CIF CLIMATE INVESTMENT FUNDS

CTF CO-FINANCING RATIO BY TECHNOLOGY

An in-depth analysis of co-financing mobilized for the different technologies in the CTF portfolio

// June 2023

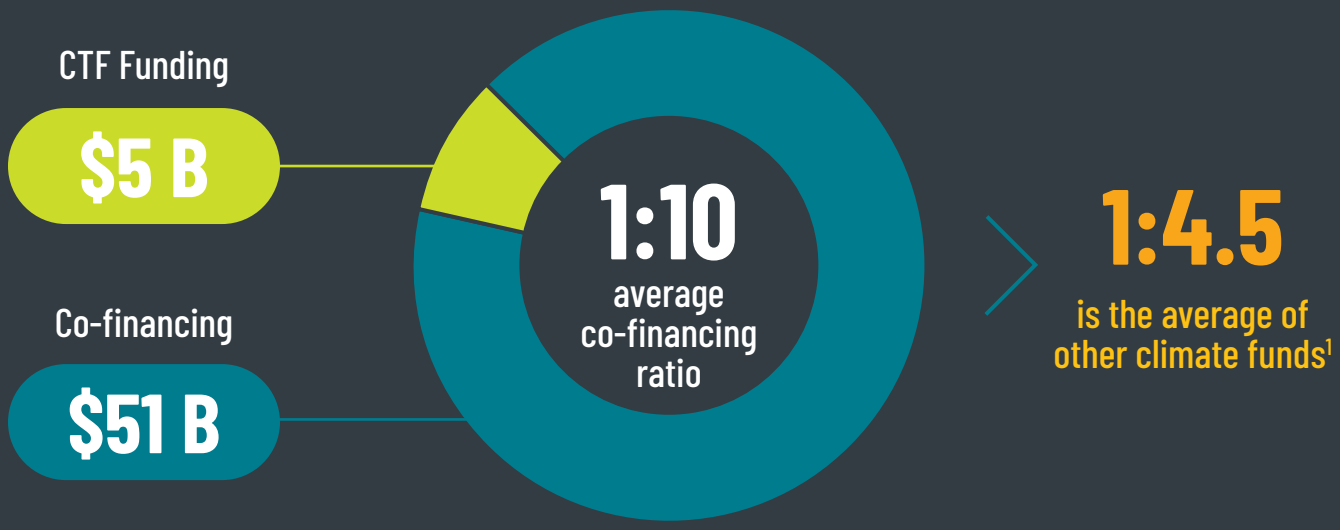
RESULTS DEEP DIVE SERIES//

CIF Program: Clean Technology Fund (CTF)

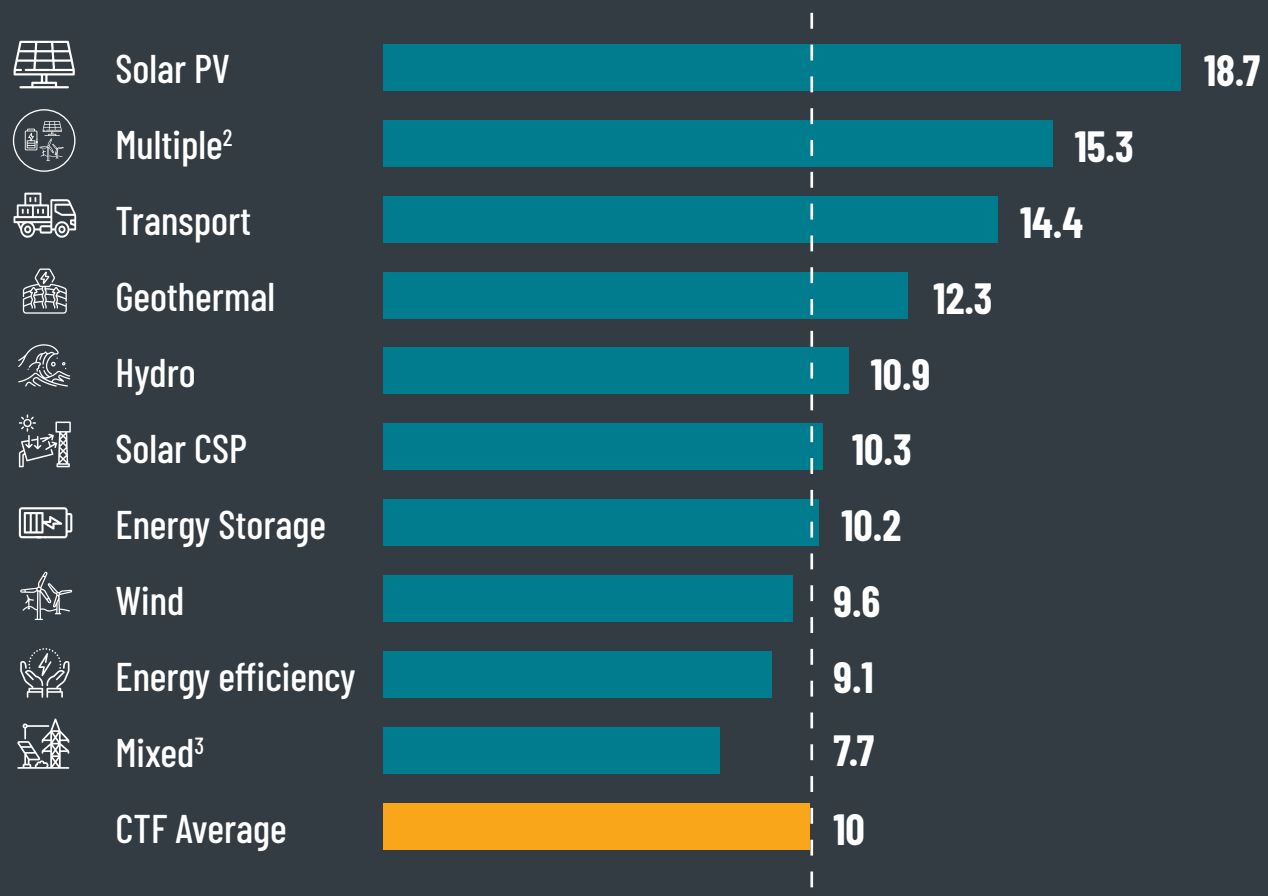
TOPICS

- Results and Impact
- Clean Technology
- Climate Finance

CTF MOBILIZED CO-FINANCING RATIO



CTF CO-FINANCING RATIO BY TECHNOLOGY



ACKNOWLEDGMENTS

www.cif.org

This report was commissioned by the Climate Investment Funds (CIF), a multilateral climate fund housed within the World Bank, and authored by Shane Suksangium, Jacob J. Bathanti, Madu Selvakumar, and Sandra Romboli.

Photo Credits
All photos by CIF or under license to CIF unless otherwise noted.

Design
Art Direction: Andrea Carega
Graphic Design: Nipun Garodia

RESULTS DEEP DIVE SERIES

The Climate Investment Funds (CIF) is committed to rigorous and inclusive monitoring and reporting (M&R) on investments' contributions toward net-zero emissions and adaptive, climate-resilient, just, and socially inclusive development pathways. The M&R Results Deep Dive series is a supplement to CIF's annual results reports — while annual M&R provides a systematic synthesis of portfolio performance against each program's core indicators, the Deep Dives provide in-depth reviews of these results within specific thematic or developmental dimensions of climate change. As such, they offer greater granularity on the drivers and implications of various performance characteristics.

1. INTRODUCTION

This Results Deep Dive explores results achieved by the Clean Technology Fund (CTF), focusing on CTF's effectiveness in mobilizing substantial and diverse volumes of co-financing for the demonstration, deployment, and transfer of low-carbon technologies with significant potential to reduce long-term greenhouse gas (GHG) emissions. As of December 2022, CTF's committed portfolio entailed US$5 billion of own-account debt and equity investments, complemented by US$51 billion of expected public and private co-investment, geared to deliver large and/or utility-scale clean technology projects in 29 low- and middle-income countries.

Over the past 15 years, the cost for many clean and renewable energy technologies has fallen significantly. For example, the cost for large scale solar photovoltaic (PV) technology has fallen by over 89 percent between 2009 and 2019, while the cost for wind energy has fallen by over 50 percent.[4] In many instances, however, the deployment of such projects in emerging economies still entails considerable first-mover costs and risks, such as lack of enabling infrastructure, weaknesses in local capital markets, and unpredictable revenue streams for such new investment.

These challenges and risks help drive a large, persistent, financing gap. Additional annual investments of over US$4 trillion are required by 2030 to achieve net-zero emissions by 2050, hindering national ambitions for low carbon futures.[5,6,7] In response, a primary objective of the various climate funds active today (including those operating under the CIF; the Green Climate Fund (GCF); the Global Environment Facility (GEF); and others), is to facilitate co-investment from untapped public and private sources via the provision of concessional financing and holistic investment packages (e.g., technical assistance, policy support, etc.), each of which act to improve the risk-to-return profiles of investment opportunities.

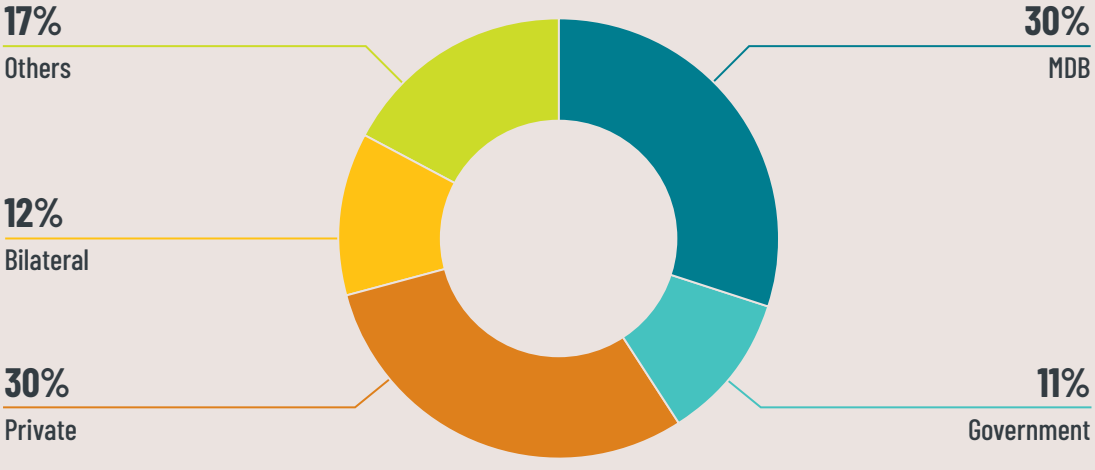


FIGURE 1. Expected co-financing share by source

Source: Expected co-financing of the CTF portfolio

CTF financing is utilized, as needed, to bear a wide range of risks inherent to clean technology projects in emerging markets (e.g., provision of local currency financing to offset exchange rate volatilities and financing of early exploration costs to buffer uncertainties in geothermal energy's potential). By bearing these risks, CTF facilitates financing from other sources to invest in less risky aspects of the project. As such, CTF aims to "crowd in" financing to support clean technology projects in the near term, with the long-term goal of helping clean technology projects become self-sustainable.

This Results Deep Dive analyzes the co-financing ratio of CTF projects, meaning the ratio of all non-CTF financing mobilized relative to CTF financing volumes. A higher co-financing ratio is often taken as an indicator of a project's ability to crowd in financing from other sources, such as governments, multilateral development banks (MDBs), and the private sector.[8] Thus, this Results Deep Dive aims to provide insight into the extent that CTF is crowding in additional financing across different technologies, including solar, wind, and geothermal, as well as across different energy storage projects.

Theppana Wind Farm, Thailand

2. RESULTS IN DEPTH: CO-FINANCING RATIO BY TECHNOLOGY

This Results Deep Dive analyzed all 125 MDB-approved Clean Technology Fund (CTF) projects, from the Fund's inception in 2008, through to December 2022. The mobilized co-financing ratio was calculated for each project. The analysis, which was organized by technology, extracted the expected co-financing ratios for all 125 projects.

2.1 Co-Financing by Technology

The analysis found that large infrastructure projects, such as solar, transport, and geothermal, show the highest expected co-financing ratios mobilized among the technologies listed in the portfolio (see Table 1). This is mainly due to the high up-front capital requirements of such projects before they become operational. For example, constructing and bringing online a large concentrated solar plant (CSP), a geothermal drilling well, or an underground metro system is extremely capital intensive for development of the infrastructure alone — before even producing a single KW of energy, carrying a single passenger, or earning a single dollar. These types of projects also entail considerable risks (e.g., first-mover loss), and therefore require substantial co-financing to mitigate these risks.

On the other hand, projects that focus on energy efficiency, and those that work on various technologies through different subprojects, have a relatively lower mobilized co-finance ratio, largely due to their smaller size. Examples are projects on district heating efficiency, grid modernization, and financial intermediary support. In contrast to large infrastructure projects, these projects are less capital intensive and require less financing to become operational. With smaller projects, the CTF provides a larger share of financing, and does not need to operationalize as much co-financing. However, while these projects are financially smaller, they have significant potential to catalyze transformational change beyond renewable energy generation. For example, the CTF supports local financial institutions in their efforts to support local renewable energy projects; to develop mini-grids to increase energy uptake; and to carry out crucial renewable energy sector activities.

TABLE 1. CTF Portfolio Expected Co-Financing Ratio by Technology

Technology	Average Co-Financing Ratio (Expected)
Solar PV	18.7
Multiple	15.3
Transport	14.4
Geothermal	12.3
Hydro	10.9
Solar CSP	10.3
Energy Storage	10.2
Wind	9.6
Energy Efficiency	9.1
Mixed	7.7
Average	**10**

Source: CTF Portfolio

2.2 Comparing CTF's Co-Financing Ratio with Other Climate Funds

One core strength of CTF's higher co-financing ratio (approximately 10; see Table 2) since its inception, in comparison to other climate funds, is its ability to mobilize financing from a variety of sources, including the private sector, for the different technologies. CTF has a strong history of mobilizing significant co-financing while working on high-risk, frontier clean technologies.

Table 2 shows a comparison of the expected co-financing ratios for CTF projects, disaggregated by technology, juxtaposed with the average co-financing ratio of comparable projects from other climate funds. CTF's high co-financing ratio of 10 may be attributed partly to CIF's focus and goals, and the historical juncture of its launch.

TABLE 2. Expected Average Co-Financing Ratio of the CTF Versus Other Climate Funds by Technology

Technology	Average Co-Financing Ratio for the CTF (Expected)	Average Co-Financing Ratio for Other Climate Funds (Expected)
Solar (PV and CSP)	16.1	2.2
Multiple	15.3	5.1
Transport	14.4	6
Geothermal	12.3	5.1
Wind	9.6	16.4
Energy Efficiency	9.1	3.1
Average	**10**	**4.5**

This analysis is based on the CTF portfolio and a list of over 30 projects from the Green Climate Fund[9] and the Global Environment Facility working with similar technologies. This list was compiled from publicly available documents, selected for comparable projects across technology types.

The Noor Concentrated Solar Power Plant in Morocco

ENDNOTES

1. Based on analysis of selected projects; see Table 2 for additional details
2. Multiple refers to a variety of technologies such as renewable energy, transport and energy efficiency.
3. Mixed refers to projects that support the integration of different types of renewable energy into the grid.
4. Douglas Broom. 2019. The cost of generating renewable energy has fallen - a lot. World Economic Forum. https://www.weforum.org/.agenda/2019/05/this-is-how-much-renewable-energy-prices-have-fallen/
5. International Energy Agency. 2021a. It's time to make clean energy investment in emerging and developing economies a top global priority. https://www.iea.org/news/it-s-time-to-make-clean-energy-investment-in-emerging-and-developing-economies-a-top-global-priority
6. International Energy Agency. 2021b. Net Zero by 2050: A Roadmap for the Global Energy Sector. https://www.iea.org/reports/net-zero-by-2050
7. International Energy Agency, 2021a.
8. See Michele de Nevers. 2017. "Assessing "Leverage" in the Climate Investment Funds." CGD Policy Paper. Washington, DC: Center for Global Development. https://www.cgdev.org/publication/assessingleverage-climate-investment-funds
9. GCF co-financing for an overall co-financing ratio of 3.7 in its 2021 annual report. See "Annual Results Report." Green Climate Fund. https://www.greenclimate.fund/annual-results-report-2021

THE CLIMATE INVESTMENT FUNDS

The Climate Investment Funds (CIF) is one of the largest multilateral climate funds in the world. It was established in 2008 to mobilize finance for low-carbon, climate-resilient development at scale in developing countries. Fifteen contributor countries have pledged over US$11 billion to the funds. To date CIF committed capital has mobilized more than $64 billion in additional financing, particularly from the private sector, over 70 countries. CIF's large-scale, low-cost, long-term financing lowers the risk and cost of climate financing. It tests new business models, builds track records in unproven markets, and boosts investor confidence to unlock additional sources of finance. Recognizing the urgency of CIF's mission, the G7 confirmed its commitment to provide up to $2 billion in additional resources for CIF in 2021.

CIF CLIMATE INVESTMENT FUNDS

The Climate Investment Funds
c/o The World Bank Group
1818 H Street NW, Washington, D.C. 20433 USA

Telephone: +1 (202) 458-1801
Internet: www.cif.org

@CIF_action
CIFaction
CIFaction
CIFaction
CIFaction
@CIF_action