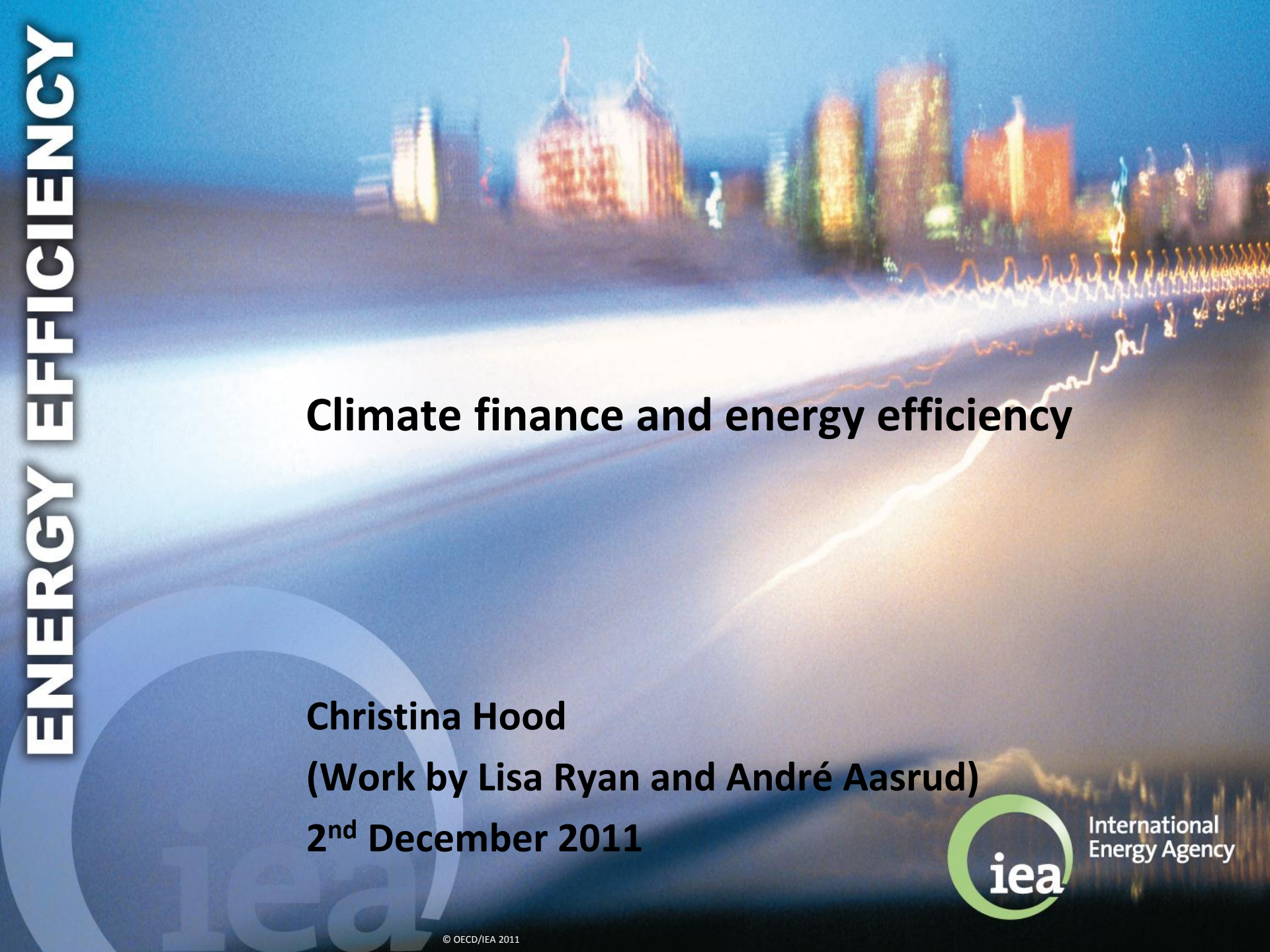


Climate finance and energy efficiency

Christina Hood

(Work by Lisa Ryan and André Aasrud)

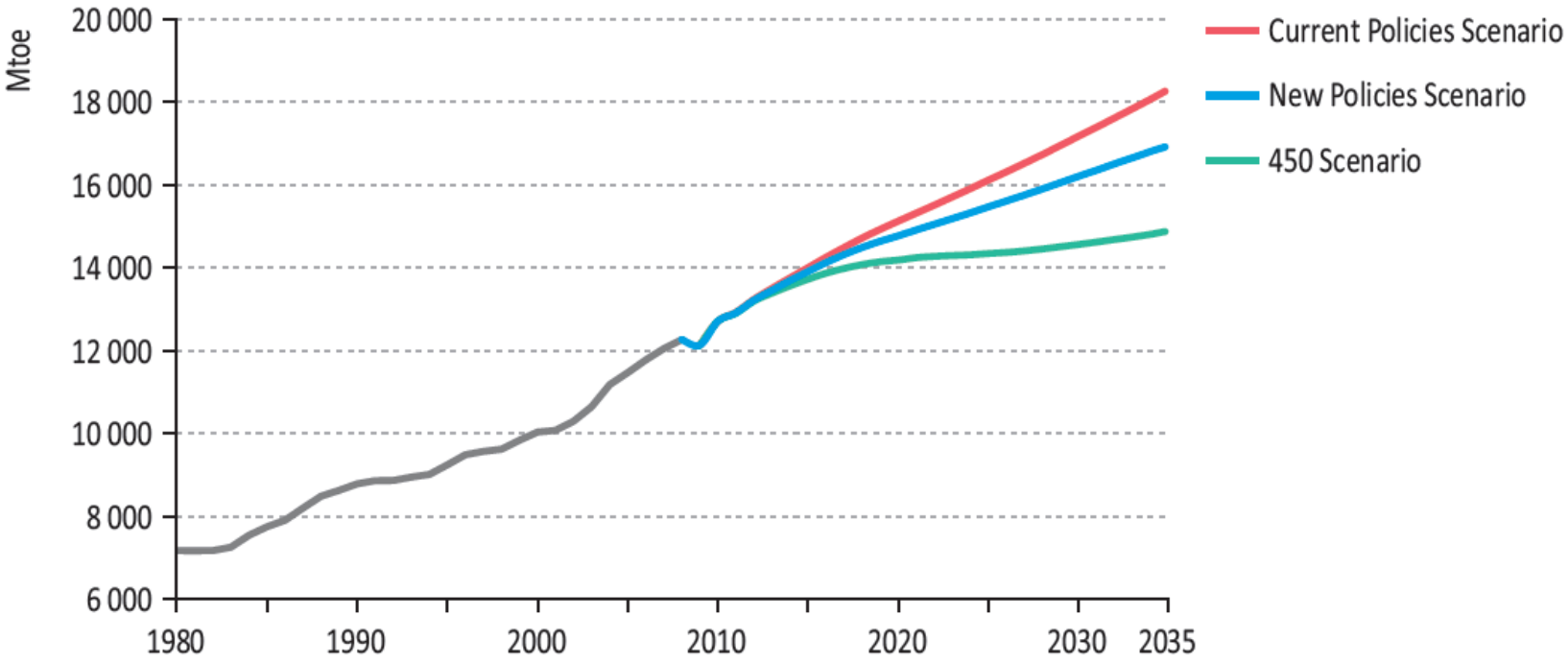
2nd December 2011

International Energy Agency

Presentation overview

- Background: World Energy Outlook 2011
- EE finance – types of projects, mechanisms, needs
- Climate finance
- Conclusions

Growth in global primary energy demand



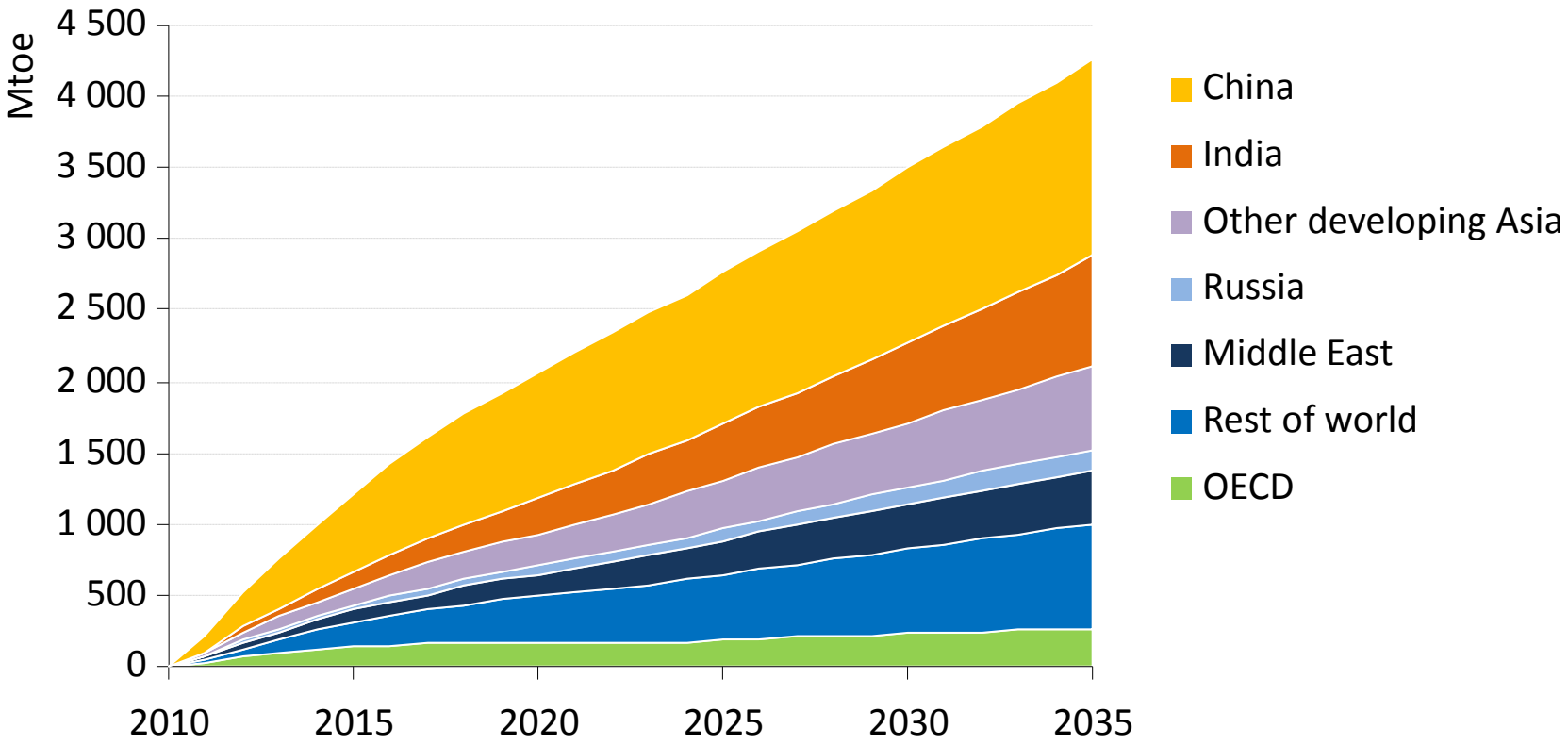
Source: World Energy Outlook, 2011

- *In the Current Policies Scenario demand grows by more than 50% by 2035*

- *In the New Policies Scenario demand grows by about 40% by 2035*

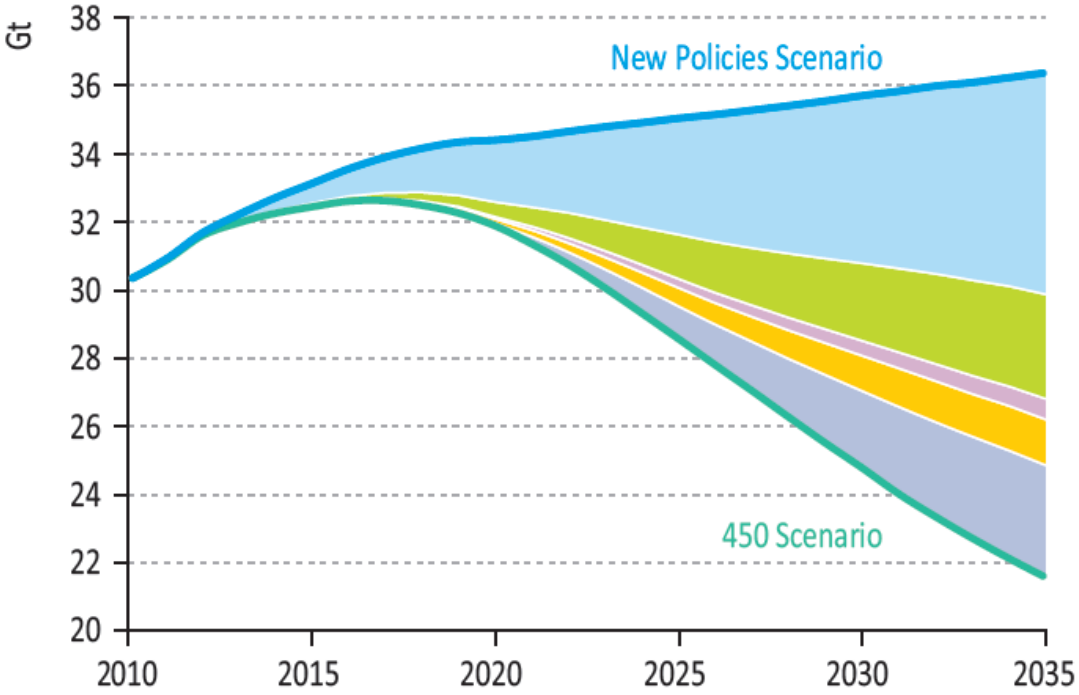
- *The demand growth will happen almost entirely in non-OECD countries*

Growth in primary energy demand



Global energy demand increases by one-third from 2010 to 2035, with China & India accounting for 50% of the growth

Abatement measures – role of energy efficiency



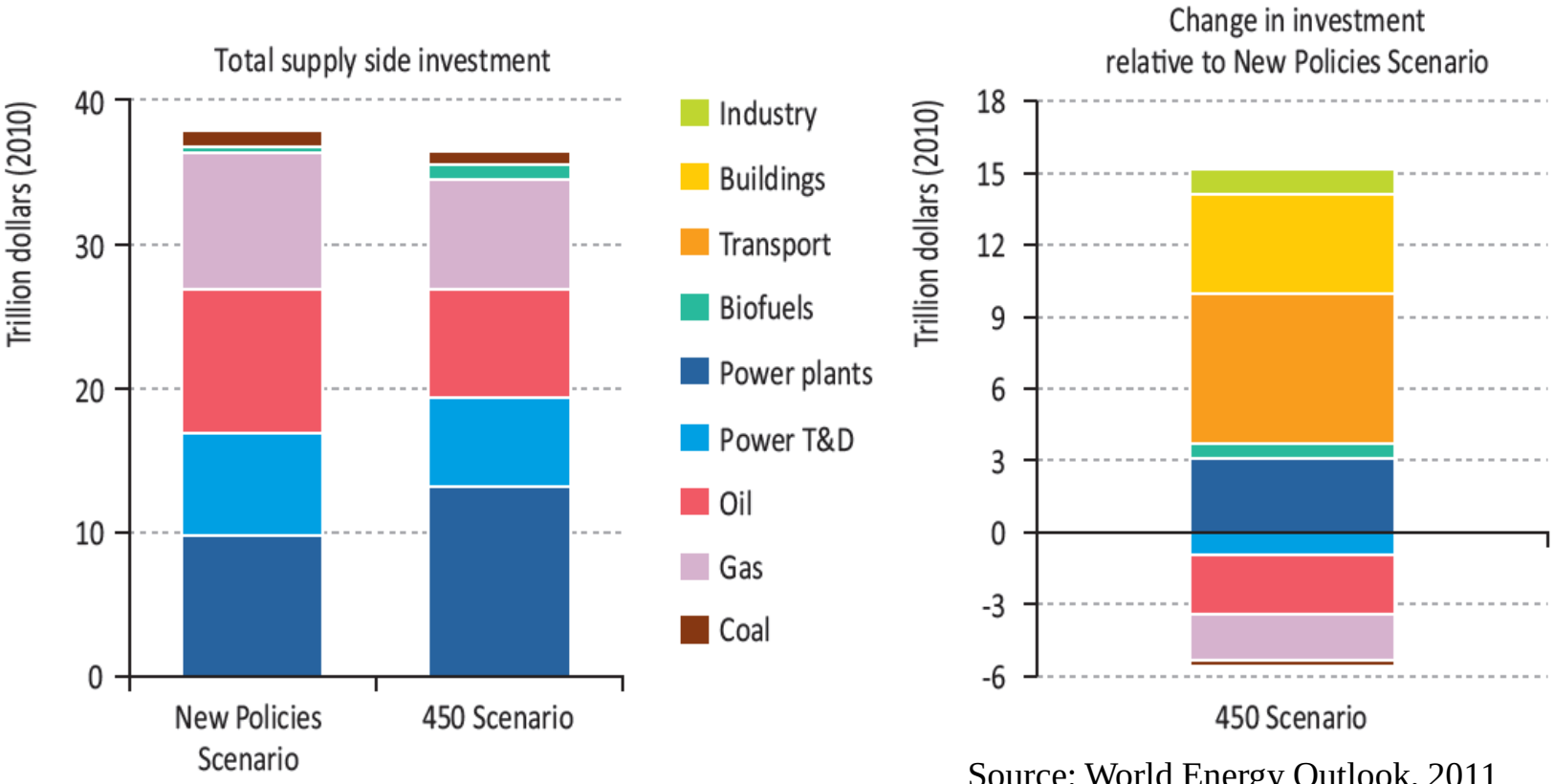
	Abatement	
	2020	2035
Efficiency	72%	44%
Renewables	17%	21%
Biofuels	2%	4%
Nuclear	5%	9%
CCS	3%	22%
Total (Gt CO_2)	2.5	14.8

Source: World Energy Outlook, 2011

Improvements in energy efficiency can deliver 72% CO2 emissions abatement required up to 2020

Investment needs

Cumulative energy sector investments by scenario, 2011-2035



Source: World Energy Outlook, 2011

- *Supply side investments are around 4% less in the 450 scenario*

- *But, substantial additional investments needed for energy efficiency, about $10.4 trillion needed in transport and buildings sectors alone*

Financing energy efficiency investments

Nature of energy efficiency projects

- Investment in technical energy efficiency improvements possible and needed in both new and existing facilities;
- Range of energy efficiency project costs: USD 0 – USD 5 million;
- Projects can be highly replicable or capable of aggregation but not always, depends on sector and type:

Energy efficiency projects – risky?

- EE projects can have high IRR and quick payback period but…
  - Depends on level of improvement targeted;
  - Payback still may be longer than wanted
- Lack of capital is rarely the main barrier – perceived risk the issue
- Benefits accrue as flow of savings on energy bills over time and may be difficult to measure.
  - Lack of standardised protocols
  - Technical assistance needed

Energy efficiency finance

Financial mechanisms	Actors
Direct credit lines (public and private finance)	MLDB's, public banks, governments (national, regional, local), LFI's
Risk guarantees combined with private sector lending	MLDB's, public banks, governments (national, regional, local), LFI's
ESCO and 3rd party finance	National governments, local governments, private sector
Utility DSM programmes	National and regional level governments and energy utilities

Involvement of public sector needed in all countries to scale-up energy efficiency finance

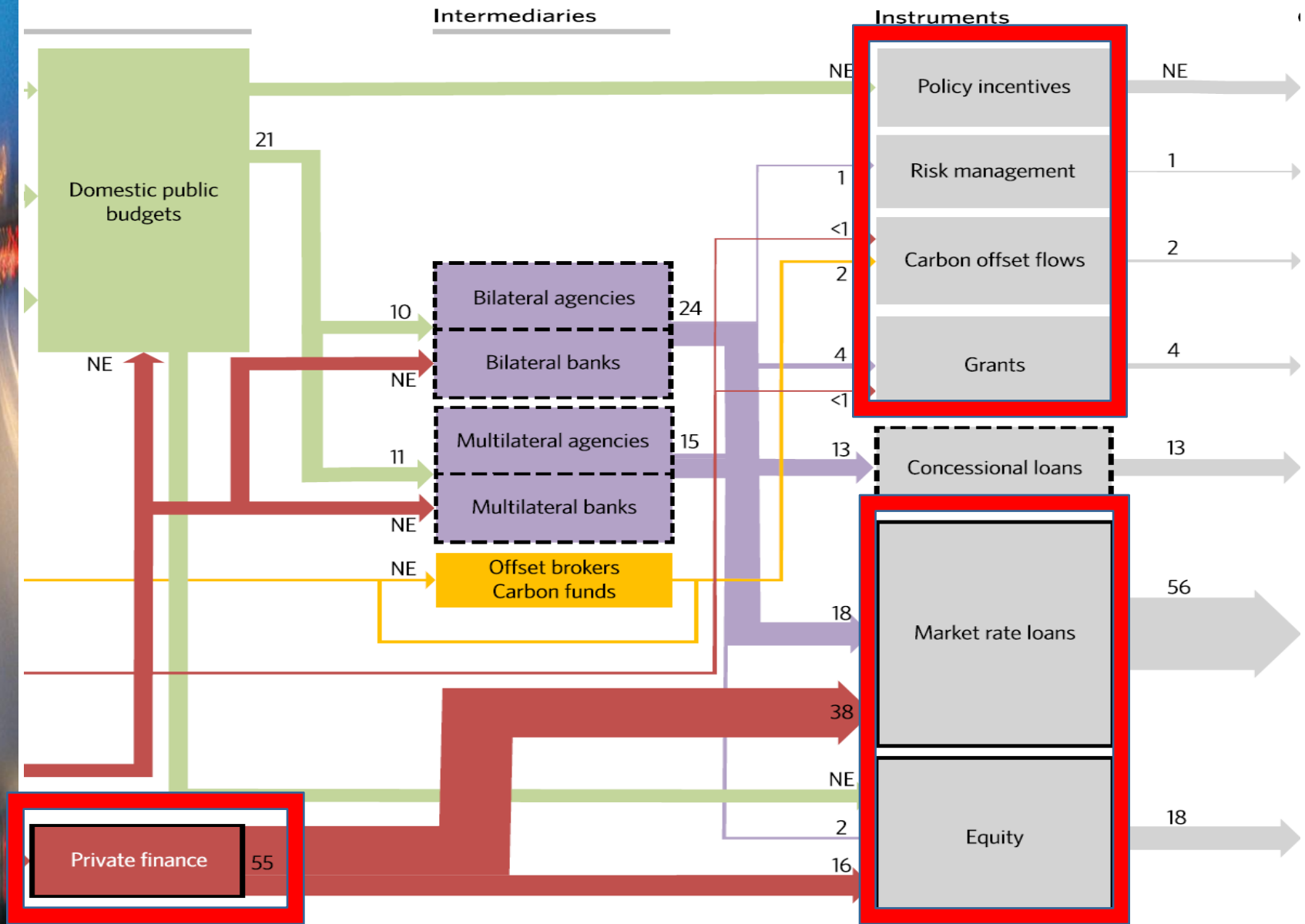
Climate finance and energy efficiency

Financing energy efficiency projects for carbon mitigation: challenges

- Energy efficiency improvement often part of bundle of measures to improve performance
- Additionality – if a measure is cost-effective it is more difficult to prove
- MRV can be difficult and not standardised.
- Need technical assistance for financial institution and project developer and policy support
- Perceived risk is high -> risk guarantees useful
- Public agent can play role in aggregating projects

Climate finance – overview

CPI 2011 report:



Other tracking of climate finance for EE

- Climate Funds Update : $593 million (16.6%) for energy efficiency of about $3.5 billion approved (5.4% if exclude GEF)
- Bilateral funds better - UNEP report on five large bilateral institutions shows up to 66% energy sector finance destined to EE projects
- Fast-start finance – few programs with EE focus

Green Climate Fund (GCF)

- Agreement on some basic principles left for Board, but report defines some EE relevant elements:
  - Adequate resources for capacity building and institutional strengthening
  - Results-based approach proposed as important part of resource allocation process
  - Focus on grants and concessional financing

- In conclusion: could work well for EE; but for some EE investment a results-based approach can be complicated

Role of Green Climate Fund

- In addition to mobilising the $100 billion GCF should channel finance to areas or sectors that current climate financing is failing to support.
- CPI report seems to suggest a lack of concessional & grant funding, risk management instruments and financing of policy incentives.
- GCF could supplement with these types of financial instruments which typically match up with the needs of energy efficiency financing.

Questions for discussion

- Level and nature of climate finance considering EE investment needs in short/medium-term
- Increased private sector direct investments in capital expenditure/infrastructure projects not sufficient – need other financial instruments to scale up EE investments
- ring-fencing (window) needed?
- Design issues: additionality definition, suitability for on-lending to LFI's, usability for risk guarantees, policy development support….
- What gaps should GCF aim to fill ?