CIF CLIMATE INVESTMENT FUNDS

EVALUATION & LEARNING INITIATIVE

# THE CLEAN TECHNOLOGY FUND AND CONCESSIONAL FINANCE

*This study takes one of the first comprehensive looks at how concessional finance has already been used and could be used in the future to accelerate deployments of clean energy technologies in emerging markets. BloombergNEF reviews concessional finance efforts of the Climate Investment Funds' (CIF) Clean Technology Fund (CTF) in five countries: Chile, Kazakhstan, Mexico, Morocco, and Thailand. It then analyzes how concessional funds may be effectively deployed in the future, and in what types of markets concessional finance can generate the greatest impact by driving down technology costs, creating and de-risking markets, and opening doors for commercial finance.*

## CONTEXT

Over the past decade, CIF has deployed approximately USD5 billion in concessional financing for middle-income countries to scale up the demonstration, deployment, and transfer of low-carbon technologies in renewable energy, energy efficiency, and sustainable transport. Concessional finance—investments deployed at lower interest rates and more lenient terms than are otherwise available in the market—has been widely recognized to be a powerful tool, though its impacts and implications for clean energy have not been widely analyzed. Simultaneously, the economics of clean energy have been transformed radically and positively since the founding of CTF. These changed circumstances offer a useful juncture to reconsider the role of concessional finance in fostering further clean power production, delivery, and consumption.

## KEY FINDINGS

1 **Concessional finance can rapidly accelerate uptake of clean energy technologies in developing countries.** In Mexico, approximately USD100 million in concessional financing from CTF helped kickstart the country's wind power market and directly led to over 1,000 megawatts (MW) of new wind capacity. In Morocco, CTF financing was instrumental in spurring the concentrated solar power and photovoltaic (PV) sectors. Looking ahead, the availability of finance, especially concessional finance, could prove crucial in incentivizing new-build energy storage globally.

2 **Flexibility and agility are key.** Equipment costs and local market conditions can change quickly. The ability to rapidly adjust deployment strategies for concessional finance is critical, and necessitates a willingness to take chances on new financing and business models, as well as new technologies.

## QUICK FACTS

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**RELEVANT CIF PROGRAM**
Clean Technology Fund (CTF)

**EVALUATION FIRM**
BloombergNEF (BNEF)

**RELEVANT COUNTRIES**
Chile, Kazakhstan, Mexico, Morocco, and Thailand

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3 **Concessional finance can accelerate two critical "tipping points".** When it comes to the long-term competition between clean and fossil-fired power generation, the study identifies two tipping points:

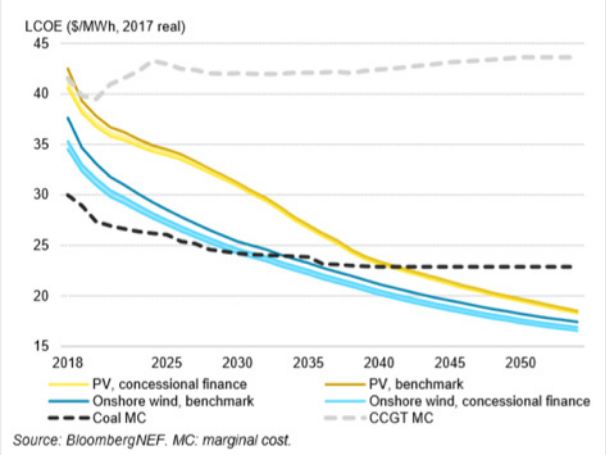
- → The first tipping point comes when building and operating a new clean power plant is more cost-efficient than doing the same for a fossil plant.
- → The second tipping point comes when a newly built clean energy plant can undercut the economics of an existing fossil plant on a levelized costs of energy (LCOE) basis. In other words, the point when building and operating a new renewable energy plant should, in theory, trigger the retirement of an existing fossil-fueled plant.

In developing nations where neither tipping point has yet arrived, concessional capital can be deployed to lower LCOEs for clean energy, pull forward the arrival of tipping point one, and ensure only zero-carbon power-generation gets added to the grid. In these nations, such capital also has the potential to accelerate the arrival of tipping point two and bring forward retirement dates for coal-fired power plants. In almost all markets, concessional capital can help move forward the date when tipping point two arrives (see Figure 1).

4 **Enabling environment, opportunities, and experience factor in.** The study notes three factors that were present when evaluating opportunities for deploying concessional capital in support of clean energy: the enabling environment, including government policies and regulations; the opportunities, including current and future electricity demand; and finally, the experience level of clean energy providers in the market.

## FIGURE 1:

**Cost of new onshore wind and utility-scale PV vs. existing coal and gas, India**




*Source: BloombergNEF. MC: marginal cost.*

*In India, concessional financing has the potential to shift the crossover point for new onshore wind with existing gas and coal by 2–4 years. This shift is remarkable given India installed 94.3GW of coal between 2012 and 2017.*

5 **Concessional capital can have greater impact on the cost-competitiveness of costlier technologies, for example, batteries.** Lower costs of capital for energy storage projects would result in significantly lower energy storage costs. In BNEF's benchmark scenario, each percentage point decrease in cost of capital will lead to a decrease in LCOE by USD10/MWh.

## CASE STUDY: KAZAKHSTAN

Kazakhstan is a landlocked middle-income country and the world's 17th largest oil producer. The country's power generation capacity is made up of approximately 130 plants owned both privately and by the government. The country aims to have 30 percent of its electricity generated by PV, wind, hydro and nuclear by 2030 and 50 percent by 2050. To date, CTF has invested approximately USD55.5 million in Kazakhstan's clean energy sector, which has leveraged over USD600 million in co-financing. CTF financing played an important role in projects which have come to symbolize the viability of Kazakhstan's renewables sector, including the country's landmark first utility-scale PV project, Burnoye, and the country's first wind project, Ereymentau. In advance of providing funds to wind and PV plants, CTF played a key role in supporting development of Kazakhstan's clean energy policies, such as the country's 2013 renewable energy law, which introduced feed-in tariffs for renewable energy projects and helped jump-start Kazakhstan's renewable energy market.