

# Financing small-scale Energy Efficiency and Renewable Energy Projects

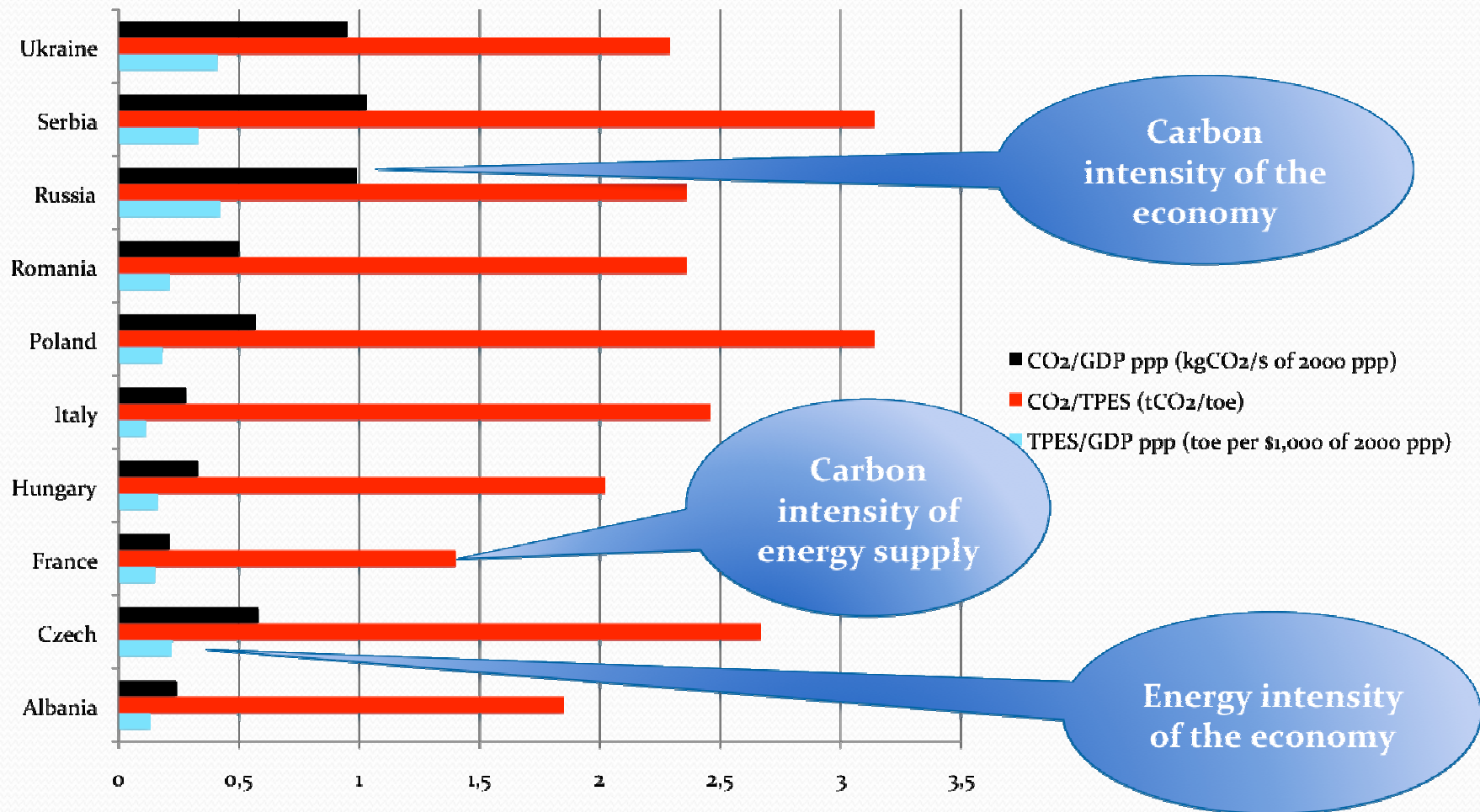
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# The question

- CO<sub>2</sub> emissions must be halved (at least) to cap CO<sub>2</sub> concentrations at 450 ppm, this means dividing BAU CO<sub>2</sub> emissions (from energy use) by 4 [IEA-ETP 2008]
- This will require \$trillions in investments
- EE and RE are preferred options (44% and 21% resp.)
  - Known technologies
  - Low unpleasant collateral effects
  - Least-cost
- Spotlight is on “*how much*” and “*who pays*”? ***not on how best deliver funds to actual projects*** – no clear and agreed best practice on EERE financing schemes
- UNECE report “Financing global climate change mitigation” released in 2010

# High mitigation potential in the region

(source: IEA 2007)



# But EERE investment is way below where it should be; why?

- High cost
  - Subsidised fossil energy production and use
  - No pricing of the carbon externality (tax or trading)
- Funding gaps
  - Rare, but *equity* scarce in many countries
- Deficient information
  - Low prioritisation of EE by managers
- Lack of capacity
  - Project preparation
  - Project appraisal
- Perceived risks



A lot of these issues point to market failures

# 22 EERE financing schemes reviewed

Issue / barrier	Name of mechanism	Geography
❖ Closing the equity gap: Dedicated private equity funds (3 schemes)	<ul style="list-style-type: none"> <li>❖ European RE Fund LP (Platina Partners)</li> <li>❖ EnerCap Power Fund LP</li> <li>❖ GEEREF</li> </ul>	<ul style="list-style-type: none"> <li>❖ <u>EU</u> *</li> <li>❖ CEE *</li> <li>❖ Developing countries *</li> </ul>
❖ Closing the debt-equity gap: Dedicated subordinated debt facilities (2)	<ul style="list-style-type: none"> <li>❖ FIDEME</li> <li>❖ CAREC</li> </ul>	<ul style="list-style-type: none"> <li>❖ <u>France</u></li> <li>❖ Central America *</li> </ul>
❖ Supporting a nascent ESCO industry (3)	<ul style="list-style-type: none"> <li>❖ 1<sup>st</sup> Energy Conservation Programme</li> <li>❖ UkrEsco</li> <li>❖ Bulgarian ESCO Fund</li> </ul>	<ul style="list-style-type: none"> <li>❖ China</li> <li>❖ Ukraine</li> <li>❖ Bulgaria</li> </ul>
❖ Using utilities or municipalities as relays in the financial intermediation chain (5)	<ul style="list-style-type: none"> <li>❖ EmPower New York</li> <li>❖ PROSOL</li> <li>❖ TPPPA for Solar PV</li> <li>❖ CHUEE</li> <li>❖ Berkeley FIRST</li> </ul>	<ul style="list-style-type: none"> <li>❖ <u>USA</u></li> <li>❖ Tunisia</li> <li>❖ <u>USA</u></li> <li>❖ China</li> <li>❖ <u>USA</u></li> </ul>
❖ Financing energy access (off-grid communities in rural areas) with micro-finance (1)	<ul style="list-style-type: none"> <li>❖ Grameen Shakti</li> </ul>	<ul style="list-style-type: none"> <li>❖ Bangladesh</li> </ul>
❖ Mitigating risks of local lenders: Partial (Risk or Credit) Guarantees (2)	<ul style="list-style-type: none"> <li>❖ USAID Development Credit Authority</li> <li>❖ 2<sup>nd</sup> Energy Conservation Programme</li> </ul>	<ul style="list-style-type: none"> <li>❖ Developing countries *</li> <li>❖ China</li> </ul>
❖ Remedying the inability or unwillingness of CFIs to finance EERE projects: Special Purpose Financing Vehicles (3)	<ul style="list-style-type: none"> <li>❖ BEEF</li> <li>❖ IREDA</li> <li>❖ Carbon Trust</li> </ul>	<ul style="list-style-type: none"> <li>❖ Bulgaria</li> <li>❖ India</li> <li>❖ <u>UK</u></li> </ul>
❖ Dedicated DFI EE/RE credit lines to local CFIs (3)	<ul style="list-style-type: none"> <li>❖ EE Revolving Fund</li> <li>❖ SEFF</li> <li>❖ AFD</li> </ul>	<ul style="list-style-type: none"> <li>❖ Thailand</li> <li>❖ Countries in transition</li> <li>❖ China</li> </ul>

# Lessons (1)

- *Very hard to assess (and rank) objectively EERE financing mechanisms given the lack of evaluation in the public domain*
- *Need for thorough initial diagnosis of country context*
- *Deal flow origination and preparation matters as much as provision of finance*
- *For equity or quasi-equity: public “patient capital” can be a much needed catalyst for private capital*
- *For debt:*
  - *create a dedicated financing vehicle only if local banks are not suitable for the job*
  - *provide funding if liquidity is insufficient and/or funding terms (tenors, rates, margins, etc) inadequate*



## Lessons (2)

- otherwise *credit enhancement* may be enough in the form of partial (risk or credit) guarantees, or integrating loan payments within utility bills or municipal taxes
  - Example: BerkeleyFirst (Cal., USA)
- *ESCOs* are a worthy but complex instrument
  - Few examples of success stories, e.g. China 1<sup>st</sup> Energy Conservation Programme (WB/GEF) thanks to a drastic simplification of the ESCO model
- *Demand Side Management (DSM)* still holds potential if conflicts of interest can be resolved
  - Utilities torn between selling and saving energy
  - Can be resolved through use of “white certificates”

# Lessons (3)

- *Support of governments* is key, to:
  1. Set policies and targets for EERE, e.g. energy pricing policies, feed-in tariffs, standards, etc.
  2. Influence market players
  3. Streamline public procurement procedures for ESCOs (e.g. FEMP in the USA)
  4. If necessary create a dedicated financing vehicle or window
  5. Provide financial incentives

# Lessons (4)

- *Subsidies are legitimate to tackle genuine market barriers*
  - But low energy prices (below LRMC) are a *self-inflicted* barrier – bad subsidies are an obstacle to EERE uptake in many countries, >\$250bn p.a. G20 Pittsburgh summit has pledged to phase them out!
  - Aim for highest possible leverage of public funds
  - Sustainability requires phasing out at some point
  - 6 main types of subsidies support EERE financing:
    1. Investment grant: e.g EBRD's BEERECL
    2. Concessional loans (below market interest rates): e.g Carbon Trust
    3. Guarantees: e.g IFC
    4. Patient equity: e.g GEEREF
    5. Feed-in tariffs (a cross-subsidy among electricity users)
    6. Technical Assistance



## Lessons (5)

- *Technical Assistance is critical* for (at least):
  - Initial diagnosis
  - Awareness raising of target beneficiaries
  - Project preparation support
  - Capacity building (of banks, government, etc.)
  - Interim or ex-post evaluation
- Maximise *local* content of TA for sustainability
- *Sources* of TA funding are multiple but coordination of programmes is sub-optimal, and overlap frequent