



GLOBAL CHINA INITIATIVE



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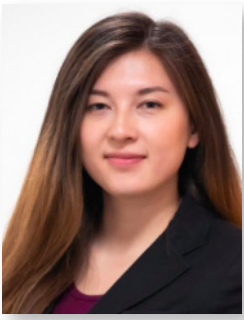
Opportunities for US-China Engagement on Development Finance for Overseas Renewable Energy

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ABSTRACT

A dramatic scaling of renewable energy is needed to achieve global climate goals. In this paper, we systematically present the potential set of opportunities that exist for the United States and China to engage on overseas renewable energy development finance. We find that there is substantial complementarity in the institutions and instruments that the US and China have deployed to promote development finance overseas. Given their relative specializations, we find that there is a potential opportunity for further US-China coordination and cooperation on overseas renewable energy. In combining our assessment of initiatives that would have the most impact and yet also be viable in terms of the level of coordination that is feasible under current political conditions, we recommend a focus on the following areas for expanding US-China engagement on renewable energy development finance: 1) joint project finance; 2) joint capacity building efforts and 3) parallel bilateral investment principles and standards. These three areas pose a significant potential for accelerating the renewable energy transition by increasing financing opportunities in the Global South, and are areas where leaders and officials in both countries would see a common interest and benefit to expanding cooperation and coordination, even in the current fraught political environment.





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INTRODUCTION

A dramatic scaling of renewable energy (RE) is needed to achieve global climate goals. To achieve net zero emissions globally by 2050 and a 1.5 degree Celsius stabilization goal by 2100, RE generation will need to triple by 2030, and increase more than eightfold by 2050 (International Energy Agency 2021). This need for annual capacity additions between 2020-2050, at a pace that is five times higher than the recent average growth rate, creates a financing gap in RE needs of around \$27 trillion in the 2016-2050 period (International Renewable Energy Agency 2020).

Development finance can help close this gap. Under certain scenarios, development finance institutions (DFIs) could potentially direct up to \$2.5 trillion per year for sustainable infrastructure (Bhattacharya et al. 2019). China is now one of the world's largest sources of development finance (Ray, Gallagher, et al. 2021) and could play a critical role in closing this RE investment gap. However, despite being the largest manufacturer of most commercially available RE technologies and the leading exporter of these technologies overseas, China has played an outsized role in financing fossil fuel power plants around the world through its Belt and Road Initiative (BRI), with potentially dire implications for climate change (Chen et al. 2021). China's DFIs, the China Development Bank (CDB) and the Export-Import Bank of China (CHEXIM), are playing a larger role in financing global power plants than any other DFI, and the largest share of their finance has been to coal power projects (Chen, Gallagher and Mauzerall 2020). In September 2021, at the 76th United Nations General Assembly, Chinese leader Xi Jinping announced that China would not build new coal plants overseas and would step up support for green and low-carbon energy in developing countries (Xi 2021). Thus, China's overseas financing of power generation has the potential to drive the expansion of renewable power capacity far beyond its role to date.

This working paper begins from the premise that US engagement with China could increase resources available for RE development in developing countries. We argue that there is a scientific, policy and economic imperative for an engagement-oriented approach. The aforementioned RE investment gap is derived from scientific assessments of additional installed capacity and generation necessary to meet climate targets (International Energy Agency 2021; IRENA 2022). In addition to global science-based targets, an increasing number of countries, including developing countries, are adopting domestic policies to support their net-zero commitments. For example, South Africa, Nepal, Brazil, Ecuador and Vietnam have committed to net-zero emissions by 2050; Sri Lanka, Nigeria and Kazakhstan by 2060; and India and Ghana by 2070. These policy commitments further enforce the need for financial flows to support new RE infrastructure. Finally, an engagement-oriented approach to global RE financing will reduce the overall costs of energy transition. Globalized solar photovoltaic (PV) module supply chains have already saved both the US and China tens of billions of dollars each since 2008, while future supply chain decoupling could raise the price of solar modules by 20-25 percent through 2030 (Helveston, He and Davidson 2022). At the same time, there are minimal and manageable economic and security risks to RE supply chains being partially sourced from China (Davidson et al. 2022)



The premise of engagement is understudied from an empirical perspective. Scholars and politicians alike have proposed that the United States should compete with China by offering affordable finance for global RE development (Urpelainen 2021; Brian Murray 2013; Tsafos 2022; Springer 2022). Yet given the RE financing gap mentioned, the US alone cannot finance the low carbon development needs of developing countries. The US can, however, work strategically with partners and leverage public and private finance for recipient countries by providing lower risk, lower carbon technology that accounts for local needs. If the US were leveraging, rather than attempting to block, China's overseas finance, opportunities to support regional development needs would be expanded while China would simultaneously be pressured to support greener technologies overseas (Hart and Mag-samen 2019).

We acknowledge that US-China relations are, at present, low. However, both countries continue a multi-decade history of climate cooperation, even during today's tense bilateral relationship (Lewis 2023). The US-China Joint Glasgow Declaration adopted in November 2021 lays out several topics for climate cooperation. The declaration recalls the commitment made by both countries "regarding the elimination of support for unabated international thermal coal power generation," yet fell short for calling for any direct bilateral engagement on the topic of overseas RE finance (US Department of State 2021). Given the crucial roles that both countries play in the development finance arena, we argue that coordinated efforts could increase development finance for RE overseas. Other studies agree (e.g. Hart et al. 2016), but do not articulate a clear range of options for the US and China to work together.

In this working paper, we systematically assess the potential set of opportunities that exist for the United States and China to engage on overseas RE development finance. China and the United States are the world's two largest carbon dioxide emitters. They also have the world's two largest electricity systems by installed capacity, as well as the first and second largest amount of installed RE capacity. Both countries have historically taken an active role in global development via outward financing, and in recent years, have consolidated their overseas development strategies with larger economic and strategic goals via the BRI from China and the US-led Partnership for Global Infrastructure and Investment (PGII), formerly known as Build Back Better World (B3W). While other countries certainly play important roles in global RE development finance, given the significant domestic RE industries and consolidated overseas development strategies from the US and China, this working paper explores potential complementarity in the role that these two particular countries could play in closing the overseas financing gap in RE.

We begin by assessing the complementarity between the roles that the United States and China are currently playing in RE development and finance in third countries. We then examine the range of opportunities that exist for the US and China to work together in this space, ranging from those that require the least coordination to those that require more in-depth coordination and even direct cooperation. Finally, we present recommendations for how the US and China should further engage to facilitate an increase in financing in RE development overseas.

ASSESSING US-CHINA COMPLEMENTARITY FOR OVERSEAS RENEWABLE ENERGY DEVELOPMENT FINANCE

Historical Bilateral Energy Finance

The composition of overseas energy-related projects for which the US and China have provided bilateral financing is heavily skewed towards fossil fuels. More than two-thirds of China's overseas energy sector development finance has gone towards fossil fuel-related projects, with oil (\$87.5

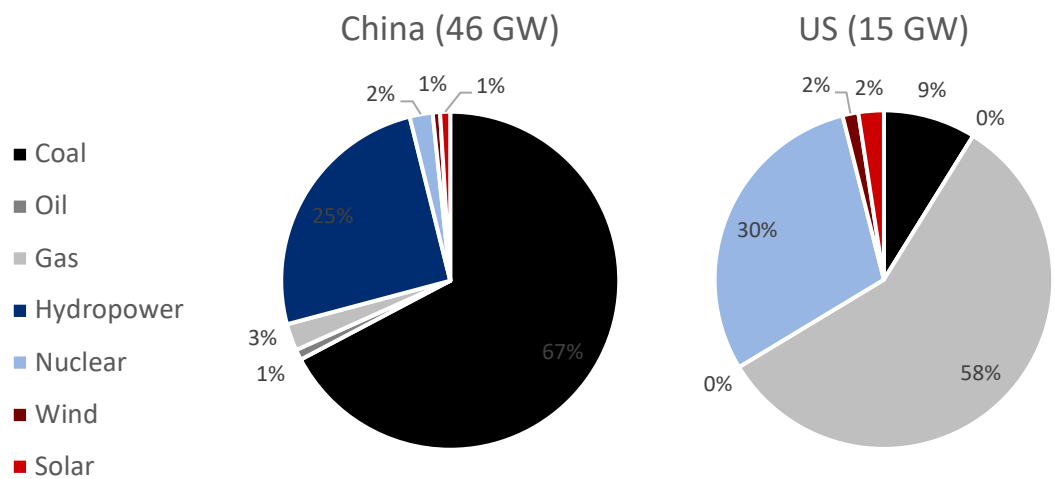


billion) and coal (\$48.2 billion) receiving the largest shares, including both upstream and downstream activities (Boston University Global Development Policy Center 2022).

For the power sector specifically, from 2000-2018, China committed \$45 billion for fossil-fuel based power plants, versus \$4 billion for wind and solar. US DFIs committed overseas finance on a much smaller scale over the same time period: \$4 billion for overseas fossil-fuel based power plants, relative to over \$8 billion for nuclear and \$750 million for wind and solar (Chen et al. 2021).

In terms of the currently operating power generating capacity associated with this finance, both countries supported a similar share of fossil fuel capacity – about two-thirds for each country. However, China has primarily financed coal plants, while the US has primarily financed natural gas plants, followed by nuclear power, as illustrated in Figure 1. Both countries have a low share and amount of wind and solar capacity in their current overseas development finance portfolio (China: 2 percent and 800MW, US: 4 percent and 600 MW).

Figure 1: China and US Overseas Power Sector Development Finance by Technology Type (2000-2018)



Source: Data from Chen et al. 2021, operating plants only.

Given the financing trends presented above, both the US and China have a significant opportunity to shift overseas engagement towards cleaner sources of energy. In fact, both countries now have policy mandates to do so. In September 2021, Chinese leader Xi Jinping announced at the 76th United Nations General Assembly that China would step up support for low-carbon energy development and not build new coal plants overseas (Xi 2021), while in December 2022, US President Joe Biden issued a federal directive halting government support for carbon-intensive projects overseas (Volcovici 2021).

Due to recent policy announcements by the leaders of both China and the United States to stop financing coal plants overseas, it is likely that the DFIs will begin to shift towards cleaner energy financing overseas in the coming years. Both countries have begun to initiate efforts to promote cleaner energy financing abroad. For example, in the United States, the Biden Administration’s PGII has sent a delegation of US officials around the world to investigate how the US could help finance RE projects (Powell 2021). In China, in the same speech where Xi announced that China would not build new coal plants abroad, he also said that “China will step up support for other developing countries in developing green and low-carbon energy”. Indeed, there has been a sharp drop-off in China’s financing of coal plants abroad since 2021 (Ferris 2022). However, there has yet to be concrete implementation of Xi’s stated goals through additional direct financing of RE.



Financing Institutions and Instruments

In the US, providers of overseas development finance include the US International Development Finance Corporation (DFC), the Export-Import Bank of the United States (US EXIM), the US Agency for International Development (USAID), the Millennium Challenge Corporation (MCC) and the US Trade and Development Agency (USTDA). USAID and MCC provide grant-based foreign aid, while USTDA also provides grants for feasibility studies, technical assistance, project preparation and other activities to support US businesses in going overseas. In China, providers of overseas development finance include the China Development Bank (CDB), the Export-Import Bank of China (CHEXIM), the China Export and Credit Insurance Corporation (Sinasure) and the China International Development Cooperation Agency (CIDCA). Sinasure provides insurance products, while CIDCA is engaged in foreign aid.

We summarize the types of instruments and products that US and Chinese DFIs provide for overseas development in Table 1. We classify these instruments based on the five categories proposed

Table 1: Comparison of Instruments and Products Offered by Key US and Chinese DFIs

Instrument	Specific Product	DFC	EXIM	USAID	USTDA	MCC	CDB	CHEXIM	Sinasure	CIDCA
Loans	Concessional loans							X		
	Regular loans	X	X				X	X		
	Bond issuance, trading, and underwriting							X		
	Export buyer's credit						X	X		
	Preferential export buyer's credit							X		
	Export seller's credit							X		
	Resource-financed loans						X	X		
Guarantees	Lease financing and guarantees		X							
	Trade guarantees							X		
	Loan guarantees	X	X	X					X	
Grants	Technical assistance	X		X	X	X				X
	Feasibility studies	X		X	X					
	Training	X		X	X					
	On-lending							X		
Equity	Equity investment	X					X	X		
	Project finance	X								
	Capitalization of investment funds	X					X			
	Investment consulting services						X			
Insurance, securitization and other diversified products	Asset-backed securitization						X	X		
	Foreign currency settlement							X		
	Political risk insurance	X							X	
	Export credit insurance		X						X	

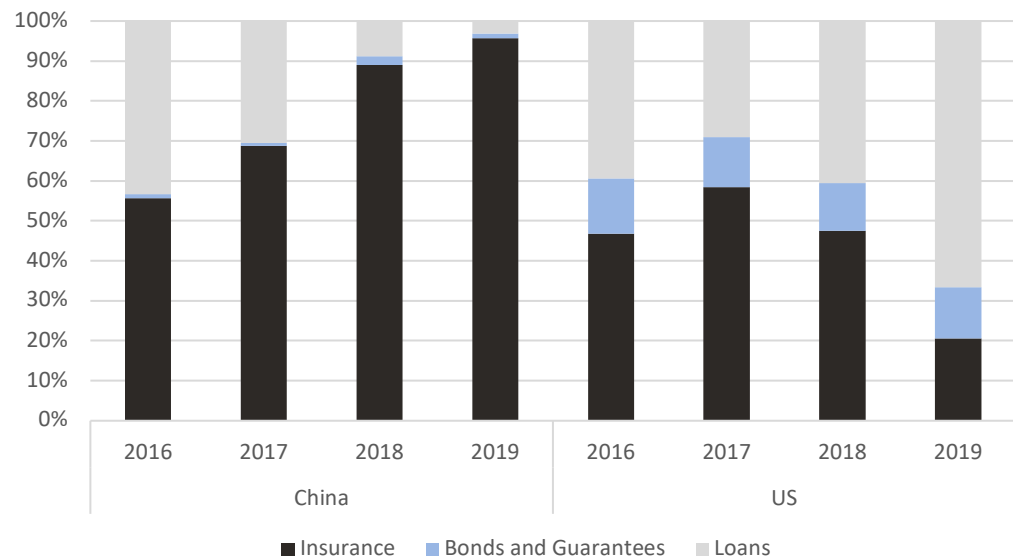
Sources: Export-Import Bank of China 2022; US Development Finance Corporation 2022b; China Development Bank 2022; Export-Import Bank of China 2022.



by Griffith-Jones et al. 2020: (1) loans; (2) guarantees; (3) grants; (4) equity and (5) insurance and other products. Broadly defined, loans represent money provided by the DFI to the borrower for eventual repayment. Guarantees are meant to reduce risks associated with investment and/or lending, wherein the DFI agrees to pay part or all of the amount due on a loan or other financial instrument in the event of non-payment (Bandura and Ramanujam 2019). Grants are financial support without expectation of repayment. Equity refers to forms of investment in which the DFI takes on potential risks and profits more directly. The final category of insurance and other products includes other instruments that are meant to mitigate risks, such as political and currency risks.

To assess patterns in how different instruments are used by US and Chinese DFIs, we assessed publicly available data on insurance, bonds and guarantees, and loans from DFIs in the two countries (Ray, Gallagher, et al. 2021; Sinosure 2020; US Development Finance Corporation 2022a). China's overseas development finance lending commitments have decreased since 2016, both in absolute value and in terms of their share relative to the value of insurance, bonds and guarantees. This decrease in lending, driven by fiscal constraints in host countries and a prioritization of policy bank finance for China's own domestic finance, means that the share of insurance relative to loan commitments from Chinese DFIs has grown significantly over the time period of 2016-2019 (Figure 2). Over that same time period, US DFIs' lending commitments increased their share relative to insurance, bonds and guarantees, but total US DFI lending amounts during that time were far less than China's DFIs.

Figure 2: US and Chinese DFI Instruments (Shares, 2016-2019)



Notes: Data on China's insurance provision and includes medium and long-term export credit insurance, overseas investment insurance, and domestic trade credit insurance. Short term insurance was excluded to maintain comparability with US data.

Sources: (Ray, Gallagher, et al. 2021; Sinosure 2020; US Development Finance Corporation 2022a).

US DFIs have a longer history of engagement overseas than Chinese DFIs, and based on the data presented in Table 1 and Figure 2, we see that they tend to specialize in grant-based development assistance, including technical assistance, feasibility studies and training or capacity building work. US DFIs have developed safeguards for overseas engagement, including monitoring and evaluation activities. For energy sector activity, while the US and China both have commitments to reducing coal power overseas and scaling up RE, US DFIs have developed particular policies and assistance



programs to do so (Ray, Bhandary, et al. 2021). In addition, only since 2021 have China's guidelines for overseas activity specified a higher standard for social and environmental practices than deferring to host country regulations.

Table 1 also illustrates how Chinese DFIs provide a wider range of lending instruments. In addition, Chinese DFIs may have a relative advantage in speed, scale and technology provision. China's overseas finance has often been characterized as rapid to deploy, though this does not derive from a lack of policy conditionality (Brautigam and Hwang 2019). Rather, the unique advantages of China's DFIs are related to the ability of the institutions to work in coordination with Chinese ministries and companies to mobilize package support for large-scale overseas infrastructure, relative to other global DFIs (Chin and Gallagher 2019). There is also empirical evidence demonstrating that in certain sectors, projects owned or built by Chinese companies tend to be more technologically advanced than projects without Chinese involvement – for example, overseas coal plants with Chinese involvement have a higher share of supercritical technology across plants and lower carbon dioxide emissions intensity (Springer, Evans and Teng 2021).

Given these relative specializations, we find that there is complementarity between US and Chinese financing mechanisms and instruments. This points to the potential opportunity for further US-China coordination and cooperation in development finance for RE overseas.

CHANNELS FOR US-CHINA ENGAGEMENT ON RENEWABLE ENERGY

Development Finance

Given the complementarities discussed, both in terms of the intent of China and the US to shift their overseas development finance towards cleaner sources of energy, and in terms of the financing instruments that exist within the main DFIs in both countries, we identify several opportunities for expanded coordination or cooperation aimed at increasing the amount of overseas development finance to support RE. In this section, we explore opportunities to expand US-China DFI engagement through three different channels: (1) multilateral platforms including multilateral development banks (MDBs), intergovernmental forums and multilateral environmental agreements; (2) bilateral engagement including investment principles and standards, coordinated trade policy, capacity building and bilateral financing instruments and (3) triangular engagement, including financing commitments, coordinated project finance and co-financing of funds between the US, China and a third party. All of these types of engagement have different political implications, as well as practical implications, which are explored in the following section.

Multilateral Engagement

Multilateral platforms including MDBs, intergovernmental forums and international treaties, provide a potential avenue for the US and China to engage in promoting RE finance abroad, as detailed below. Benefits of multilateral engagement include the ability to leverage existing platforms and mechanisms, and the ability to coordinate in a public and more neutral space, relative to bilateral engagement.

MULTILATERAL DEVELOPMENT BANKS Multilateral development banks (MDBs) in which the US and China are both shareholders, including the World Bank, the Asian Development Bank (ADB), the European Bank for Reconstruction and Development (EBRD), the African Development Bank (AfDB) and the Inter-American Development Bank (IDB), provide an existing channel for coordination on RE finance. All of these MDBs have policies or programs in place to support increasing RE investment, particularly in developing countries (Ray, Bhandary, et al. 2021).



Prior scholarship has argued that MDBs are an important venue for increasing coordinated support for global public goods and sustainable infrastructure (Bhattacharya et al. 2019) (N. Lee 2017), of which RE projects that contribute to climate mitigation are a key part. In 2015, MDBs and the International Development Finance Club (IDFC) agreed on a set of Common Principles for finance to mitigate climate change and to support adaptation to climate change (AfDB et al. 2021). Studies, along with the MDBs themselves, have pointed to the need for better coordination across institutions to better harmonize their approaches and methodologies in promoting climate finance (Citi Global Perspectives and Solutions 2021).

There are also significant challenges to coordination with MDBs, and to the US and China increasing coordination for RE projects both within and across MDBs. For example, the US and China have different stances within MDBs about what types of projects should receive support, with China favoring infrastructure and the US favoring social sectors (Yu 2017). Furthermore, the US and China have somewhat differing strategies towards engagement in the MDBs, with the US favoring more direct intervention on guiding policies and projects, and China favoring capital participation without exercising shareholder interventions.

Despite these challenges, MDBs represent an existing channel with precedent for cooperative activity on overseas financing. For example, to the extent that the Asian Infrastructure Investment Bank (AIIB) represents China and the World Bank represents the US, there are numerous examples of collaborations between these two institutions (Gallagher 2021).

INTERGOVERNMENTAL FORUMS Another existing channel for potential coordination is intergovernmental forums, such as the Group of Twenty (G20). China and the US are both members of the G20. The G20 issued a sustainable finance roadmap in 2021, which focused on aligning and harmonizing green finance standards. Also in 2021, the G20 issued a joint communique on ending financing for coal-fired power plants overseas. G20 working groups and engagement groups include relevant topics and actors for the US, China and other G20 countries to engage on overseas RE financing. In addition, the G20 finance track convenes finance ministers, central bank leaders and other relevant actors on economic, financial and monetary issues. The finance track, which includes a sustainable finance agenda, could also be an important venue for engagement.

China and the United States are both participants in the Clean Energy Ministerial process, as well as the World Economic Forum and the Belt and Road Forum for International Cooperation, all of which have clean energy finance tracks. China and the US both also participate in the Major Economics Forum on Energy and Climate.

MULTILATERAL ENVIRONMENTAL AGREEMENTS There are also opportunities for coordination via multilateral environmental agreements (MEAs) and treaties that target RE finance overseas, including the United Nations Framework Convention on Climate Change (UNFCCC) and Paris Agreement.

Climate finance has long been a central and contentious issue in the international climate negotiations. China historically has been a recipient of international financial assistance through global environmental treaties, such as the Montreal Protocol, and research has shown that its access to the Protocol's Multilateral Fund played a key role in China meeting its targets to phase out the use of ozone depleting substances (Zhao 2002). As a result, China has taken on increasingly more ambitious targets under the Protocol, and worked bilaterally with the US to call for an international hydrofluorocarbon (HFC) phase-down in advance of the Kigali Amendment (Lin and Schmidt 2013; White House Press Secretary 2013). China was also the leading beneficiary of climate finance through the Kyoto Protocol's Clean Development Mechanism (Reuters 2009). Yet, as China has emerged as a



more active player in MEAs, it has yet to play a significant role in contributing to climate financing instruments, even as it becomes less and less of a beneficiary of these instruments. For example, China has primarily excluded itself from the Green Climate Fund (GCF), instead preferring to establish its own financing mechanisms targeting South-South climate cooperation, such as the South-South Climate Cooperation Fund, established in 2015 with a capitalization of \$3.1 billion.

Should China move to become more engaged in the climate financing instruments within key MEAs, there are several opportunities. In addition to the GCF, in the leadup to 2021 United Nations Climate Change Conference (COP26) in 2021, the Taskforce on Access to Climate Finance was announced in response to calls for coherent and effective support for developing countries' efforts to decarbonize their economies, adapt to climate change and establish green growth pathways (UK Government 2021b). The Taskforce is initially chaired by the United Kingdom and Fiji and includes steering committee members Bhutan, Belize, Malawi, Rwanda, Senegal, Germany, Sweden, the US the GCF and the World Bank, lacking direct involvement from China (UK Government 2021a).

While China has preferred to establish its own multilateral platforms for engagement, rather than joining international ones, these may also provide important channels for US engagement in the future. China recently released a concept note on a Global Clean Energy Partnership, which announced the intent to co-host a forum with IRENA and invite partners from other countries (S&P *Global Commodity Insights* 2022).

Bilateral Engagement

There are a range of opportunities for the US and China to engage bilaterally with a focus on mobilizing RE finance overseas. The US and China have a long and rich history of bilateral engagement, which has produced some of the most successful bilateral climate and energy initiatives over the last few decades (Lewis 2023). Yet, given the current political tensions that plague the US-China bilateral relationship, it is necessary to examine a range of engagement options in the RE finance space that entail both higher and lower levels of political coordination, such parallel standards (lower coordination) to joint financing (higher coordination).

INVESTMENT PRINCIPLES AND STANDARDS There are opportunities for the US and China to coordinate in order to clarify the guidelines that govern each country's individual bilateral development aid and overseas investments. Such clarified policy statements are not only useful to guide investments and potentially harmonize standards, but could serve as a way for the two nations to once again demonstrate joint climate leadership (Hart, Ogden and Gallagher 2016).

There are several specific policy areas that provide opportunities for potential harmonization and alignment. First, 99 percent of internationally available development finance is covered by commitments, policies or programs or direct assistance for ending coal and supporting RE (Ray, Bhandary, et al. 2021). Given these shared goals, established without direct coordination, US and Chinese DFIs could work to move from commitments towards implementing specific programs and providing assistance, with alignment on language about supported/unsupported technology types (e.g., no new coal, or unabated coal) and what instruments this may apply to.

In addition to DFI-level policies, the US and China can also align on standards for investment (public or private). The key overseas investment initiatives from each country—the PGII in the US and the BRI in China—could articulate parallel clean energy investment principles. There has already been some progress made in this area, as summarized in Table 2. Current investment principles do not specify support for specific RE technologies, or set targets for investment amounts, making this a possible area for future engagement.



Table 2: Investment Principles Applied to US and China Overseas Investment Initiatives

Name	Country	Year	Description	Instruments
Green Investment Principles (GIP) for the Belt and Road Initiative	China	2019	The GIP sets forth 7 principles at 3 levels: strategy, operations and innovations. Principles relevant for clean energy development include embedding sustainability in corporate governance, understanding environmental, social, and governance risks, disclosing environmental information, utilizing green financial instruments, and adopting green supply chain management.	CDB and CHEXIM are signatories of the GIP, and the principles would apply to all financial instruments used to support overseas projects.
Partnership for Global Infrastructure and Investment (PGII)	G7 (includes the US)	2022	The G7 leaders intend to support sustainable infrastructure in low- and middle-income countries under PGII by issuing financial and technical assistance in several sectors, including climate and energy security.	The G7 partners aim to mobilize USD \$600 billion from 2022 to 2027, while President Biden committed USD \$200 billion towards green infrastructure via grants, lending and private sector investments.
Quality Infrastructure Investment (QII)	G20 (includes the US and China)	2019	The G20 established six principles to advance green, resilient and inclusive development: to maximize positive impact of infrastructure to achieve sustainable growth and development, to raise economic efficiency in view of life-cycle cost, to integrate environmental considerations in infrastructure, to build resilience against natural disasters, to integrate social considerations in infrastructure investment and to strengthen infrastructure governance.	QII principles are voluntary, nonbinding principles, and their application to specific US and Chinese DFI activity is unknown.
Blue Dot Network (BDN)	US, Japan and Australia	2019	The Blue Dot Network is a multi-stakeholder initiative and certification framework created to promote quality infrastructure focused on sustainable growth and economic resilience.	The BDN aims to establish a certification framework, which is presumably meant to incentivize a wide range of investment and financing instruments.

Source: Ma 2021, Wang 2021, The World Bank 2022, OECD 2022, The White House 2022.

Institutions from the BRI and PGII could also better coordinate with one another on which deals they will support. Based on the capital, risk appetite, capability and willingness of the institutions, one set of institutions from the BRI may support a series of projects in one regional or sectoral area while another set of actors from the PGII may support a series of projects elsewhere. This will take an incredible amount of coordination potentially agreed upon through a bilateral forum where transparency occurs amongst the different actors from each initiative. Coordination is more ideal than coexistence due to its ability to increase the breadth and spread of development finance from all institutions. However, it may not be the most realistic path due to the high amount of coordination needed amongst institutions and the geopolitical undertones that exist between governments.

COORDINATED TRADE POLICY Trade and investment policy can have a direct impact on financial flows overseas. As a result, there are opportunities for the US and China to coordinate their trade policies with respect to RE technologies in a way that could facilitate, or at least not impede, flows of development finance to developing countries. Examples of this could include an agreement to remove existing tariffs and to not place new tariffs on specific RE technology. Both the US and China are part of the negotiations on an Environmental Goods and Services agreement the being negotiated under the World Trade Organization (WTO) since 2014 (USTR 2022). This could be a renewed topic of US-China bilateral cooperation with a focus specifically on RE technologies.

The US and China could also pursue bilateral agreements on technologies to receive priority for technology transfers. This can be done through an agreement on the scope and use of intellectual



property rights at the international level through the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) or at the regional level through the United States-Mexico-Canada Agreement (formerly NAFTA), the European Union (EU), the Association of Southeast Asian Nations (ASEAN) and others, primarily governing national level implementation (UNCTAD 2001). Alternatively, instruments have been used to facilitate technology transfer to developing countries through provisions for financing built in to international treaties, such as the Multilateral Fund in the Montreal Protocol (UNCTAD 2001), or the technology mechanism in the UNFCCC (UNFCCC 2022). There could be an opportunity for the US and China to agree on specific technologies that they would prioritize for transfer to the Global South, for example through the implementation of domestic incentives in parallel, or by jointly participating in multilateral mechanisms such as those mentioned above.

CAPACITY BUILDING One of the biggest obstacles to the flow of RE financing is a poor enabling environment in potential recipient developing countries. RE projects often deliver long-term, slower returns and as such face barriers in developing countries with underdeveloped capital markets (Muñoz Cabré et al. 2020). As a result, capacity building to promote a stronger enabling environment can help reduce risk associated with RE project financing and make countries more attractive to investors. Both China and the US have been involved in capacity building activities in the Global South, including the US government's work via USAID and other agencies, and China's work on South-South cooperation including through numerous multilateral organizations such as the UN International Fund for Agricultural Development (IFAD) and Food and Agriculture Organization (FAO) (FAO 2022; United Nations 2022; IFAD 2022). There are numerous opportunities for the US and China to coordinate on capacity building activities to better facilitate RE financing flows, for example, by developing a joint plan for supporting key countries in their RE transition.

BILATERAL FINANCING INSTRUMENTS Given the sizable flows of overseas development assistance and FDI coming from the US and China and primarily targeting fossil fuel development, there is a clear opportunity to consider how to better leverage this investment towards cleaner sources of energy. There are several ways that bilateral financing could be coordinated to achieve this goal.

One option would be to establish a joint US-China RE investment instrument, focused on “de-risking” RE investments. Investment risk exists in part due to policy gaps that can be addressed through further capacity building (previously discussed), however, specific financial instruments can play an important supplemental role. This is particularly important in countries where such instruments can lower the cost of capital, or where sovereign and foreign exchange risks are high, or in markets with minimal local financing available (Citi Global Perspectives and Solutions 2021). Governments can play a unique role in assembling a portfolio of assistance for developing countries in a way that banks alone may not be able to. This includes offering financing that is accompanied by tailored expertise, capacity building and de-risking instruments, all as part of a joint assistance package. This can be a large project for a single government to take on, and not all governments might have access to all of these components. This, therefore, is an example of a place where US-China cooperation could have potential. As discussed, China has provided development financing at a far larger scale than the US in recent years, though the US has decades of expertise in supporting capacity building. These are all key components that could be coordinated bilaterally with a goal of de-risking RE investments in specific developing countries, which would be tailored towards the specific local needs and context of the target country.

Another, albeit highly ambitious option, would be for the US and China to jointly establish a US-China Clean Energy Investment Bank. Such a bank would pool financial as well as capacity building resources from the governments of both countries in order to scale the sort of de-risking activities discussed. Given the competitive tensions that currently exist in the RE space in the US and China, a



bilateral bank is likely not on the current political horizon, though it has been discussed conceptually during times when political tensions were lower.

Another option would be for the US and China to work together to establish a global Climate Action Development Bank, which might supplement or replace the current Green Climate Fund (Citi Global Perspectives and Solutions 2021). The goal of establishing a new multilateral bank would be to pool resources globally and bring global scale to RE investment through a facility uniquely designed to challenges associated with RE investments in developing countries. A multilateral bank may be less subject to political headwinds compared with a bilateral bank if a diverse range of actors were involved alongside the US and China in the bank's formation.

Triangular Engagement

The most basic definition of triangular engagement is a cooperation arrangement that involves three development finance partners (United Nations Office for South-South Cooperation 2022). However, the term "triangular cooperation" is now typically used to refer to Southern-driven partnerships between two or more developing countries supported by one or more developed country or multilateral organization to implement development cooperation programs and projects. While both the US and China have experience with triangular cooperation, we could not find any examples of coordinated triangular finance with both the US and China as partners for RE development overseas. There are a range of opportunities for the US and China to engage with a third partner to mobilize RE finance in a third country or in yet a fourth country. By bringing in a third partner, triangular cooperation can enhance financial and technical support resources and increase the local institutional capacity to address development challenges (Sakurai 2015). Several proposed mechanisms follow through which US-China triangular cooperation could occur.

FINANCING COMMITMENTS Similar to parallel investment standards in the previous subsection, the US and China could bilaterally or multilaterally set financing commitments for RE development overseas, such as financing a certain dollar amount or certain amount of installed RE generating capacity. For example, the PGII has committed to providing \$600 billion from multiple G7 financial and government institutions for infrastructure in low- to middle-income countries (Moses and Zhu 2022). As climate is one of the policy priorities within the PGII, RE-specific commitment levels or targets from within this \$600 billion could be further specified.

COORDINATED PROJECT FINANCE Another option would be for the US and China to coordinate financing for a specific project. We identified the Kipeto Wind Farm in Kenya as an example of an RE project receiving finance from multiple partners including from both the US and China. In this project, Kenyan company Craftskills Wind Energy International provided equity along with other investors, and co-developed the project with African Infrastructure Investment Managers (Actis 2018). Power Africa, an initiative of USAID, provided technical, legal and transaction advisory, including the development of a biodiversity plan to mitigate risks to local wildlife. US DFC provided a \$230 million debt facility and reinsurance (Power Africa 2021). The China Machinery Engineering Corporation provided Engineering, Procurement and Construction services (Actis 2018). The 100 MW plant, the second largest wind farm in Kenya, began operations in 2021 (DFC 2022).

CO-FINANCING FUNDS One specific mechanism through which US and China have coordinated indirectly is the establishment of funds via DFIs in which both are members. For example, the International Finance Corporation's China-Mexico Fund was started in 2014 with \$1.2 billion in capital. Specific to RE, the IDB-administered China Co-Financing Fund for Latin America and the Caribbean contributed 13 percent of a \$75 billion IDB package for the Solem solar photovoltaic plant in Mexico. China is increasing its engagement via overseas development-oriented funds, and some



of these funds are specific to green development or the energy sector. In addition, some of these funds have foreign shareholders that have provided capital. Inviting the US and other countries to capitalize China's overseas RE-oriented funds is a potential future option.

POLICY RECOMMENDATIONS FOR US-CHINA ENGAGEMENT ON OVERSEAS RENEWABLE ENERGY DEVELOPMENT FINANCE

Assessing Opportunities for Engagement

In reviewing the potential opportunities for US-China engagement to better promote RE development in developing countries through development finance and related programs, we consider a variety of relevant factors. These include the political viability of any specific form of engagement, along with the overall impact that US-China engagement could have on renewable overseas energy deployment. While there are certainly other factors to consider, we take these two as perhaps the most immediately relevant in prioritizing any potential new engagement mechanism, and elaborate on how we might characterize these factors below.

POLITICAL VIABILITY The current political climates in Beijing and Washington make it exceedingly difficult to promote constructive engagement between China and the United States, even on issues such as climate change and RE, which both countries have promoted in their own domestic political agendas and highlighted as priorities for international cooperation. Furthermore, the global COVID-19 pandemic has made international collaboration more difficult due to ongoing travel restrictions, especially in China.

Challenges to US-China engagement are related to both current events and structural differences in overseas development strategy. For example, a key obstacle to cooperation on financing RE overseas is the procurement of equipment for RE projects. The DFIs of both countries tend to prefer bilateral engagement in host countries in order to ensure that domestic technology is used, and this preference also guides engagement strategy on the part of each country within the MDBs. Part of China's industrial policy involves state-backed export credit, which the US perceives as a roadblock to a level playing field and fair global trade (Hopewell 2020). Solar PV technology has been an ongoing subject of trade disputes between the US and China, and US engagement in multilateral, bilateral and triangular financing for RE is heavily constrained by the strategic objective to not create additional opportunities for Chinese RE equipment suppliers abroad.

Given current political obstacles to engagement, we take the initiatives mentioned and rank them on an approximate continuum illustrating the initiatives that would require the least amount of coordination to those that would require the most coordination. Minimal coordination initiatives are ones that might require each country to primarily act individually with coordination occurring through one or more bilateral meetings, and therefore a lower level of political alignment. Maximum coordination initiatives would require extensive cooperation occurring through numerous meetings, exchanges and a higher level of political alignment.

Initiatives requiring both countries to coordinate parallel investment principles or standards would require the last bilateral coordination, given that the implementation is done at the national level. Coordinated trade policy, including on tariffs or technology transfer, would likely require somewhat more coordination given the complexity of such policies, however it can still be done primarily through domestic channels. Joint capacity building efforts would likely require an even higher level of coordination, though they can build on current existing initiatives in both countries which are extensive, or leverage existing partnerships with multilateral organizations, such as the United Nations.



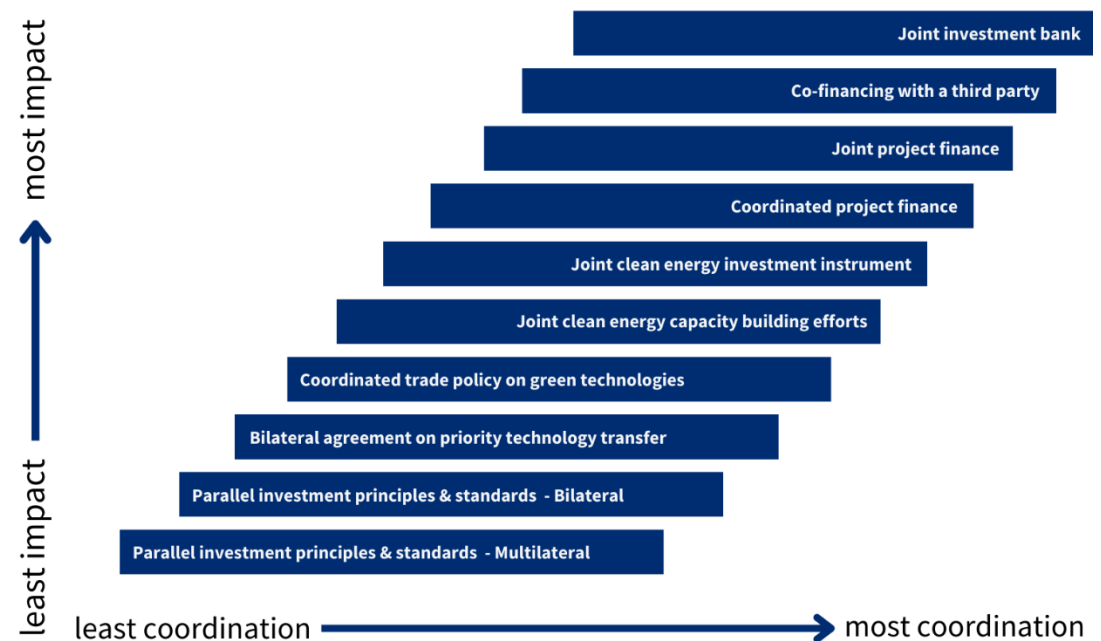
At the other end of the continuum are initiatives that require a more substantial level of coordination. This includes jointly financed projects, joint financing instruments or a joint fund or bank. All of these initiatives would require not only substantial coordination and engagement but also a high level of political buy-in. As a result, such initiatives may only be feasible if current tensions subside, or climate change mitigation becomes such a priority that both governments are able to rise above the tensions in the broader bilateral relationship to prioritize joint financing actions.

IMPACT ON RENEWABLE ENERGY DEVELOPMENT Looking at the list of potential impact of the possible areas for US-China engagement discussed, this time reviewing their potential to leveraging additional investment for overseas RE development in developing countries, a somewhat different ranking emerges. While there are many unknowns that make it difficult to fully assess impact, this ranking is based on the extent to which the initiative discussed addresses an issue that is understood to be a key barrier to RE.

The largest barrier identified in the literature to RE deployment in the Global South is the availability of finance. As a result, the initiative that would potentially have the largest impact on RE deployment is the establishment of a joint clean energy investment bank funded by both countries, followed by project specific financing and a joint investment instrument focused primarily on de-risking any other investments. Although, as discussed, this is perhaps the least politically viable option due to the extensive coordination that would be involved.

The next set of initiatives focused on trade policy would likely have the next greatest impact, followed by technology transfer, which tends to be lower impact in terms of being identified as less of a significant barrier in the literature (B. Lee, Iiev and Preston 2009; Li et al. 2020). These are also politically challenging topics, given the tensions related to trade and intellectual property rights that have

Figure 3: Opportunities for US-China Engagement on Overseas Renewable Energy Development Finance - Assessing Coordination and Impact



Source: Authors' illustration.



been ongoing between the two countries for many years (Huang 2021). Capacity building efforts are crucial but would likely have the most impact if implemented in concert with financing instruments.

The set of initiatives focused on investment standards and principles rank among the most viable in terms of requiring relatively minimal bilateral coordination. As this is also something both countries are developing independently, there is likely to be less conflict. However, such initiatives would likely have less impact if implemented in the absence of a broader set of initiatives focused on finance, such as the other opportunities examined in this paper. We illustrate where the initiatives discussed rank along the continuums of the level of bilateral coordination needed and the potential impact on RE deployment in Figure 3.

CONCLUSIONS AND RECOMMENDATIONS

There is no way to achieve global climate goals without rapidly expanded RE deployment, particularly in the Global South. Given the central roles that China and the United States play in RE deployment and finance globally, this working paper has assessed the potential complementarity in their efforts to promote RE in the Global South, and opportunities for expanding their engagement on RE finance overseas. This is a timely study given that increasing geopolitical tensions between the two countries have spilled over into the realm of climate cooperation (Choi 2022). As we are already several years into the decade that is pivotal for the ability to achieve global climate goals, time is of the essence for ways to leverage American and Chinese financing to accelerate and expand RE investment.

We find that there is substantial complementarity in the institutions and instruments that the US and China has been deploying to promote RE finance overseas. The composition of overseas energy-related projects for which the US and China have provided bilateral financing is heavily skewed towards fossil fuels, and therefore, both countries have a significant opportunity to shift overseas engagement towards cleaner sources of energy. The leaders of both China and the United States have also both recently announced that they would stop financing coal plants overseas.

China's overseas development finance lending commitments have decreased since 2016, both in absolute value and in terms of their share relative to the value of insurance, bonds and guarantees. Over that same time period, US DFIs' lending commitments increased their share relative to insurance, bonds and guarantees, but total US DFI lending amounts during that time were far less than China's DFIs. We also find that US DFIs have a longer history of engagement overseas than Chinese DFIs, and tend to specialize in grant-based development assistance, including technical assistance, feasibility studies and training or capacity building work. US DFIs have developed safeguards for overseas engagement, including monitoring and evaluation activities, whereas China's guidelines for overseas activity have only recently (since 2021) specified a higher standard for social and environmental practices than deferring to host country regulations. For energy sector activity, while the US and China both have commitments to reducing coal power overseas and scaling up renewable energy, US DFIs have developed particular policies and assistance programs to do so, while China's DFIs have not yet.

Our finding that Chinese DFIs provide a wider range of lending instruments compared with the United States is somewhat surprising, given the longer history of US DFIs. In addition, Chinese DFIs appear to have a relative advantage in speed, scale and technology provision, in part due to the ability of Chinese DFIs to work in coordination with Chinese ministries and companies to mobilize package support for large-scale overseas infrastructure in a way that US DFIs do not. There is also empirical evidence demonstrating that in certain sectors, projects owned or built by Chinese companies tend to be more technologically advanced than projects without Chinese involvement—for



example, overseas coal and hydropower plants with Chinese involvement are more efficient than those without Chinese involvement (Springer, Evans and Teng 2021; Springer and Shi 2021).

Given these relative specializations, we find that there is potentially quite a bit of complementarity between US and Chinese financing mechanisms and instruments, indicating a potential opportunity for further US-China coordination and cooperation in this area. We examined opportunities to expand US-China DFI engagement through three different channels and ten sub-areas as follows: (1) multilateral platforms including MDBs, intergovernmental forums and multilateral environmental agreements; (2) bilateral engagement including investment principles and standards, coordinated trade policy, capacity building and bilateral financing instruments and (3) triangular engagement, including financing commitments, coordinated project finance and co-financing of funds between the US, China and a third country. In particular, triangular cooperation can reduce bilateral tensions by facilitating cooperation between a broader range of actors.

Upon evaluating these options, we find that the initiatives that would potentially have the largest impact on RE deployment are the establishment of a joint clean energy investment bank funded by both countries, followed by project specific financing and a joint investment instrument focused primarily on de-risking any other investments, though these are among the least politically viable options due to the extensive coordination that would be involved. The next set of initiatives focused on trade policy would likely have the next greatest impact, followed by technology transfer, yet these are also politically challenging topics. In contrast, the set of initiatives focused on investment standards and principles rank among the most viable in terms of requiring relatively minimal bilateral coordination, however, such initiatives would likely have less impact if implemented in the absence of a broader set of initiatives focused on finance, such as the other opportunities examined in this working paper.

In combining our assessment of initiatives which would have the most impact and yet also be viable in terms of the level of coordination that is feasible under current political conditions, we recommend a focus on the following areas for expanding US-China engagement on RE finance: 1) joint project finance; 2) joint capacity building efforts and 3) parallel bilateral investment principles and standards. If initiatives under these three categories are implemented in tandem, they will most certainly have a bigger impact on RE deployment than if only one of the three is implemented. These three areas pose a significant potential for accelerating the RE by increasing investment opportunities in the Global South. Even in the current political environment, these are areas where leaders and officials in both countries would see a common interest and benefit to expanding cooperation and coordination.



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GLOBAL CHINA INITIATIVE

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