



Solar Power Projects Cluster Evaluation

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EXTENDED ABSTRACT

Introduction / background

This abstract summarises an evaluation conducted in the late 2021 of the European Bank for Reconstruction and Development (EBRD) operations and policy dialogue in support of utility-scale solar projects. Solar energy is of critical importance for energy transition, however, it presents serious challenges related to balancing the electricity it generates in the energy network, as it is produced mostly during the day/summer when demand is lower and not during the night/winter when demand is the highest. During the nine years from 2012-20, the EBRD financed 69 solar energy projects in 13 countries, for a total of €1,2 billion. In addition, the EBRD has been engaged in policy dialogue, involving advice and consultancy support on preparing Power Purchasing Agreements (PPAs), mechanisms to strengthen energy off-takers, and the set-up of renewable energy auctions.

Methodology

The evaluation was based on a “cluster” approach, which examined in detail a sample of 10 projects selected from the EBRD’s solar power projects’ portfolio and aimed to identify prevailing trends and commonalities in these projects and activities. Seven projects were from the four countries where the EBRD has completed by far the most solar projects – Egypt, Jordan, Kazakhstan and Ukraine, while one was from a new solar market (Uzbekistan) and two from Cyprus, where the EBRD has recently discontinued financing. Specific cluster projects were selected based on their structure (those linked to policy dialogue activities were favored), size of investment, maturity, as well as the accessibility of clients and policy dialogue beneficiaries. The overarching evaluation question was: “What has been the performance and results of the EBRD in its solar energy projects?”

The methodology employed was based on document reviews, as well as interviews with bankers, consultants, clients and stakeholders (those in Jordan, Ukraine, Uzbekistan and Cyprus were held in person, while those in Egypt and Kazakhstan virtually). In total, 35 clients and stakeholders (mainly government officials) were interviewed for this evaluation. Moreover, cluster projects sites in these four countries were visited and their operations managers interviewed. The projects key performance categories of relevance, effectiveness and efficiency were rated according to the Bank’s standard scale.

Results

The evaluation identified several lessons/findings:

- Financing new solar projects in a country experiencing electricity network capacity limits, can exacerbate the network’s balancing challenges, be detrimental to an off-taker and lead to suspension of solar sector’s development;

- Very generous solar electricity producer tariffs might be welcomed by financiers, however they are often unsustainable and carry a high risk of subsequent reduction;
- As solar power investments have relatively high capital expenditure costs but low operating costs, their financing cost is of paramount importance for investors. Limited access to concessional financing (to blend with commercial), puts the EBRD at a disadvantage, compared to other IFIs;
- Revenue stability and predictability over the asset lifetime is an absolute pre-condition for solar investors, given the costs are almost entirely fixed rather than variable – in countries with competitive auctions, bankable long-term contracts and transparent procedures, the producer tariffs decreased considerably;
- As solar power/RES is a fast-changing sector, in some countries the provision of focused, often *ad-hoc*, advice from the Bank’s staff has been more frequent (and often more effective), than a structured approach based on large, multi-million dollar Technical Assistance projects;
- By following a previously agreed strategic approach to the power sector (under the Low Carbon Pathway, prepared with the Bank’s assistance), it has been possible to covenant decommissioning of old thermal power units under subsequent sovereign projects and unblock electricity generation capacity for solar/RE projects;
- Setting FiTs (or other fixed tariffs) within primary legislation makes them more challenging to adjust when the context changes. In a market as dynamic as solar, this creates the risk that tariffs will remain fixed, while the cost structure changes dramatically;
- It is critical that analysis of RES growth dynamics (and the grid’s ability to accommodate intermittent solar electricity), incorporates the growth trajectory of the distributed solar market (rooftop-mounted PV panels). Distributed solar has the same energy generation profile as utility solar, but is more difficult to regulate and control;
- Incidences of curtailment, payment delays or/and tariff reduction threats arose more frequently in countries where the solar/RES sectors were more mature or its deployment happened quickly. This was due to low capacity in the transmission network or balancing constraints, because network expansion is generally slower to design, build and commission than RES generation;
- As the share of solar in power generation grows, the utility of the cost of solar energy generation as an indicator of its competitiveness diminishes. This is because such cost does not include the challenges of incorporating intermittent power and is not an accurate reflection of its competitiveness.

Conclusion & discussions

In some countries EBRD did “things right” but it not always did the “right things”. EBRD successfully implemented a holistic approach to solar power, but in some cases it contributed to network imbalances and financial distress of off-takers. EBRD has been focusing on financing salient power generation projects but also on strengthening energy network capacity, as well as providing policy, legal and regulatory support for improved network management. However, in some countries, insufficient attention was paid early on to supporting electricity storage, decommissioning of thermal power and cross-border connections - measures facilitating electricity network balance. At the same time, over-generous FiTs created a boom in solar power (e.g. there was a 250% increase in solar capacity in Ukraine in 2017 alone), which in some COOs led to electricity balancing challenges, financial distress for off-takers and in the case of Ukraine, retroactive tariff reduction.

As a result, the governments in these COOs (Egypt, Jordan and Ukraine) suspended the development of solar power. Although the EBRD’s (and other IFIs’) financing unintentionally contributed to this “solar bubble”, there is no doubt that on a strategic level, this financing did support the transformation of energy systems in those countries from thermal to RE-based and thus furthered the achievement of climate-related goals. Importantly, affected countries have been taking steps to address their electricity balancing and in the long term, the EBRD-financed solar projects will benefit them (although this has been now jeopardised in Ukraine by on-going war).