



NET CLIMATE FINANCE

RECONCILING THE CLEAN AND DIRTY SIDES OF THE FINANCE LEDGER

DISCUSSION PAPER

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ABOUT THIS DISCUSSION PAPER

On May 11, 2017, 34 climate finance experts gathered in Bonn, Germany, for a discussion on “net climate finance”—the concept of measuring overall progress on low-carbon financial flows not only in terms of “clean” finance supporting mitigation and adaptation, but also “dirty” flows enabling high-carbon, maladaptive investments. The meeting was convened by Rocky Mountain Institute, World Resources Institute, and Climate Analytics and was informed by a discussion paper that offered various ways to compare clean and dirty financial flows side by side. This report contains the discussion paper, as well as a summary of the Bonn discussion.

EXECUTIVE SUMMARY

- Net climate finance, defined as the value of climate finance flows minus financial flows to high-emissions and maladaptive activities, continues to be heavily skewed toward dirty investments.
- With the strong focus on scaling up climate finance within the United Nations Framework Convention on Climate Change (UNFCCC), it has been somewhat forgotten that “making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development” (Paris Agreement Article 2.1[c]) also requires scaling down flows to fossil energy finance and other high-emissions or maladaptive activities.
- There is no singular approach to calculating the negative side of the climate finance ledger. Given the various definitions and approaches to calculating climate finance, any attempt to define its opposite will inevitably provoke debate.
- However, the preliminary comparisons of clean and dirty energy sources in this paper suggest that net climate finance is in the red by almost any measure. The balance of investments, including via public finance, are pointing in the wrong direction at a critical juncture for climate action.
- The concept of net climate finance offers a promising way to track progress against Paris Agreement objectives on shifting financial flows. However, much methodological work remains to construct true apples-to-apples comparisons between clean and dirty finance.
- The fact that net climate finance is in the red underscores an opportunity for the climate finance community to engage directly in outside efforts to restrict high-emissions finance via policies at multilateral and bilateral finance institutions, and the elimination of domestic fossil fuel subsidies.

IIIIIIII INTRODUCTION: WHY CLIMATE FINANCE IS ONLY HALF THE STORY

Scaling up climate finance has been one of the central themes of the global climate negotiations, both as a top political issue and a key area of substantive focus. The last 10 years have seen a wave of new global commitments (e.g., the \$100 billion mobilization goal), institutions (e.g., the Green Climate Fund), and myriad initiatives to assess progress in mobilizing climate finance. But in fact, scaling up climate finance is only half the story. Achieving one of the three overarching goals of the Paris Agreement—“making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development” (Article 2.1[c])—not only requires scaling up clean and green financial flows, but also scaling down financing for high-emissions infrastructure and activities (UNFCCC, 2015).

While climate finance may be growing, net climate finance (financial flows to high-emissions and maladaptive activities subtracted from climate finance flows) continues to be heavily skewed toward the dirty side. Developed countries touting progress toward the \$100 billion goal—as well as China and other major non-OECD financiers of infrastructure—continue to invest large quantities of taxpayer money in building coal-fired power plants in other countries while subsidizing fossil fuel production and consumption at home. While this paper focuses on the juxtaposition of public financing for clean energy and fossil energy, this same framework could be applied to land use (e.g., financing for measures that accelerate deforestation) or even adaptation.

It should be logically obvious that fossil fuel finance and climate finance are two sides of the same coin: a dollar of financing that enables an *increase* in greenhouse gas emissions has the equal and opposite effect of a dollar of financing that enables an equivalent decrease in emissions. Regardless of one’s views on the specific definition of *climate* finance—grants vs. loans, north to south vs. global, public vs. private, climate-specific vs. climate-relevant, and so on—there is a way to create a matching definition for *fossil fuel* finance. Therefore, focusing on scaling up climate finance while ignoring the ongoing funding of fossil fuel extraction and power production is akin to bailing water out of a boat while also carving a bigger hole in its hull.

Yet the policy conversations and advocacy efforts around climate finance and fossil energy finance remain strangely disconnected. In particular, the considerable momentum behind the climate finance agenda in the context of the UNFCCC has not carried over to fossil fuel finance. Reports on climate finance typically count only clean or green flows. The divestment movement targeting banks and institutional investors is a third, distinct dialogue that has few links to either those on climate finance or those on fossil energy finance. Meanwhile, in the UNFCCC, attempts to include references to phasing down public finance for fossil fuels, or fossil fuel subsidies specifically, in Conference of the Parties (COP) decisions have generally failed. On several occasions, including in the run-up to Paris, language encouraging Parties to “reduce international support for high-carbon investments, including international fossil fuel subsidies” was introduced as decision text, but did not make it into the final version (e.g., UNFCCC 2015b).

While Article 2.1(c) of the Paris Agreement does discuss the need to make finance flows consistent with low-emissions development, and the UNFCCC's 2016 Biennial Assessment and Overview of Climate Finance Flows (SCF, 2016) does juxtapose its estimate of climate finance flows with the International Energy Agency's (IEA) estimate of fossil fuel investment, these are exceptions to the rule. To read the negotiating history of climate finance in the UNFCCC is to witness a remarkably one-sided conversation about how to scale up green finance, while largely ignoring the continued public funding of fossil energy that undermines these efforts. Or to use another well-known analogy, "we say we are on a diet—but we're only counting the salads, not the ice creams."

This paper is intended as a background document to facilitate discussions on how to reconcile the clean and dirty sides of the finance ledger. It does not offer definitive answers to political or methodological questions; it is meant to catalyze a much-needed debate on this subject and presents existing published data without judgment. First, we review the most commonly cited aggregate data on climate finance flows (which will be familiar to many UNFCCC stakeholders) and similar estimates of financial flows supporting fossil energy. Notwithstanding the lack of truly comparable data and methodologies, we suggest three potential approaches to comparing the two sides of the ledger. Finally, we consider how to advance a more balanced conversation on climate and fossil energy finance both within the UNFCCC process and in the broader world of public finance institutions—noting the importance of engaging the climate finance community directly in the effort to scale down fossil finance flows by their governments and multilateral institutions.

||||||| ESTIMATES OF CLIMATE FINANCE AND FOSSIL ENERGY FINANCE

Defined most broadly, net climate finance consists of two components: positive climate finance (i.e., finance for activities that reduce emissions and/or increase resilience), and negative or anticlimate finance (i.e., finance for activities that increase emissions and/or reduce resilience). While several reports have estimated positive flows, to date, no studies have calculated a comparable estimate for negative climate finance. However, several reports offer data on fossil fuel finance, one contributor to the negative side of the ledger.

This section reviews the available data on climate finance and fossil energy finance. The data on climate finance and fossil energy finance do not allow for an apples-to-apples comparison of positive vs. negative finance; this section therefore aims to simply present the available data (summarized in Appendix I), with the following section providing analysis and discussion on approaches to assessing net climate finance.

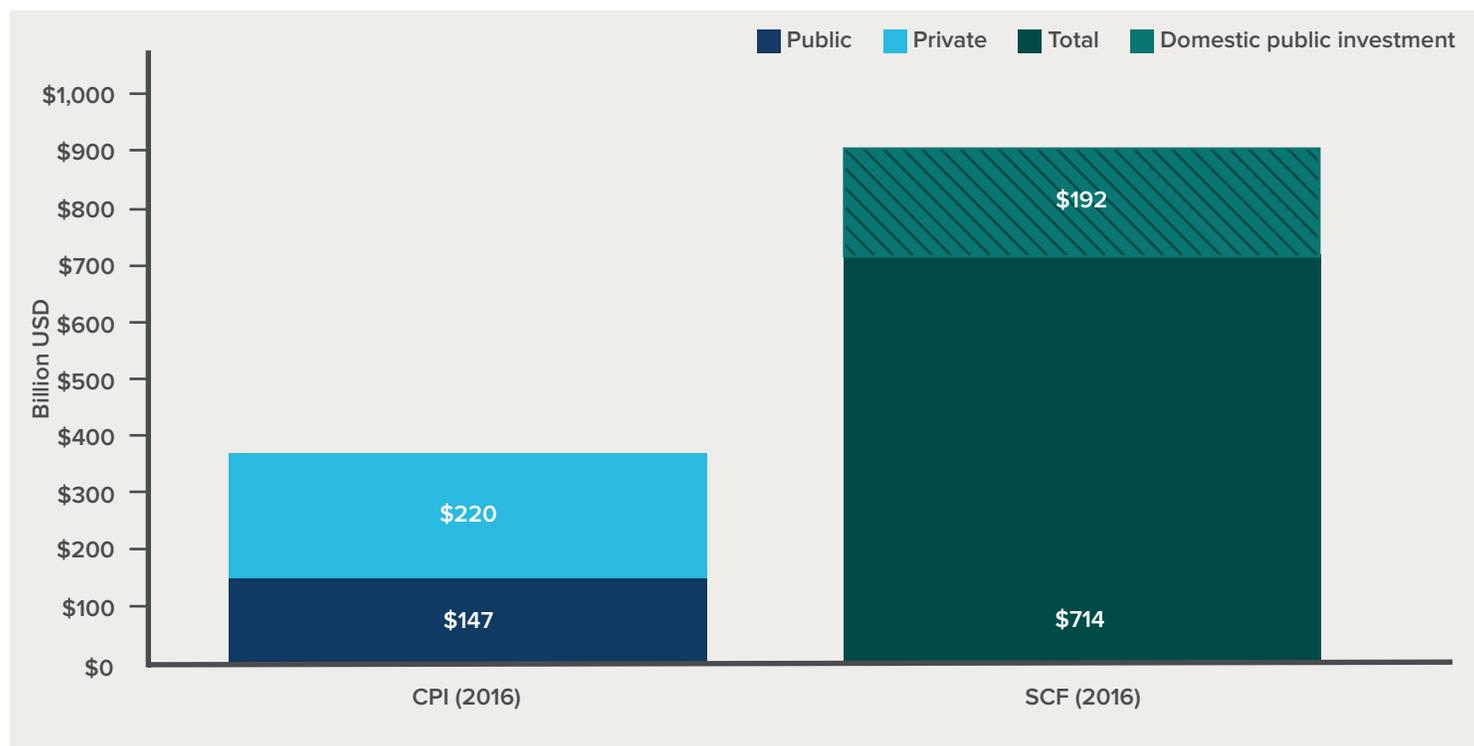
CLIMATE FINANCE

Famously, there is no universal definition for climate finance. Rather, actors in the climate finance community have proposed wide-ranging perspectives on *what* counts as climate finance and *how* that finance should be counted (Bodnar et al., 2015). In this section, we survey a variety of current estimates of climate finance flows, conceptually divided into four categories: total climate finance, public climate finance, North-South climate finance, and clean energy finance.

Total Climate Finance: Climate Policy Initiative (CPI) estimates \$367 billion of annual average global climate finance for 2013–14, and the UNFCCC’s Standing Committee on Finance (SCF) estimates \$714 billion over this same period (CPI 2016; SCF 2016). The discrepancy between the two numbers can largely be attributed to energy efficiency; whereas the SCF includes an estimate of \$336 billion of private investment in energy efficiency, CPI counts only \$29 billion of public investment in energy efficiency.

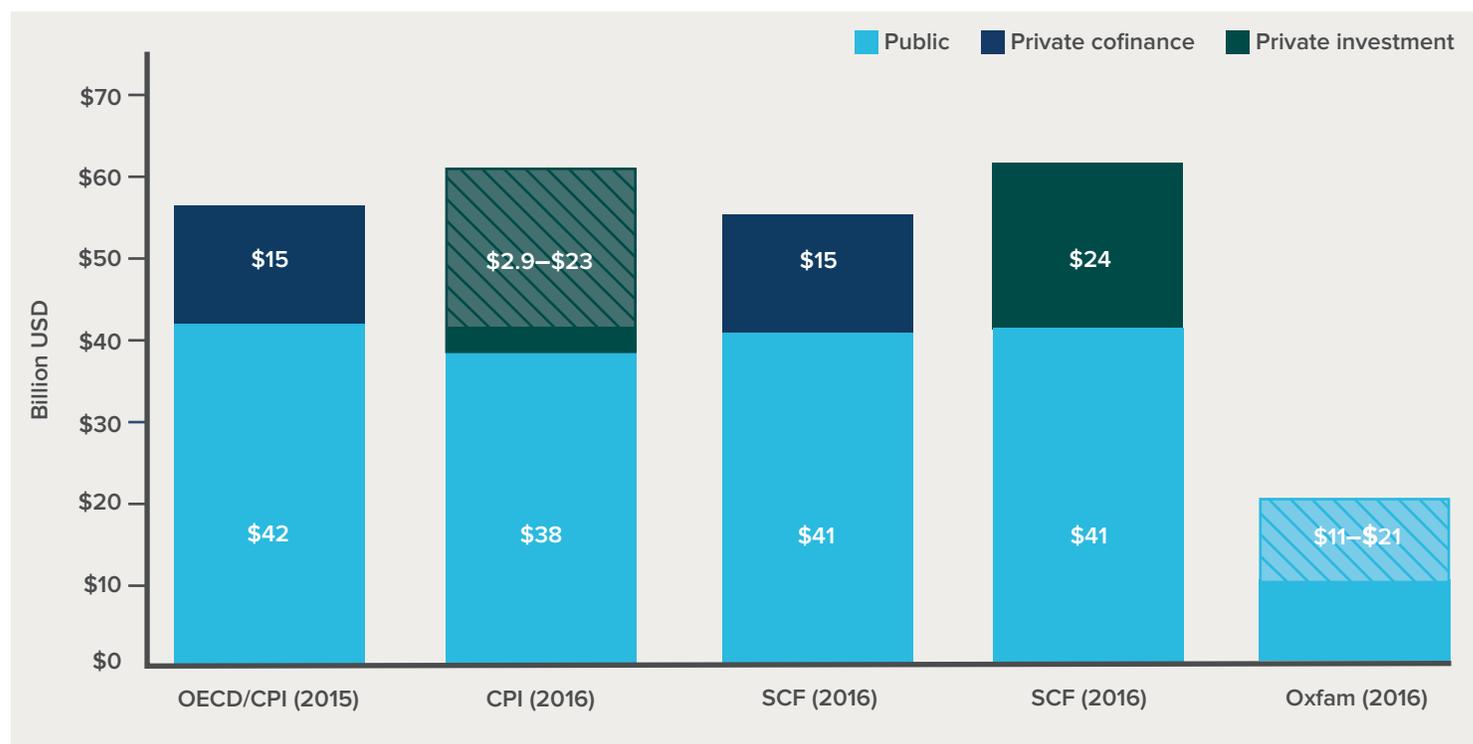
Public Climate Finance: CPI (2016) disaggregates its estimate into \$220 billion of private investment and \$147 billion of public flows. SCF (2016) does not disaggregate public and private finance, but does include partial data from 30 countries on domestic public climate investments, totaling \$192 billion, in addition to the \$714 billion global climate finance estimate.

Figure 1: Global Annual Climate Finance Flows, 2013–14



North-South Climate Finance: Several reports have focused on measuring North-South flows, which have emerged as a focus of attention in the context of UNFCCC obligations and the \$100 billion commitment. OECD and CPI (2015) estimate both public finance (bilateral, multilateral climate funds, specialized UN bodies, and export credits for renewable energy) as well as private cofinance associated with public finance interventions. CPI (2016) draws largely on the same sources, but reports a lower estimate of public finance due to alternative methodologies for multilateral development bank (MDB) outflows and fewer export credits. CPI offers a range for estimated private investment, with the lower bound representing investment in large-scale renewable energy and the upper bound representing foreign direct investment for greenfield investment in alternative and renewable energy. SCF (2016) reports similar figures as do OECD/CPI, but uses institutions' own reporting rather than the OECD's Development Assistance Committee (DAC) creditor reporting system. SCF (2016) also draws on OECD/CPI figures for private cofinance and CPI figures for private investment. Finally, Oxfam (2016) captures solely the "grant equivalent" of loans and other instruments, and discounts the value of projects only partially dedicated to climate, leading to a lower proposed range for public finance.

Figure 2: North-South Climate Finance, 2013–14



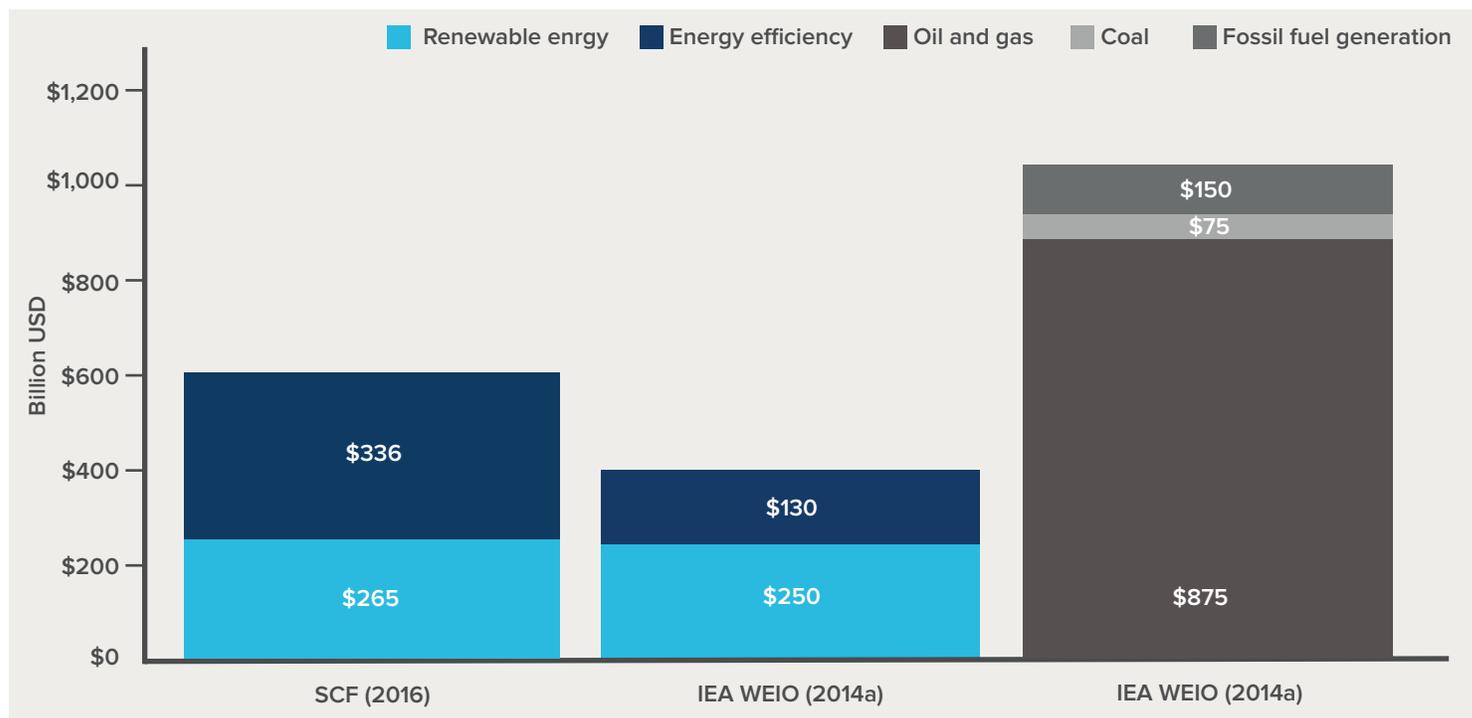
Clean Energy Finance: While estimates of total climate finance include flows to a range of sectors and activities, energy accounts for the majority of reported finance: 80% of the CPI's \$367 billion estimate and 84% of SCF's \$714 billion estimate can be attributed to renewable energy and energy efficiency. The prevalence of energy in these estimates may reflect the fact that energy data is more accessible than that of other sectors, though still not without debate. CPI (2016), the IEA *World Energy Investment Outlook* (WEIO) (2014a), and SCF (2016) all report similar levels of renewable energy investment. As for energy efficiency, the SCF acknowledges a wide range of estimates due to the challenges of defining a baseline, but uses an estimate of \$336 billion of total energy efficiency investments, adjusting to avoid double-counting public energy efficiency investment captured by CPI data. These estimates are visualized in the next section alongside fossil fuel energy investments.

FOSSIL ENERGY FINANCE

In this section, we survey estimates of fossil energy finance according to categories similar to those examined for climate finance: total, public, and North-South public flows.

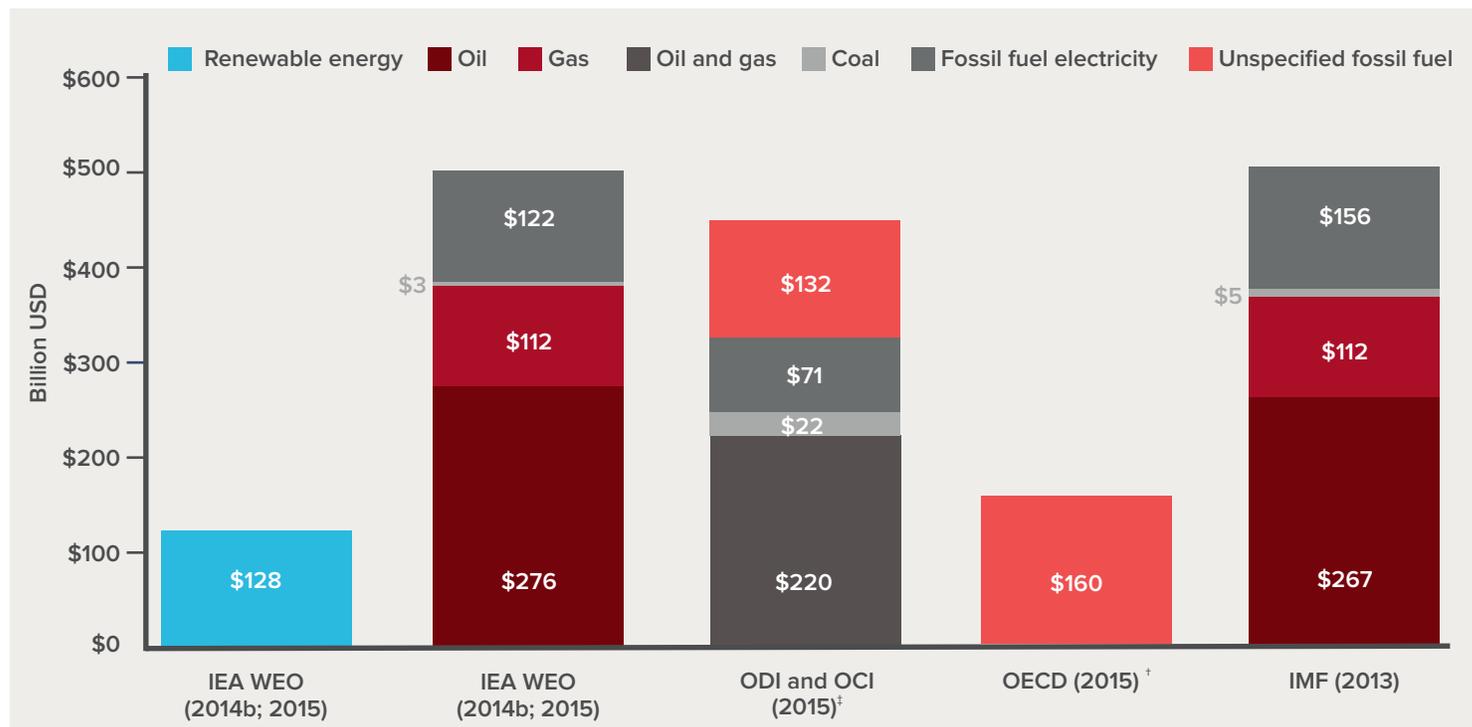
Total Fossil Energy Finance: The WEIO (2014a) estimates \$1.1 trillion of fossil fuel investment in 2013, with \$875 billion flowing to oil and gas, \$150 billion to fossil fuel generation, and \$75 billion to coal. The figure below compares available estimates of global energy investment, bringing in the clean energy finance figures discussed in the preceding section.

Figure 3: Global Annual Energy Investment, 2013–14



Public Energy Finance: There are a variety of different methodologies for assessing public support to fossil fuels (Kojima and Koplow, 2015). The IEA's World Energy Outlook (WEO) annual reports provide estimates of domestic fossil fuel *consumption* subsidies based on the "price gap approach," which compares average end-user consumer prices with reference prices that correspond to the full cost of supply in a competitive market; this approach leads to estimated fossil fuel subsidies of \$513 billion a year in 2013–14. The WEO also assesses renewable subsidies using the same methodology. The OECD's *Inventory of Support Measures for Fossil Fuels* (2015) tracks direct budgetary transfers and tax measures, capturing the value of government support even if it does not bring fossil fuel prices below reference prices; the OECD estimates \$160 billion in domestic *production and consumption* subsidies in the 34 OECD countries plus Brazil, Russia, India, Indonesia, China, and South Africa. The Overseas Development Institute and Oil Change International's *Empty Promises* report (2015) assesses fossil fuel *production* subsidies by G20 countries using the inventory approach, but with a broader definition of subsidies that includes not only domestic budgetary support and tax measures (\$88 billion) but also investments by majority state-owned enterprises (\$286 billion), and public finance from domestic, bilateral, and multilateral financial institutions (\$70 billion). They estimate that G20 countries provided an average \$444 billion per year in fossil fuel subsidies in 2013–14. Finally, the IMF's *How Large Are Global Energy Subsidies* working paper (2015) adopts different approaches depending on the country and fuel type, integrating the OECD's producer subsidies estimates for oil and coal with the price-gap approach for consumer subsidies, arriving at \$540 billion in 2013. The figure below shows different estimates of public support for fossil fuels, alongside the IEA's comparable estimate of renewable energy subsidies.

Figure 4: Global Public Support for Energy, 2013–14



[†] From OECD & BRIICS countries only. [‡] From G20 countries only.

North-South Public Energy Finance: Oil Change International's Shift the Subsidies database (2017) tracks public support for fossil fuel production and exploration from G20 countries through bilateral channels, export credit agencies, and MDBs. We applied filters to exclude finance from developing-country G20 members, leaving the G7 (Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States) plus Australia, and filtered recipients to only include developing countries, to arrive at an estimate of G7+1-to-South flows.¹ The resulting estimate of \$24 billion includes \$15 billion for oil and gas, \$7 billion for electricity production, \$1 billion for coal, and \$2 billion of unspecified flows. This estimate excludes projects for which the recipient was unclear (i.e., projects tagged as "global"), as well as finance from state-owned enterprises. Lastly, we adjusted MDB funding according to developed countries' capital share.²

||||||| INITIAL ESTIMATES OF NET CLIMATE FINANCE

Given the varied approaches to calculating climate finance, the "opposite" of climate finance can also take on multiple definitions. Below, we take three common definitions of climate finance and offer potential comparison points on the negative side of the ledger. Some of the methodological challenges are discussed further in Appendix II.

Total Finance: The majority of climate finance captured by CPI (2016) and SCF (2016) relates to renewable energy and energy efficiency (\$600 billion). However, even including the \$141 billion of climate finance outside the energy sector, the IEA (2014) presents fossil fuel investments approximately 50% greater than total climate finance. Net flows equate to -\$386 billion per year.

Public Finance: The contrast is even starker when examining public finance flows only. Fossil fuel subsidies, as assessed by the IMF, are over 3.5 times greater than public climate-finance estimates from CPI. Even if looking only at production subsidies and assessing only G20 countries (OCI and ODI 2015), fossil fuel public finance still totals more than 3 times public climate finance. Comparing CPI climate finance and IMF fossil fuel subsidies, net flows equate to -\$393 billion a year.

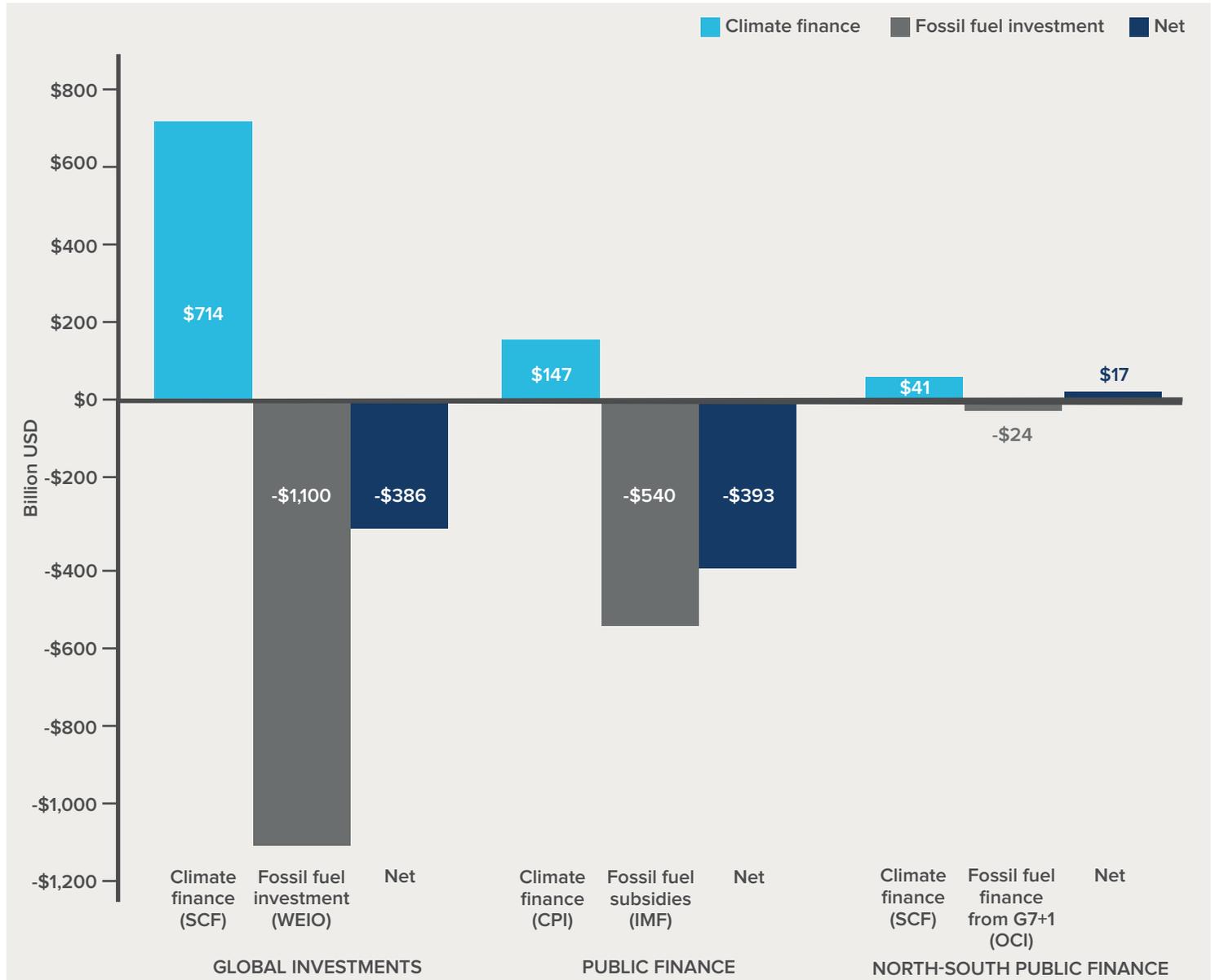
North-South Public Finance: This is the only measure for which climate finance exceeds the fossil fuel finance estimate, although fossil fuel finance data covers only G7 countries plus Australia (ODI 2017). Net flows equate to \$17 billion a year.

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¹ Non-annex I Parties to the UNFCCC

² Using capital shares for OECD countries from Table B.1 in Westphal et al. (2015)

Figure 5: Possible Measures of Net Climate Finance, 2013–14



||||||| FUTURE DIRECTIONS: HOW WE CAN BECOME CHAMPIONS OF NET CLIMATE FINANCE

The Paris Agreement’s goal of making finance flows consistent with a pathway toward low greenhouse gas emissions and climate-resilient development (Article 2.1[c]) will require both scaling down funding for high-emissions activities and scaling up flows of climate finance, the so-called “shifting trillions.” By integrating both sides of the ledger, the concept of net climate finance can help track progress toward this goal. By most measures, net climate finance is currently negative. At the very least, net climate finance should be positive and increasing over time. To be clear, net climate finance should aim to complement rather than substitute for efforts

to track climate finance flows; indeed, without data on climate finance, it would be impossible to calculate the net. Finally, assessing net flows should not detract from the need to mobilize increasing levels of climate finance, but rather increase the sense of urgency by contextualizing progress within the broader finance landscape.

NET CLIMATE FINANCE IN THE UNFCCC PROCESS

There are several potential vehicles and entry points for integrating the conversation around net climate finance into the UNFCCC process:

Biennial Assessment of the Standing Committee on Finance: The SCF's 2016 *Biennial Assessment and Overview of Climate Finance* (SCF, 2016) included a section (3.4) that put global climate finance flows in a broader context, including comparisons to investments in high-emissions energy and fossil fuel subsidies. This was a good start, and Parties could consider how to build on that work to develop a clearer set of estimates of flows to anticlimate finance activities for inclusion in the next Biennial Assessment, to be released in 2018 (2018 BA). The SCF initiated work on the 2018 BA in March 2017 and agreed to launch technical work and early engagement with data providers, producers, and aggregators, with a draft outline to be considered by the SCF at its next meeting (tentatively scheduled for September 2017). Agreed possible elements for the 2018 BA include a section on an enhanced discussion on climate finance in the broader context, including information and bigger-picture metrics that are relevant to facilitating the tracking of global progress toward the goals outlined in Article 2.1(c) of the Paris Agreement. The net climate finance concept could serve as one of these possible bigger-picture metrics. The SCF might also consider dedicating its annual forum to such metrics, including an assessment of what might constitute the opposite of climate finance.

Nationally Determined Contributions (NDCs): NDCs could serve as a vehicle for Parties to explain what types of policies and measures they intend to put in place, including those that aim at redirecting financing flows toward low-emissions development pathways. These measures can then be reported by Parties as part of the information necessary to track progress made in implementing and achieving their NDCs in line with Article 13.7(b) of the Paris Agreement.

Transparency Framework: It should be considered how the net climate finance approach could be captured under the transparency framework outlined in Article 13 of the Paris Agreement, to better understand how much public funding flows each year to activities that run counter to the objectives of the Paris Agreement.

Global Stocktake: The Global Stocktake envisioned in Article 14 of the Paris Agreement is designed to assess collective progress against the long-term goals of the Paris Agreement, including the aforementioned Article 2.1(c). Parties will need to consider how to assess whether finance flows are "consistent" with such a pathway at a global level, and net climate finance could be a useful concept in this regard. The Biennial Assessment could be an important input into the Global Stocktake, as noted by the SCF at its last meeting.

Pre-2020 Action: The mitigation potential of reducing fossil energy flows, particularly fossil fuel subsidies, has been studied extensively. The International Institute for Sustainable Development's

Zombie Energy report (2017) estimates (with a 66% likelihood) that eliminating global fossil fuel production subsidies could catalyze up to 6% of the emissions reductions needed for a 2°C pathway. The Technical Expert Meetings (TEMs) under the pre-2020 action process might provide an avenue to discuss barriers for reducing dirty finance flows and linking successful initiatives that have achieved reduction of these flows on the national and regional levels with the international process.

NET CLIMATE FINANCE OUTSIDE THE UNFCCC

The concept of net climate finance can be linked to existing initiatives and commitments in other multilateral fora, such as the G7, the G20 green finance study group, and the Task Force on Climate-related Financial Disclosures. Other institutions reporting on climate finance, in particular MDBs, bilateral aid agencies, and development financial institutions, may also find the concept of net climate finance useful for tracking their own progress on making finance flows consistent with low-emissions and climate-resilient development. But most importantly, climate finance advocates have an opportunity to engage directly in concrete work to reduce public funding of fossil energy by bilateral and multilateral institutions, as outlined below.

Beginning in 2013, a number of bilateral finance institutions and multilateral development banks began to implement policies restricting or eliminating public funding for coal-fired power plants in other countries. The United States, the United Kingdom, Nordic countries, and the Netherlands constituted the first wave, along with the World Bank Group, the European Bank for Reconstruction and Development (EBRD), and the European Investment Bank (EIB). Germany and France then adopted similar policies covering their export credit agencies and development finance institutions in 2014 and 2015. Finally, in November 2015, the OECD adopted the first multilateral restrictions on coal-fired power plants for OECD export credit agencies, eliminating over 80% of plants in the global pipeline from funding eligibility.

Advancing this agenda will be a challenge in the current political climate, particularly given the loss of the United States as a positive driver. Opportunities to drive progress in continuing to restrict high-emissions finance include:

- **Strengthening restrictions** where they already exist, e.g., among OECD export credit agencies and the World Bank, by eliminating financing for high-efficiency coal plants and by expanding restrictions to include other fossil infrastructure, such as exploration and extraction
- **Pursuing new policies** at key public financing institutions that have no current policies, e.g., the Asian Development Bank, Asian Infrastructure Investment Bank, and key bilateral funders like the government of China
- **Encouraging elimination** of domestic fossil fuel subsidies, both in the context of NDCs and in multilateral fora like the G20
- **Joining forces** with the communities of experts and advocates working on fossil-finance diplomacy as well as divestment. These efforts could be much better connected and mutually reinforcing

 REFERENCES

Bodnar, P., Brown, J. and Nakhooda, S. (2015). *What Counts: Tools to Help Define and Understand Progress Towards the \$100 Billion Climate Finance Commitment*. Working Paper. Washington, DC: World Resources Institute. <http://www.wri.org/publication/what-counts-tools-help-define-and-understand-progress-towards-100-billion-climate>

CPI. (2016). *Global Climate Finance: An Updated View on 2013 & 2014 Flows*. Climate Policy Initiative. <https://climatepolicyinitiative.org/publication/global-climate-finance-updated-view-2013-2014-flows/>

IEA. (2014a). *World Energy Investment Outlook*. Paris: International Energy Agency. <https://www.iea.org/publications/freepublications/publication/weo-2014-special-report---investment.html>

IEA. (2014b). *World Energy Outlook 2014*. Paris: International Energy Agency. <http://www.worldenergyoutlook.org/weo2014/>

IEA. (2015). *World Energy Outlook 2015*. Paris: International Energy Agency. <http://www.worldenergyoutlook.org/weo2015/>

IEA. (2016). *World Energy Investment 2016*. Paris: International Energy Agency. <https://www.iea.org/newsroom/news/2016/september/world-energy-investment-2016.html>

IISD and ODI. (2017). *Zombie Energy: Climate benefits of ending subsidies to fossil fuel production*. Working paper. Winnipeg and London: International Institute for Sustainable Development and Overseas Development Institute. <http://www.iisd.org/library/zombie-energy-climate-benefits-ending-subsidies-fossil-fuel-production>

IMF. (2015). *How Large Are Global Energy Subsidies?* IMF Working Paper 15/105. Washington, DC: International Monetary Fund. <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/How-Large-Are-Global-Energy-Subsidies-42940>

Kojima, M. and Koplow, D. (2015). *Fossil Fuel Subsidies: Approaches and Valuation*. Policy Research Working Paper No. 7220. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/21659>

OCI. (2017). Shift the Subsidies database. Washington, DC: Oil Change International. <http://shiftthesubsidies.org/>

ODI and OCI. (2015). *Empty promises: G20 subsidies to oil, gas and coal production*. London and Washington, DC: Overseas Development Institute and Oil Change International. <https://www.odi.org/publications/10058-empty-promises-g20-subsidies-oil-gas-and-coal-production>

OECD and CPI. (2015). *Climate Finance in 2013-14 and the USD 100 billion goal*. Paris: Organization for Economic Cooperation and Development. <https://www.oecd.org/env/climate-finance-in-2013-14-and-the-usd-100-billion-goal-9789264249424-en.htm>

OECD. (2015). *Companion to the Inventory of Support Measures for Fossil Fuels 2015*. Paris: Organization for Economic Cooperation and Development. http://www.oecd-ilibrary.org/energy/oecd-companion-to-the-inventory-of-support-measures-for-fossil-fuels-2015_9789264239616-en

Oxfam. (2016). *Climate Finance Shadow Report 2016: lifting the lid on progress towards the \$100 billion commitment*. Oxford: Oxfam International. <https://www.oxfam.org/en/research/climate-finance-shadow-report-2016>

SCF. (2016). *2016 Biennial Assessment and Overview of Climate Finance Flows Report*. Bonn: UN Framework Convention on Climate Change, Standing Committee on Finance. http://unfccc.int/cooperation_and_support/financial_mechanism/standing_committee/items/10028.php

UNFCCC. (2015a). Paris Agreement. http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf

UNFCCC. (2015b). Streamlined and consolidated text. Ad Hoc Working Group on the Durban Platform for Enhanced Action. Document FCCC/ADP/2015/1 http://unfccc.int/files/bodies/awg/application/pdf/adp2-9_i3_11jun2015t1630_np.pdf

Westphal, M, Canfin, P., Ballesteros, A. and Morgan, J. (2015). *Getting to \$100 Billion: Climate Finance Scenarios and Projections to 2020*. Working Paper. Washington, DC: World Resources Institute. www.wri.org/publication/getting-to-100-billion

IIIIIIII APPENDIX I: SUMMARY OF THE BONN DISCUSSION DISCUSSION QUESTIONS AND KEY TAKEAWAYS

1. **What is the opposite of climate finance? Is there sufficient existing information for a side-by-side comparison with climate finance?**
 - Given the widespread debate over what counts as climate finance, there are many ways to define its opposite; however, net climate finance offers one approach to improve recognition and understanding of the dirty side of the ledger and the opportunity to move to net positive flows.
 - Net climate finance could be considered a conceptual, political narrative regarding overall progress on the one hand, or a quantified, methodological approach on the other—or something in between.
 - Analysis of net climate finance at the national, sectoral, and institutional levels, or by type of support (e.g., subsidies, export credits) offers a good starting point for a global-level assessment and could prove more methodologically rigorous than quantification at the aggregate level.
 - Regarding terminology, “net” may be confusing or misleading (connoting reflows and putting too much emphasis on the quantitative assessment rather than the narrative).
 - The energy sector offers the most direct comparison of clean vs. dirty flows; participants expressed interest in determining the opposite of adaptation finance and REDD+, while also acknowledging that methodologies may be location- and context-specific.
 - Net climate finance may be most useful if examining trends over time (which could also help mitigate uncertainties surrounding methodology).

- Dollars are not the only potential metric for net climate finance; alternatively, this concept could be expressed in terms of embodied emissions vs. embodied emissions avoided, megawatts of clean vs. dirty energy installed per dollar invested, carbon pricing vs. externalities from carbon, clean vs. dirty jobs/policies, etc.
- Among dirty investments, we could distinguish among those with different carbon footprints (e.g., gas vs. coal). Also, the definition of “dirty” may evolve over time, and many investments (e.g., roads) will be difficult to categorize.

2. Is net climate finance a useful concept for assessing and tracking progress toward the Paris Agreement, Article 2.1(c)? What are potential ways to advance this concept within the UNFCCC process?

- Comparing clean and dirty flows and expressing them as net flows over time could provide one way to improve transparency and track progress against Paris Agreement Article 2.1(c): “making finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development.”
- Quantitative approaches, such as those explored in the discussion paper, should be developed further—but not within the UNFCCC process. This process would be time consuming and complex, and would not receive sufficient traction among negotiators likely to get bogged down in technical debates. Likewise, Parties should not be required to formally report net climate finance flows.
- In recent years, the climate action narrative has centered on opportunities rather than barriers, so we must be cognizant of reviving a “winners vs. losers” framing that we have moved past. A focus on direction of travel from net negative toward net positive can help address this risk.
- Negotiators should focus on shifting the narrative, including raising this concept to the political level, thus increasing the number of “net climate finance negotiators”.
- Building on analytical work conducted outside of the UNFCCC, specific opportunities for engagement within the process include the Biennial Assessment by the Standing Committee on Finance, the Global Stocktake, and elevating net climate finance as a topic in the biennial high-level COP ministerial dialogues on climate finance.

3. How can climate finance stakeholders influence the scaling down of dirty finance via bilateral and multilateral finance institutions?

- Actors and institutions outside of the UNFCCC—e.g., academic institutions, think tanks, and multilateral institutions like the IMF—are best placed to elaborate this concept.
- There are specific opportunities to engage multilateral development banks and bilateral institutions that have not yet adopted policies to restrict public finance for coal and other fossil projects, e.g., the ADB, AIIB, and Chinese bilateral banks/agencies.
- The UNFCCC climate finance community could better reach out and connect to those in government and civil society working on scaling down fossil finance, divestment of private funds, and climate risk disclosure.
- The notion of “2 degree compatible” investments is gaining traction in the context of corporate disclosure and MDB investments, and could provide a useful framework for net climate finance.

APPENDIX II: SUMMARY OF CLIMATE FINANCE AND ENERGY FINANCE

	SOURCE	DATE YEAR	TOTAL	PUBLIC	NORTH-SOUTH (PUBLIC)	NORTH-SOUTH (PRIVATE)
CLIMATE FINANCE	CPI (2016)	2013/14 average	\$367	\$147	\$38	\$2.9–\$23
	SCF (2016)	2013/14 average	\$714	-	\$41	\$15 [†] , \$24 ^{**}
	OECD/CPI (2015)	2013/14 average	-	-	\$42	\$15
	Oxfam (2016)	2013/14 average	-	-	\$11–\$21	-
RENEWABLE ENERGY	CPI (2016)	2013/14 average	\$264	-	-	-
	SCF (2016)	2013/14 average	\$265	-	-	-
	IEA WEIO (2014a)	2013	\$250	-	-	-
	IEA WEO (2014b & 2015)	2013/14 average	-	\$128	-	-
ENERGY EFFICIENCY	CPI (2016)	2013/14 average	-	\$29	-	-
	SCF (2016)	2012	\$336	-	-	-
	IEA WEIO (2014a)	2013	\$130	-	-	-
FOSSIL FUELS	IMF (2015)	2013	-	\$540	-	-
	ODI/OCI (2015)	2013/14 average	-	\$444 [†]	-	-
	OECD (2015)	2014	-	\$160 [†]	-	-
	IEA WEO (2014b & 2015)	2013/14 average	-	\$513	-	-
	IEA WEIO (2014a)	2013	\$1,100	-	-	-
	OCI (2017)	2013/14 average	-	-	\$24	-

*private cofinance, **foreign direct investment, † from OECD & BRIICS countries only, ‡ from G20 countries only

APPENDIX III: NOTES ON DATA GAPS AND LIMITATIONS

This paper highlights several gaps and limitations in both the climate finance and energy finance data. In many cases, the gaps in energy finance data mirror those in climate finance, including calculations on the grant-equivalent of finance, methodologies for distinguishing public and private flows, and measurement for projects where only a portion of total financing supports climate (e.g., solar panels as part of a larger school building project). In addition to these well-documented challenges (see, for example, CPI 2016), this exercise on assessing net climate finance highlights three limitations:

Energy Finance Data: Historic energy investment data has been particularly poorly reported by the IEA, with data averaged over broad ranges of years, and not broken down into clear categories. For example, this discussion paper imputed fossil fuel investment data from the WEIO (IEA, 2014a) based on language such as “more than \$1,100 billion per year” in fossil fuel investment. Encouragingly, the IEA has improved its data granularity, with *World Energy Investment* (IEA, 2016) providing detailed tables disaggregated by fuel source. While this

discussion paper focused on data for the years 2013 and 2014, data for more recent years based on improved methodologies will hopefully offer a more up-to-date snapshot.

Emissions Intensities: This analysis treats investment flows as equivalent between different fossil fuel sources. However, one could arguably adjust values to account for the relative emission intensities of the fuels. Under such an approach, the negative impact per dollar of investment in coal-fired power generation would exceed that of investment in gas-fired generation. A variation on this approach would be to calculate the lifetime emissions resulting from a given investment and multiply that by the climate change externalities (social cost of carbon). The IMF (2015) attempted to do this for fossil fuel subsidies and found global warming externalities of over \$1 trillion in addition to production and consumption subsidies of \$541 billion in 2013. When including other externalities, such as local pollution, traffic congestion, and road accidents, they found that fossil fuels received \$4.8 trillion in total subsidies in 2013.

Moving Beyond Energy Finance: While this discussion paper uses fossil fuel energy investment as a proxy for the negative side of the ledger, climate finance encompasses activities in nearly all economic sectors. We focused on fossil fuels in this paper in part because they are a clear and significant source of greenhouse gas emissions and so they most readily fit the definition of “anticlimate finance,” and in part because there is better data availability about investments associated with them. However, it is important to think beyond energy finance to track other investments that are currently misaligned with climate goals.

ABOUT ROCKY MOUNTAIN INSTITUTE

Rocky Mountain Institute (RMI)—an independent nonprofit founded in 1982—transforms global energy use to create a clean, prosperous, and secure low-carbon future. It engages businesses, communities, institutions, and entrepreneurs to accelerate the adoption of market-based solutions that cost-effectively shift from fossil fuels to efficiency and renewables. RMI has offices in Basalt and Boulder, Colorado; New York City; Washington, D.C.; and Beijing.