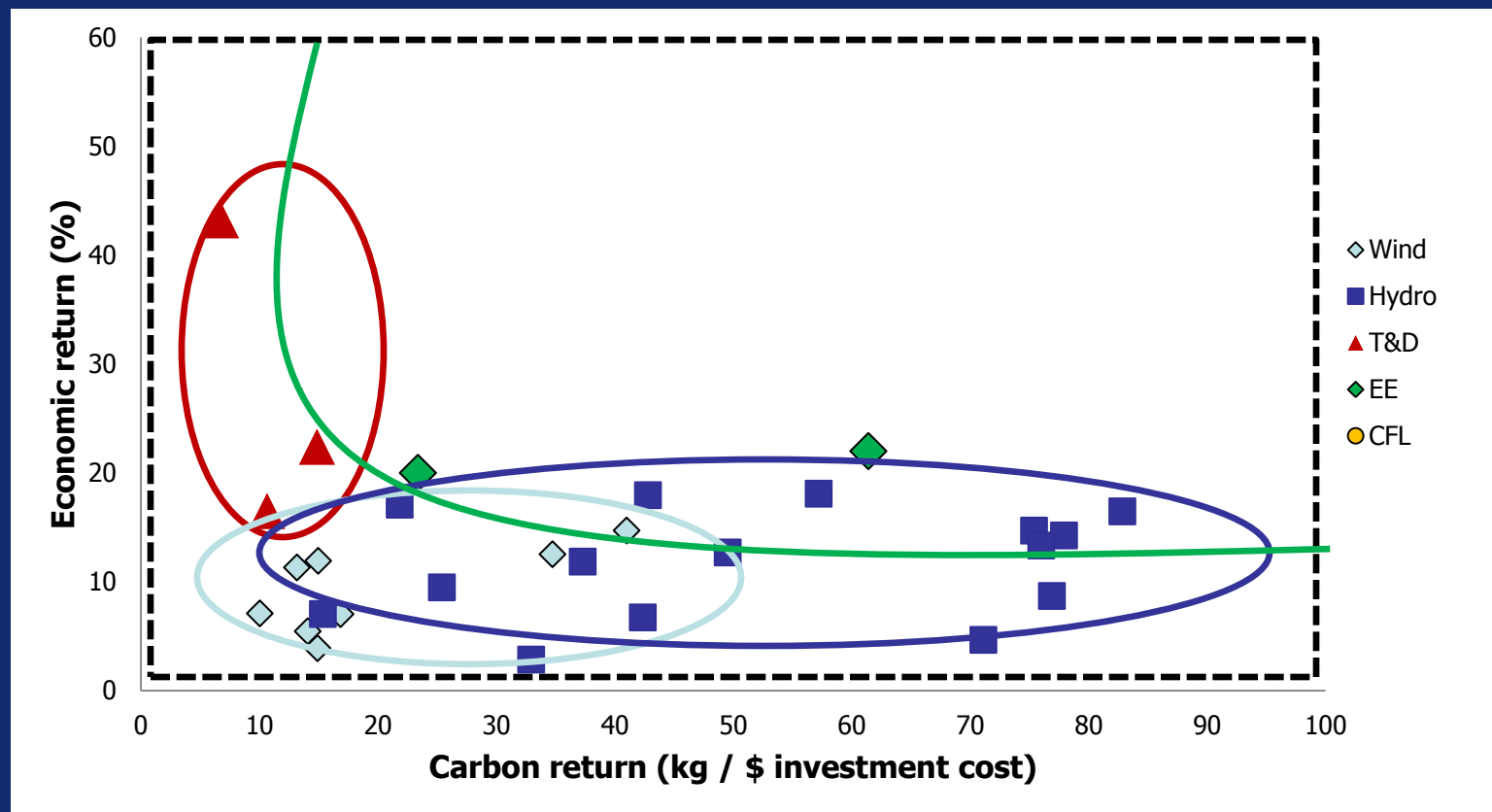
# Energy efficiency investments are highly cost effective

- ▶ \$1 of GEF support catalyzes:
  - 2.2 tons CO2 reduction from energy efficiency
  - 0.4 from renewables
- ▶ Some energy efficiency investments offer paybacks in weeks

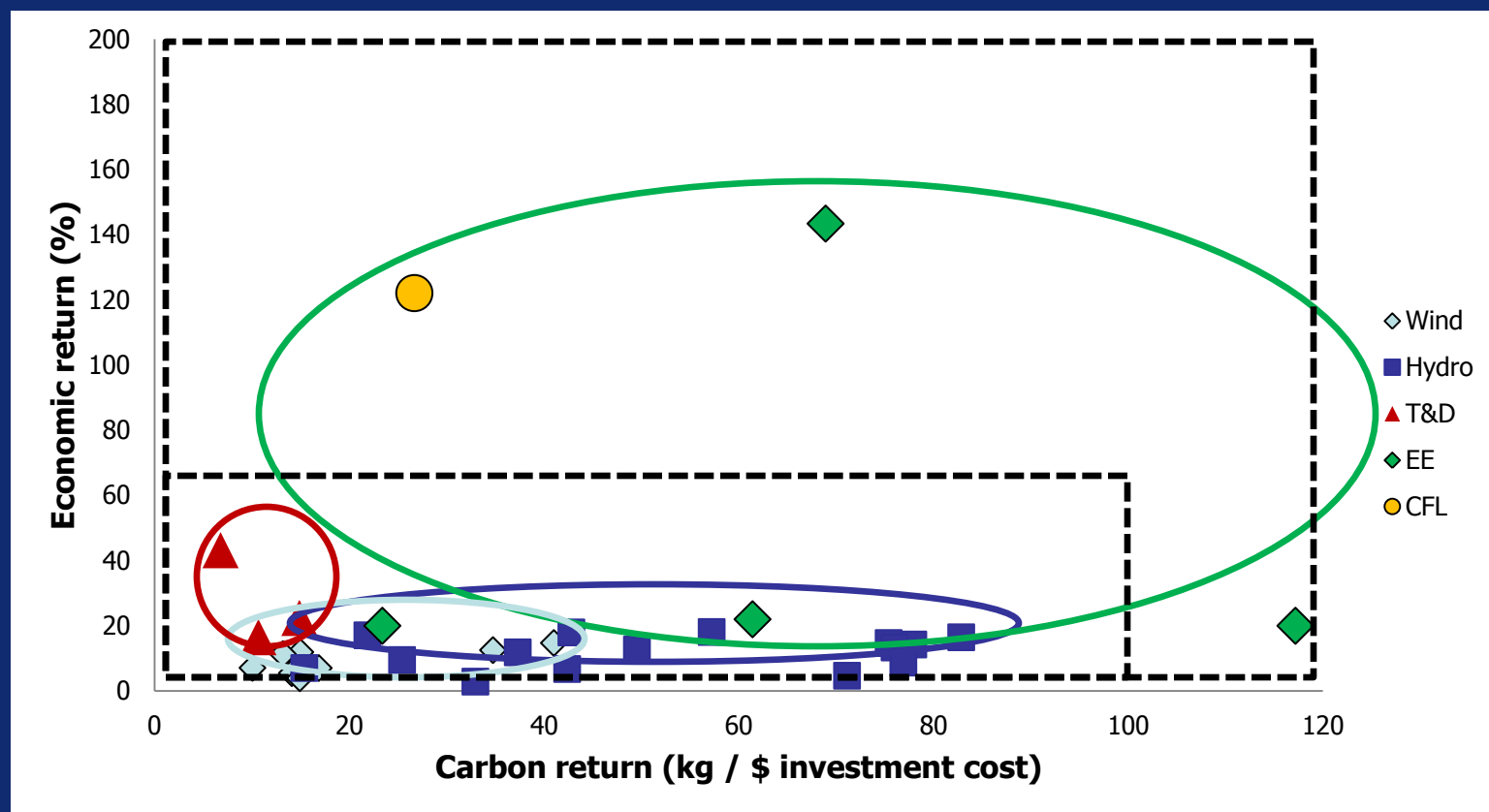




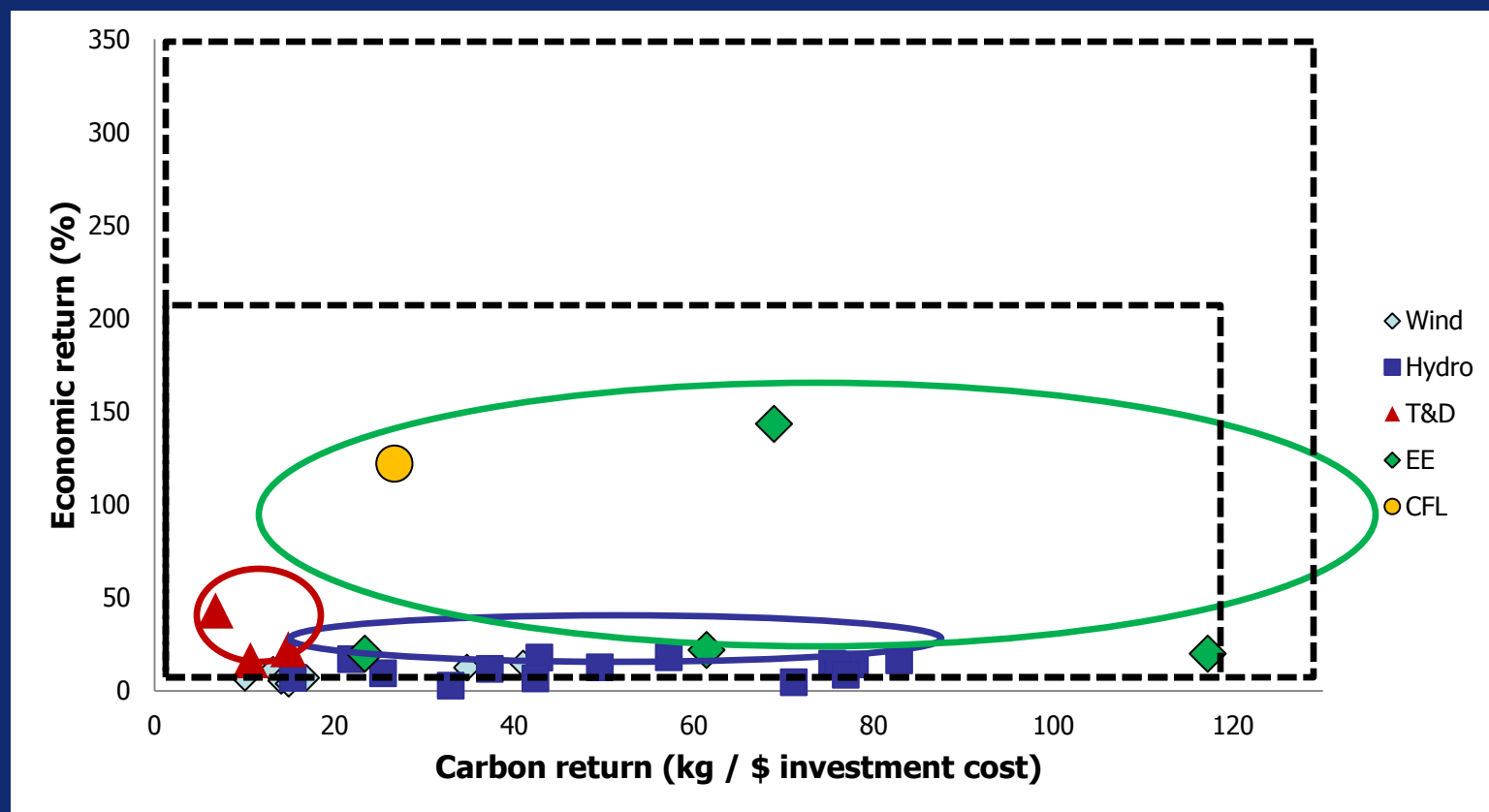
# Economic and carbon returns to renewable energy and energy efficiency projects



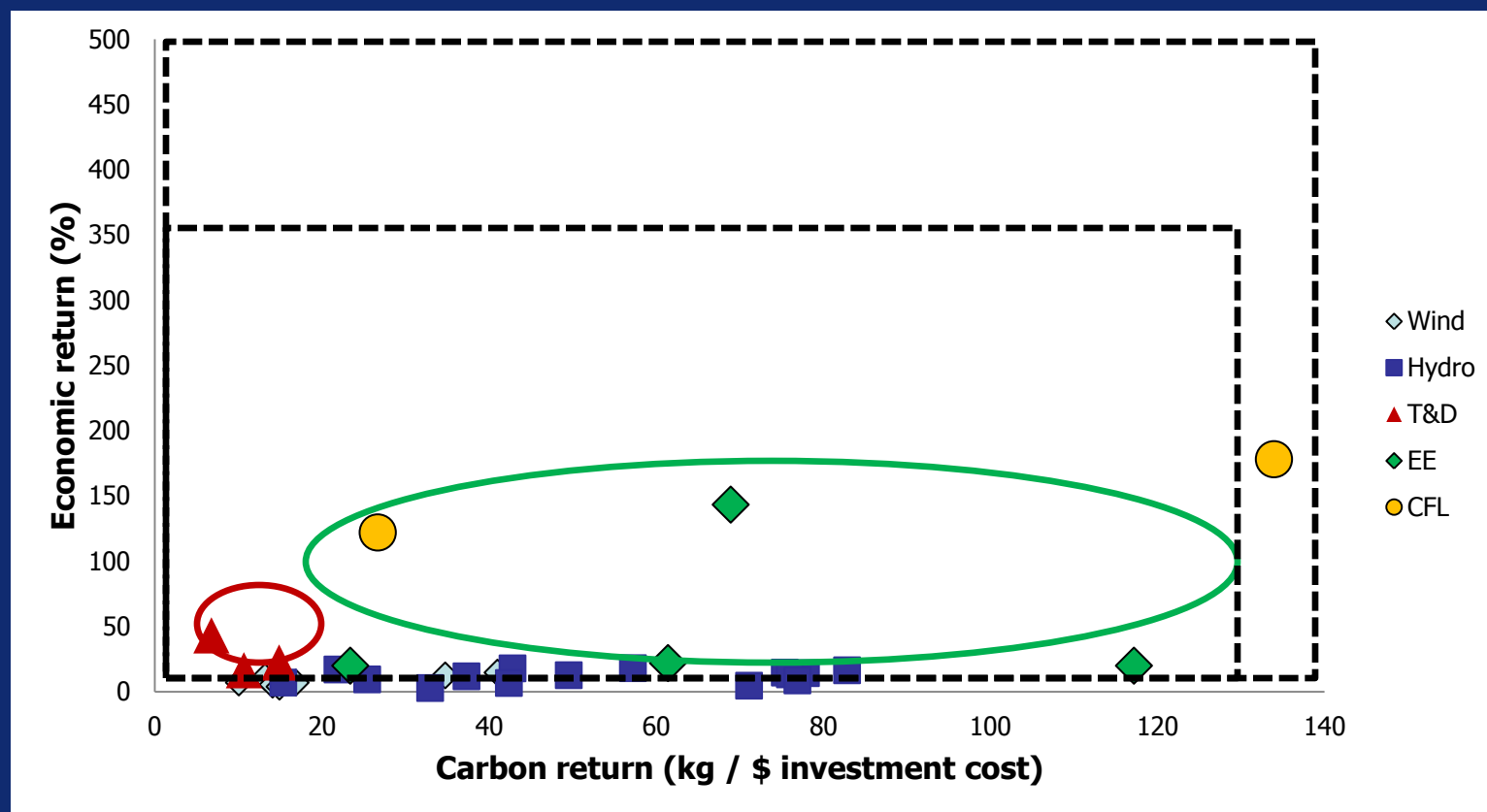
# Economic and carbon returns to renewable energy and energy efficiency projects



# Economic and carbon returns to renewable energy and energy efficiency projects

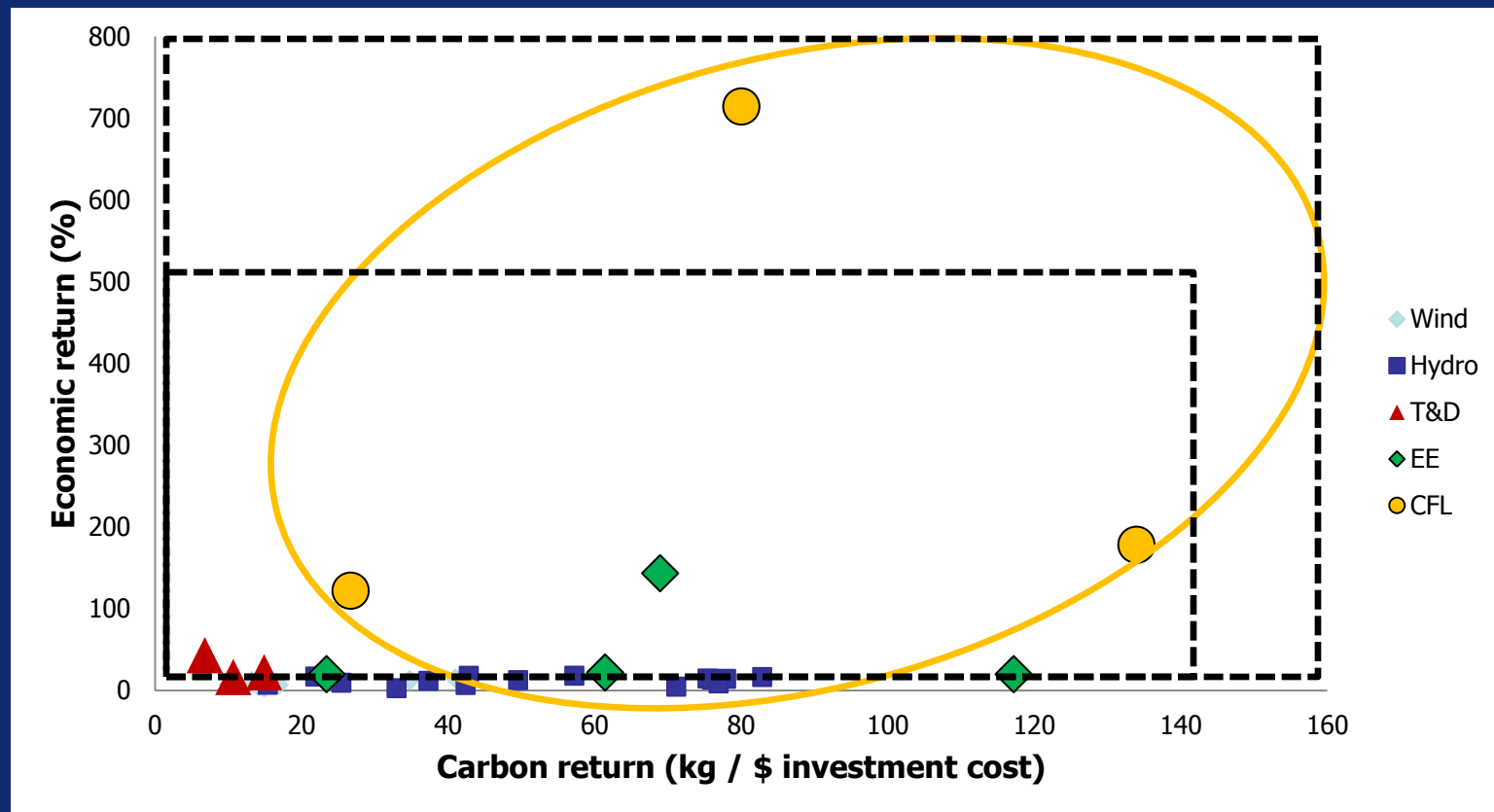


# Economic and carbon returns to renewable energy and energy efficiency projects





# Economic returns to energy efficiency dwarf those of almost all development projects



# Fossil fuel subsidies are burdensome, regressive, GHG-promoting,



- ▶ \$300 to \$600 billion annual subsidies
- ▶ Energy subsidies larger than public spending on health in many countries
- ▶ Disproportionately go to wealthier groups.
- ▶ Subsidy removal would reduce global CO2 emissions by 7%
- ▶ Subsidy removal would boost returns to energy efficiency and competitiveness of renewable energy

# Social safety nets have been used to compensate for fuel price rises



# Energy efficiency finance: diagnosis of barriers and prescription

## ► Diagnosis

- Firms don't understand opportunities
- Banks worry that EE investments won't be profitable

## ► Prescription

- Energy audits and technical assistance for companies
- Technical assistance for banks
- Temporary subsidized loan guarantees

## ► Expectation

- Once banks and firms are comfortable with these loans, subsidized guarantees are no longer necessary – the market will be transformed

## ► *Diagnosis not entirely correct...*

# Banks finance *companies*, not *projects*

- They understand that energy efficiency *projects* are profitable.
- Their big worry: will I get paid back? Is the *company* trustworthy? Can it provide collateral?
  - *Guarantees substitute for collateral*





# Conclusions on energy finance

- ▶ Subsidized guarantees can unlock profitable, GHG reducing opportunities for small and medium enterprise.
- ▶ Guarantees are often not necessary for large enterprises.
- ▶ Guarantees are not transformative.
- ▶ Technical assistance helps banks market loans to creditworthy clients.



# Demonstration projects can transform markets...

- ▶ When they pay attention to *what* is being demonstrated, *why*, and *to whom*.
- ▶ GEF grant support has been important.



# Potential bias against energy efficiency

## Generation

- ▶ Lower return but:
  - Higher ratio of \$ volume to preparation cost
  - More visible



IEG  
INDEPENDENT EVALUATION

IGA

## Efficiency

- ▶ High return but:
  - Complex to prepare
  - Low \$ volume
  - No ribbons to cut



# Need for monitoring and evaluation



- ▶ Inconsistent, spotty follow up on impacts of energy efficiency projects
- ▶ Needed:
  - Real-time monitoring
  - Comparison groups
  - Economic analysis
  - GHG impact monitoring
  - Long term sustainability monitoring
- ▶ This info could help raise the profile of energy efficiency projects

# Thank you!



Ken Chomitz  
Kchomitz [at] worldbank.org  
ieg.worldbankgroup.org