Supporting clean energy RD&D: Grants for all?

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Contribution based on THINK Report N° 1:

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RD&D investments targeting green technologies need to be more than doubled.

- Reaching 2050 climate targets involves increasing the share of low-carbon technologies substantially
- RD&D investments are already taking place...

...but financing gap of €47-60 bn between recent expenditures and those deemed necessary (SET-Plan)
Do new clean energy technologies develop spontaneously?

- EU ETS does not provide a sufficiently high and credible future carbon price
- Hard (and also undesirable) to capture all the benefits from RD&D within the innovating company
- Typically very high capital investments paired with substantial economic, technological and regulatory uncertainties
- Private investors tend to focus on short-term revenues, whereas climate policy has a 2050 horizon

 Additional public support is needed to reach the socially optimal level of RD&D

A balanced portfolio of RD&D projects needs to be designed.

- This will facilitate
  - Acceleration of decarbonization to reach mid-term 2020 climate objectives
  - Development of a diversified technology mix enabling the achievement of long-term 2050 objectives
- Evaluation criterion: Expected overall reduction of CO\textsubscript{2} emissions per € of support provided
- Cooperation and coordination among MS and EU support policies have to be improved
  - Initiation of European Energy Research Alliance (aimed at realizing pan-European RD&D pooling national and EU resources) step into the right direction
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**EIF equity investments**
- European Investment Fund provides risk finance to SMEs via intermediaries
- E.g.: 2008 investment in in Capricorn Cleantech Fund, which in turn invests in € 4-6 mn projects (e.g. SBAE Industries)

**EC EEPR grants to CCS**
- € 1 billion in total to 6 CCS demonstration projects
- Approved in 2009

**DOE H₂ technology prize**
- $ 1 million
- Competition opened in 2010
- Clearly specified technical criteria for advancements in materials for H₂ storage

Experience has shown that...

... several factors seem to be conducive to successful and efficient funding:
- Competition for funds
- Competition among technological paths in early-stage R&D
- Continuous project monitoring
- Output-orientation of funding
- Flexibility in RD&D activities if necessary
- Co-funding instead of pure public funding with private partner(s) determining the research path
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Increasing public costs

- Public loans/guarantees
  - Relevant e.g. if illiquid capital market
  - Mainly lower cost innovation with well quantifiable market prospects
  - Large innovating entity with proven financial capability or small innovator addressing low-risk innovation

- Public equity
  - Risky, potentially highly profitable innovation
  - Investments of modest size
  - Small to medium sized innovating entity

- Prizes
  - Early low-cost innovation

- Benefits related to inv.
  - Near-market incremental innovation
  - Typically larger innovator or regulated firms

- Subsidies
  - Early-stage, capital-intensive innovation

- Grants and contracts

Grants should be an instrument of last resort

Encourage efficiency while not discouraging private sector participation.

- Use competition for funds whenever possible
- Public funding should be output-driven whenever suitable with engagement of private innovators
  - High project costs might require the provision of at least a part of the funds upfront
  - Projects with high probability of failure might require support unconditional to performance
- Institutions set up to allocate funds need to be lean and flexible enough to avoid institutional inertia and lock-in
Thank you very much for your attention!

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