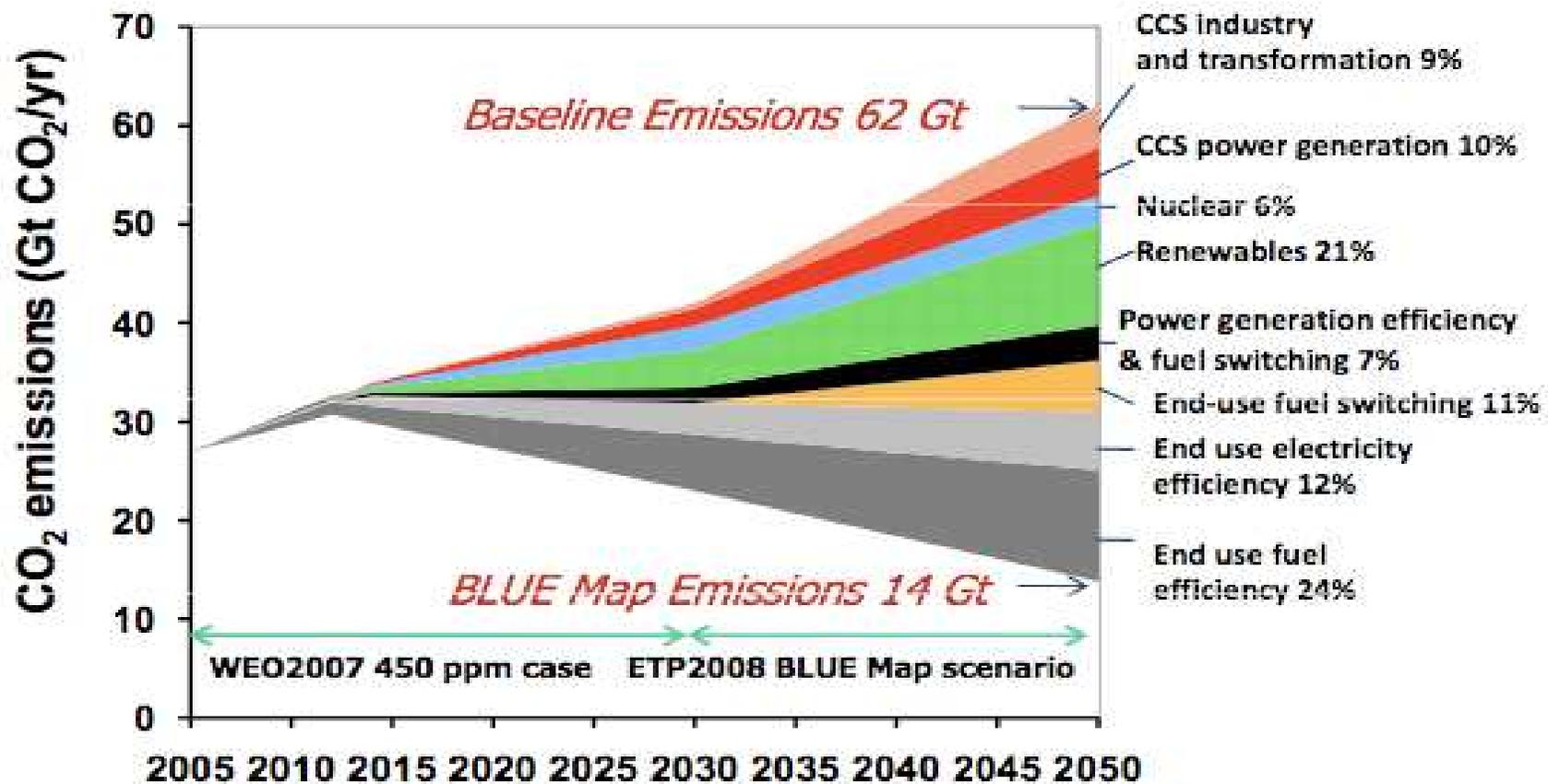


Mechanisms and sources of financing for Energy Efficiency and Renewable Energy investments for climate change mitigation

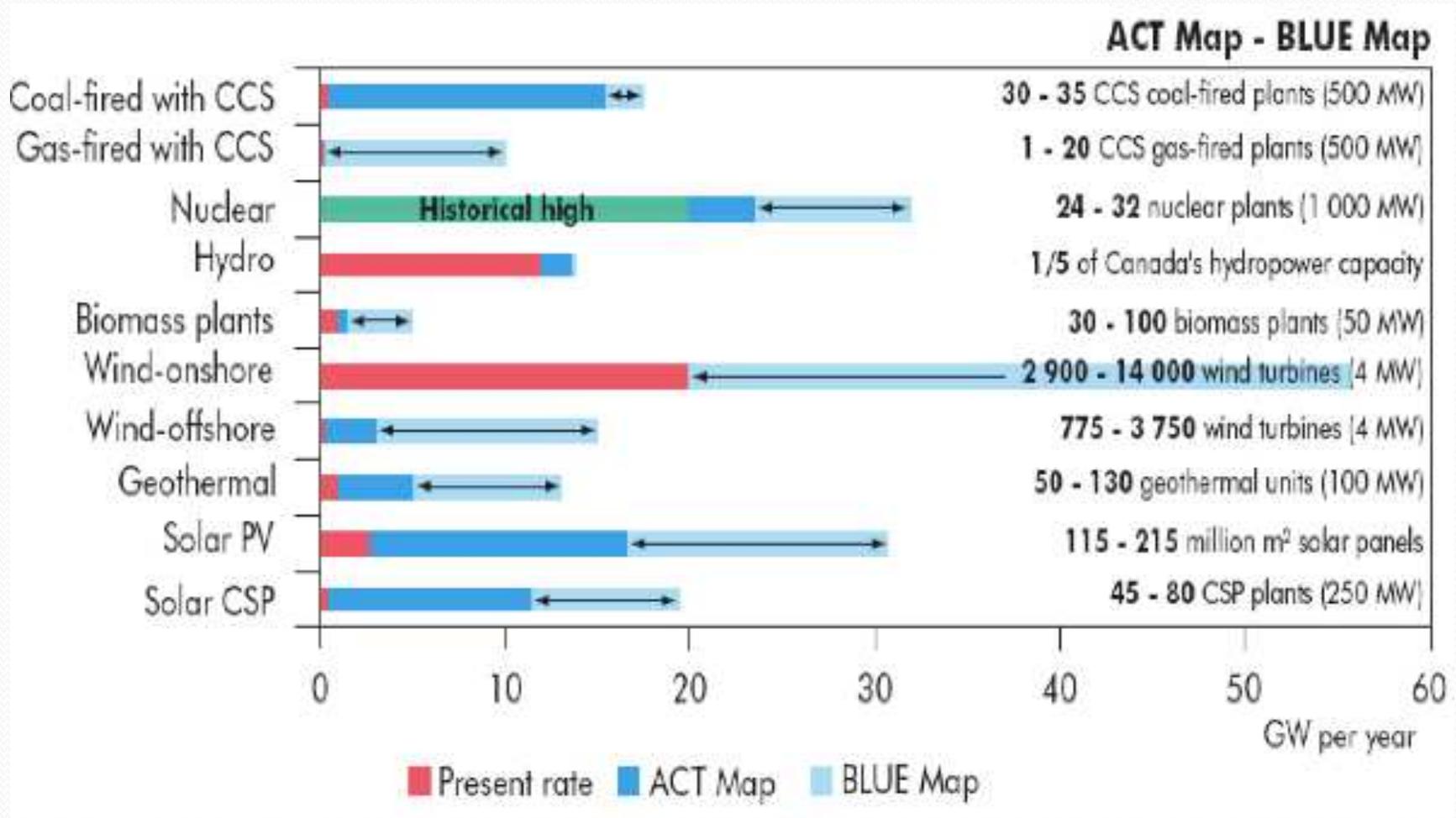
Jacquelin Ligot

GEE21, Geneva, 4th June 2009

The challenge: IEA's BLUE scenario



Massive investments required but costs still hazy





Focus of survey

- Topic still under-researched
 - Information not readily available
 - Lack of systematic evaluations
- Focus on:
 - *existing dedicated* EERE financing mechanisms
 - *intermediated* financing, via local financial institutions or ESCOs
 - on *small/medium* scale projects
- But:
 - NEW financial resources not discussed
 - Transport not covered
- Emphasis on mechanisms more than sources
- Desk research and English language are further limitations

The crucial role of EERE in climate mitigation

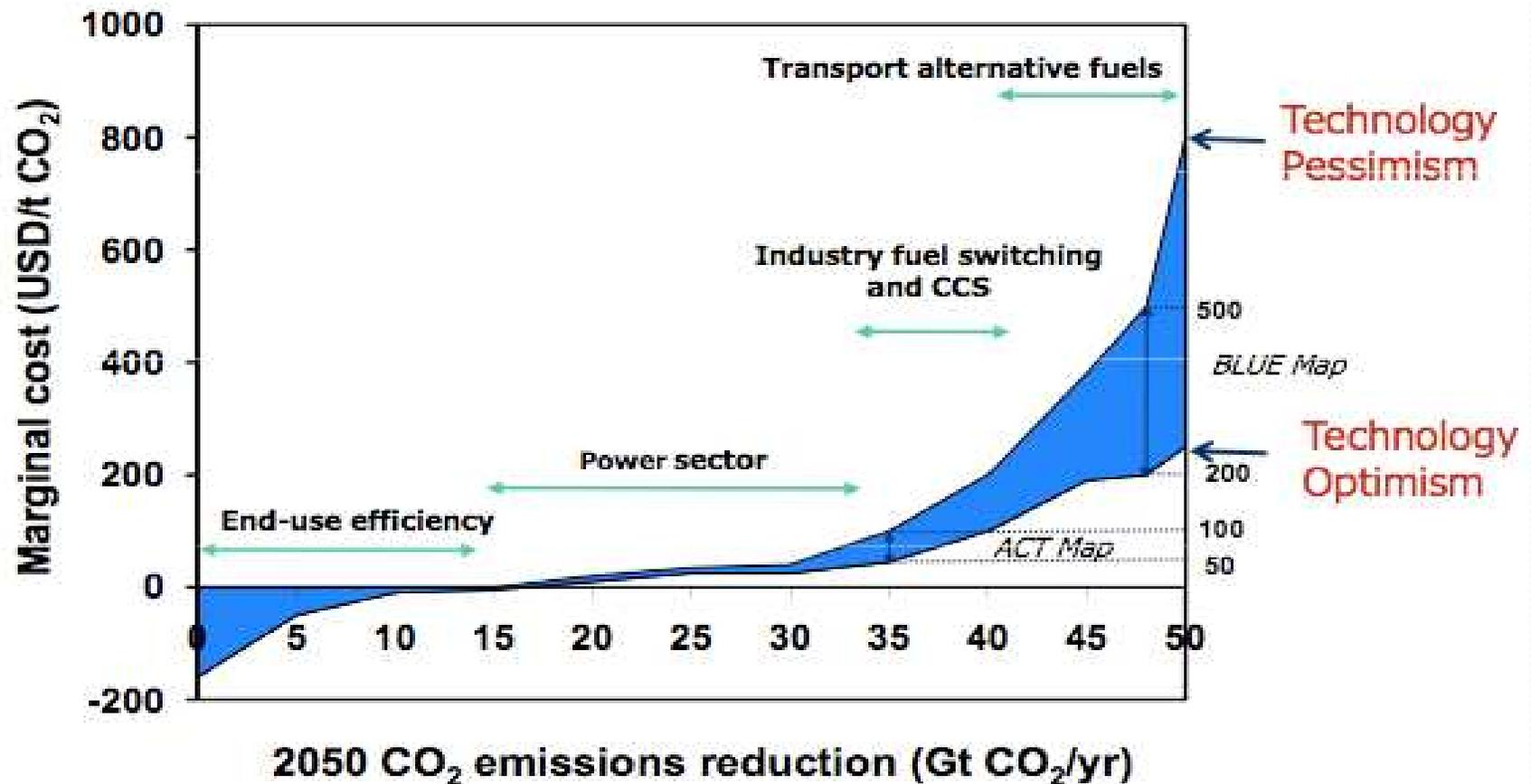
- IEA's BLUE scenario is probably closest to what is required to keep GHG concentrations at ca 450 ppm
- BLUE requires a halving of energy-related emissions by 2050, a 48Gt cut relative to baseline (+130% from 2005)
- End-use EE (36%) and RE (21%) are the main mitigation options
 - RE would account for 48% of the electricity mix by 2050



EEERE are amongst the cheapest options for climate mitigation

- Most EE measures have a negative cost on a life-cycle basis, these are profitable investments (positive NPV)
 - McKinsey estimates that \$170bn per year in additional profitable EE investments (IRR@17%) till 2020 would achieve close to half the abatement needed to cap GHG within the 450-550 ppm band
- A number of RE technologies are at or close to grid parity (onshore wind); they are nearly competitive
- However, barriers such as transaction costs particularly in the case of EE impede investments

EE&RE at the lower end of the range



Most of the abatement will need to happen in emerging economies

- Halving OECD emissions by 2050 will only yield 6.5Gt reductions (out of 48Gt)
- More than 75% of emissions growth will be in developing countries...
- ...where abatement opportunities are the cheapest
 - 80% of the energy productivity opportunity in industry (McKinsey)
- ...but capital is hardest to raise

Overview of EERE financing mechanisms reviewed

- 21 mechanisms reviewed based on **main issue(s)** they were designed to tackle
- Not necessarily top-of-the-class
- 14 located in developing world, 5 in industrialised countries and 2 are global
- 5 provide equity/quasi-equity, 12 debt, 3 guarantees and 1 pure grant
- 4 involve ESCOs and 4 energy utilities
- 5 schemes target households
- 12 private financial intermediaries, 9 public
- Most rely on some form of public financial support
- Carbon finance is also reviewed although it is less a mechanism than a new source



9 types of mechanisms reviewed

- Closing the equity gap: Dedicated private equity funds (3)
- Closing the debt-equity gap: Dedicated subordinated debt facilities (2)
- Supporting a nascent ESCO industry (3)
- Using utilities or municipalities as relays in the financial intermediation chain (5)
- Financing energy access (off-grid communities in rural areas) with micro-finance (1)
- Mitigating risks of local lenders: Partial Risk Guarantees (2)
- Remediating the inability or unwillingness of CFIs to finance EERE projects: Special Purpose Financing Vehicles (2)
- Dedicated DFI EE/RE credit lines to local CFIs (3)



Case study: EBRD's Bulgarian Energy Efficiency and Renewable Energy Credit Line (BEERECL)

- Launched 2004
- Context: High energy-intensity of Bulgaria, and closure of large NPP, banks keen to get longer tenors
- Target market: small/medium scale private EERE projects
- €155 million framework; EBRD commercially-priced loans to 6 Bulgarian banks
- Substantial grant component from KIDSF to pay for: a TA package, and incentive fees to banks and end-borrowers
 - 15% and 20% of loan amount for EE and RE resp. paid on completion



BEERECL (cont.)

- Advantages:
 - TA effective for deal flow, preparation of “Rational Energy Utilisation Plan”
 - Competition between banks expands market and foundation of sustainability
 - Generous, performance-related, investment grants facilitate uptake
 - Success: 150 projects worth €132mln saving 560ktCO₂ and 875 GWh p.a.
- Disadvantages
 - Expensive grant package (1/6 of loan finance)
 - Sustainability w/o grant yet to be tested
- A strong banking system is a pre-requisite



Carbon finance

- Carbon markets keep growing (\$126bn market, 4.8Gt) but 2008 numbers mask a fall in volumes in the JI&CDM primary market and an increase in trading of existing assets
 - E.g. the value of secondary CDM market has increased five-fold to \$26bn
- The contribution of CF to EERE investments is less significant than usually claimed
 - Incremental IRRs in the range 2-5% not enough to make a decisive impact
 - Carbon finance does not translate into upfront project finance
 - UN regulatory approval process is slow, costly, cumbersome, and uncertain
 - Only a few large countries benefit: the “BRICs” take up 75%



Designing effective and cost-effective EERE financing mechanisms

- Importance of initial diagnosis to build an instrument fitting the local environment, select investment targets, identify barriers, determine best delivery channels, TA and financial incentive needs
- Deal flow matters as much as finance
- Only create a dedicated financing vehicle if local banks are not suitable
- Only provide funding if liquidity is insufficient and/or or funding terms inadequate
- Otherwise credit enhancement may be enough in the form of partial risk guarantees, or integrating loan payments within utility bills or municipal taxes
 - Example: BerkeleyFirst (Cal., USA)

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- ESCOs are a worthy but complex instrument
 - Few examples of success stories, e.g. China 1st Energy Conservation Programme (WB/GEF)
 - Utility DSM have lost a bit of their shine in recent years but still hold potential if conflicts can be resolved
 - Contradiction between selling/saving energy
 - E.g. by White certificates



- Subsidies

- Legitimate to tackle market barriers
- But low energy prices (below LRMC) are a self-inflicted barrier – bad subsidies are an obstacle to EERE uptake in many countries, >\$200bn p.a.
- Sunset provisions essential
- Aim for highest possible leverage of public funds
- 6 types of subsidies support EERE financing:
 1. Investment Grant: BEERECL, PROSOL
 2. Concessional loans (below market interest rates): Thailand REEF, KfW, AFD
 3. Guarantees: CHUEE, IBRD 2nd ECP China
 4. Technical Assistance
 5. Patient equity: GEEREF, FIDEME
 6. Feed-in tariffs (a cross-subsidy among electricity users)

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- Incorporate flexibility in design and provide for interim and ex-post evaluations
 - Support of governments is key
 - Possible roles for governments:
 1. Setting policies and targets for EERE, e.g. energy pricing policies, feed-in tariffs, standards
 2. Influencing market players
 3. Streamlining public procurement procedures for ESCOs (e.g. FEMP in the USA)
 4. Providing financial incentives
 5. If necessary creating a dedicated financing window.



Technical Assistance

- TA is critical for (at least):
 - Initial diagnostic
 - Raise awareness of target beneficiaries
 - Project origination and preparation
 - Capacity building (of banks, etc.)
 - Programme evaluation
- Sources of TA funding are multiple but coordination of programmes is poor, overlap frequent and information not easily accessible



Conclusions and Recommendations

- The challenge of scaling up is not to invent an elusive silver bullet but to make an enlightened choice from the existing toolbox
- Private capital should be the main source of financing, but public financing can be a catalyst
- Understanding of local environment is paramount
- Well-structured TA programme key ingredient of success
- Energy policy framework and strength of banking system are key underpinnings of success and sustainability
- To facilitate dissemination of best practice and improve coordination of TA programmes, 2 practical suggestions:
 - Create in each region covered by a UN EC a Task Force
 - Create in each region an EERE financing web portal