

Key findings



Coordinating Clean Energy Transformations: Role of Development Financing Institutions.

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Our paper seeks to evaluate the role of development financing institutions (DFIs) in fostering renewable energy transformations. Whereas the conventional approach to renewable energy finance emphasizes the bankability of individual projects, we advance an alternative approach for the role of DFIs in overcoming system-level constraints to enhance renewable energy transformations.

- **We identify four constraints: namely, the incumbent entrenchment of fossil fuels, unmet energy demand of energy-intensive industries, weak production capacity of renewable energies, and lack of supporting infrastructure.**
- **We argue that DFIs can potentially address these constraints by setting a mission-driven vision, acting as honest brokers to overcome the incumbent entrenchment, scaling up renewable energy financing to make the cost of renewable energies more competitive, incubating nascent renewable energies, and financing supporting infrastructure.**
- **We then select representative DFIs to evaluate the role of DFIs in fostering renewable energy transformations.**
- **We find that most sampled DFIs have recently prioritized financing renewable energy, supported pilot projects to achieve demonstration effects, and made investments in complementary infrastructure. Yet few DFIs have achieved the economies of scale to bring down the renewable energy price or shape the policy environment in favor of renewable energy in a manner that can trigger significant transformational change.**



Objectives and research questions

A swift and radical transformation towards renewable energy systems is needed to achieve the goal of the Paris Agreement on Climate Change to limit the average global temperature increases to well below 2°C in the present century compared with preindustrial levels. Yet the business-as-usual scenario predicts a modest growth of renewable energy to merely one-quarter of total final energy consumption. Currently DFIs have focused on searching for and investing in “bankable” individual power plants in a manner that can attract private capital at the project level. Although the project-based approach has merits, it is limited in understanding the role of DFIs can play in overcoming systemic challenges that may go beyond specific projects. The central research question of our paper is the extent to which DFIs alleviate system-level constraints to foster renewable energy transformations.



Methods

To ensure that our samples are as representative as possible, we have selected samples of both MDBs and NDBs. Although the selected samples are not representative of the whole DFI group, they do aim to cover both geographical regions and development stages to the greatest extent. Our sample covers both big NDBs and small ones and ranges from traditional Northern-led MDBs to emerging Southern-led MDBs.

To collect firsthand data, we organized two successive focal group discussions in June 2017 and June 2018 respectively. Participants were leading energy experts (such as the chief of the energy sector group, and senior energy policy specialists) from 15 DFIs, and over 20 energy experts joined the in-depth focal group discussions.



Results

- From a system-level perspective, we theorize four constraints: first, on the energy supply side, the preponderant share of fossil fuels in the energy supply system may result in the “incumbent entrenchment” challenge, which would create barriers to the entry of renewable energies; second, on the energy demand side, if renewable energies are more expensive and unstable than conventional fossil fuels, countries with huge energy demand would face a significant challenge in transiting towards renewable energy systems while enhancing the international competitiveness of their industries; third, weak production capacity of renewable energies would constrain their deployment and hinder renewable energy transformations; and fourth, the lack of supporting infrastructure makes the large-scale deployment of renewable energies infeasible.
- We further theorize that the severity of the above constraints may vary across countries at different income levels. For instance, the incumbent entrenchment is more severe in developed countries. Unmet energy demand and weak production capacity are more acute challenges in developing countries. Though the lack of supporting infrastructure may be equally severe across countries, developing countries must build new infrastructure whereas developed countries must replace old infrastructure.
- We argue that DFIs can potentially address the above challenges by setting a mission-driven vision, acting as honest brokers to overcome the incumbent entrenchment, scaling up renewable energy financing to make the cost of renewable energies more competitive, incubating renewable energies, providing affordable long-time capital to purchase foreign renewable energy technologies, and financing supporting infrastructure.



Recommendations

In the future, DFIs will need to make more comprehensive investment plans to fundamentally alter the energy mix toward cleaner energy and take a system-level transformative approach to ensure that complementary infrastructure is in place, shape the policy environment in favor of renewable energies, providing the local currency-denominated financing to help less developed countries to better tackle the balance-of-payment problems, and scale up such efforts by orders of magnitude.