The role of multilateral development banks in enabling or constraining new power generation technologies in emerging economies

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Overview

The burning of coal, oil, and gas for electricity and heat is the largest source of CO_2 emissions (IPCC 2014). A drastic reduction of these emissions is crucial to reach the long-term emission goals, as committed by nearly 200 countries in the Paris Agreement. Meeting the 2°C target requires that both developed and emerging economies increasingly rely on new energy technologies such as PV and wind, and that developing countries 'leapfrog' the carbon-intense pathway. Clearly, technological innovations increased the potential of new energy technologies dramatically over the last decade; the diffusion of those technologies to developing countries, however, cannot be taken for granted.

A major barrier for the diffusion of new energy technologies is a lack of financing – renewables are characterized by high upfront investments that pay off with lower operating costs compared to fossil technologies only over time. The investment risk is high in many developing countries, for instance due to political & regulatory uncertainties – making the risk-return profile often unattractive for private investors (Schmidt 2014). The resulting investment gap for renewables is estimated above USD 300 billion per year (IRENA 2014).

Multilateral development banks seem to be natural candidates to address this gap. However, the support of new energy technologies competes with other policy areas such as agriculture and health; and also with the support of non-innovative energy technologies (e.g., fossil fuels). Depending on the instruments chosen, private-sector activities might either be fostered or crowded-out. In sum, the role of development banks in the energy sector is complex and sometimes ambiguous (World Bank 2014, Nakhooda 2011, Tirpak & Adams 2008). Hence, this paper rigorously addresses the following questions:

1. To what extent do multilateral development banks finance innovative & low-carbon power technologies – are they on the pathway to reach their pledges on climate finance given at Paris?

2. Which role do these banks play in the choice of technologies for power generation projects, both directly and indirectly through the design of offered financial instruments and criteria during due diligence?

Answering these questions leads to implications for global policy makers, especially regarding the effective use of climate finance as pledged in the Paris agreement (target of USD 100 bn p.a. by 2020, cf. UN 2015).

Methods

To answer the research questions, a mixed-method approach is used. First, we conduct statistical analyses based on a newly constructed database of all power generation projects financed by multilateral development banks during 2005-2015, including details on parties involved, technical aspects of assets, and their financing structure. Using the banks' project summary documents and appraisal reports, the database includes nearly 1,000 projects supported by the World Bank Group and regional development banks. Second, we conduct semi-structured interviews with development bank officials. Interviews are recorded and coded following established principles in qualitative research. Finally, findings are synthesized along the research questions and implications for policy makers derived.

Results

As of writing the abstract, the research is ongoing, to be completed in the first half of 2017. Both preliminary data analyses and interviews already highlight 3 key aspects: First, the tendency of development banks to fund new (and possibly risky) renewables vs. fossil fuel funds differs by sector: The banks' public sector arms seem less innovative, partly driven by the necessity to meet country officials' "comfort level" with technologies. The private sector arms are more open regarding new technologies. Second (and independent from the sector), it is typically easier for large incumbent OEMs to create trust and achieve development bank financing for new technologies, with important implications regarding the role of multinational OEMs to open markets. Third, concessional climate finance emerges

as key factor for innovation in many countries, although the bureaucracy in place not necessarily leads to the selectivity needed to channel scarce public funds to the most crucial projects.

Conclusions

In sum, it is confirmed that multilateral development banks play a central role in financing innovative energy projects and the technology decisions made – so the different attitudes towards new technologies by bank branches, financing source used etc. are of great importance to explain and unfluence the dissemination of new power generation technologies, especially in emerging economies. The final paper will summarize implications for policy makers.

References

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