



Subsidy Phase-Out and Reform Catalyst Bonds

A New Tool to Tackle Fossil-Fuel Subsidies

By Thomas Hale and Pete Ogden June 25, 2014

Current levels of public and private investment cover only a fraction of what is needed to decarbonize the economy, expand energy access, and adapt to unavoidable climatic changes.¹ Yet, perversely, countries spend more on fossil-fuel subsidies that drive climate change than they spend trying to combat it.

The scale of these subsidies is vast. Worldwide, countries provide some \$480 billion to \$630 billion every year in fossil-fuel consumption subsidies, and more than \$100 billion every year in production subsidies.² According to the International Energy Agency, or IEA, for every \$1 spent subsidizing renewable energy globally, \$6 is spent subsidizing fossil fuels.³

Numerous benefits would flow from removing fossil-fuel subsidies. First, it would be a financial boon for many countries, freeing up substantial public resources for development. The government of India, for instance, has been grappling with the economic drain from fossil-fuel subsidies, which climbed to some \$40 billion in 2011, a full 2.2 percent of total gross domestic product, or GDP.⁴ Redirecting money from fossil-fuel subsidies to social goods and services could bring breakthrough development gains in India, where 400 million people live on less than \$1.25 per day.

Second, phasing out fossil-fuel subsidies would be a major step forward in the fight against climate change. The IEA estimates that eliminating these subsidies would reduce CO₂ emissions by 1.7 gigatons, equivalent to all of Russia's annual emissions.⁵ And leveling the playing field between fossil fuels and renewable alternatives would unlock substantial clean energy investment.

Third, countries would reap the myriad air quality and energy security benefits associated with curbing fossil-fuel usage. Fourth, it would help developed countries make critical progress toward fulfilling their international commitment from the 2009 Copenhagen Accord to mobilize \$100 billion of climate finance from public and private sources annually by 2020.⁶

With such clear and wide-ranging benefits, it is welcome news that over the past five years, countries have committed to phase out their inefficient fossil-fuel subsidies in a number of international fora—from the G20 to the Asia-Pacific Economic Cooperation, or APEC, to the U.N. Conference on Sustainable Development, or Rio+20. And U.N. Secretary-General Ban Ki-moon’s High-Level Panel on the Post-2015 Development Agenda—co-chaired by Indonesian President Susilo Bambang Yudhoyono, Liberian President Ellen Johnson Sirleaf, and U.K. Prime Minister David Cameron—recommends that fossil-fuel subsidy phase-out be included among the post-2015 sustainable development goals.

Over this same period, the World Bank, the International Monetary Fund, or IMF, the Organisation for Economic Co-operation and Development, or OECD, and the International Energy Association, or IEA, have also all ramped up their technical assistance to help countries reform subsidies by providing information about their scope and costs and by building governments’ capacity to implement reforms. Some IMF loans have required subsidy reductions as part of their conditionality packages. In addition, civil society groups have helped deepen understanding and raise awareness of this issue.⁷

Yet, despite this attention, progress is painfully slow. Technical assistance is useful for countries where governments are ready to reform, but there are few such instances because the chief obstacles to removing fossil-fuel subsidies are not technical or economic but political. Subsidies take public money and redistribute it unevenly to fossil-fuel users and producers. These beneficiaries’ interests become vested, creating a powerful constituency to maintain the status quo.

To roll back fossil-fuel subsidies, we need a policy tool strong enough to transform the cost-benefit calculations of key domestic interest groups in order to create the political conditions for reform.

This issue brief proposes just such a tool: subsidy phase-out and reform catalyst, or SPARC, bonds. This new financial instrument would be issued to private investors by an international financial institution, such as the World Bank, on behalf of a country. The country would then be able to use the funds to overcome political barriers to reforming fossil-fuel subsidies, such as investing in alternative energy projects, compensating subsidy beneficiaries, or developing other social projects. The future savings from phasing out fossil-fuel subsidies would then be paid back to investors.

Drawing on private capital markets, SPARC bonds can offer countries the financial leverage they need to tackle the difficult politics of subsidy reform and unlock a host of fiscal, development, and climate-related benefits.

What are subsidy phase-out and reform catalyst bonds?

This new financial instrument would function like a standard bond, allowing governments to raise money from private capital markets by promising to pay investors a fixed amount in the future. But SPARC bonds would have two unique features. First, they would be issued on the condition that they be repaid with the savings accrued from phasing down fossil-fuel subsidies. Second, they would be issued by or in coordination with the World Bank or similar institution with an AAA credit rating on behalf of a government. This would reduce the risk of nonpayment and provide a channel for donors to subsidize the bonds, making SPARC bonds an inexpensive way for governments to borrow.

Backed by international financial institutions—and potentially subsidized by donor countries—SPARC bonds would allow a government to raise money at better terms than the market could currently provide. And because fossil-fuel subsidies are so large, SPARC bonds would provide a reform-minded government with a vast war chest, raised mostly from private capital markets, to cut through the political obstacles to subsidy reform. Governments could use the proceeds from SPARC bonds to invest in low-carbon alternatives to fossil fuels, conditional cash transfers to citizens, protection for vulnerable populations that may benefit from subsidies, or other social projects that could mobilize powerful new coalitions for reform.

Because SPARC bonds are backed by international financial institutions and offer competitive returns, most SPARC bonds would readily find buyers in global bond markets. Indeed, demand for such an instrument is likely to grow as the divestment campaign gathers steam and large investors scrutinize their portfolios for carbon risk. As decarbonizing financial products, SPARC bonds would likely be especially attractive to pension funds, insurance companies, and family foundations or other endowed entities seeking to make a positive social and environmental impact with their investments.

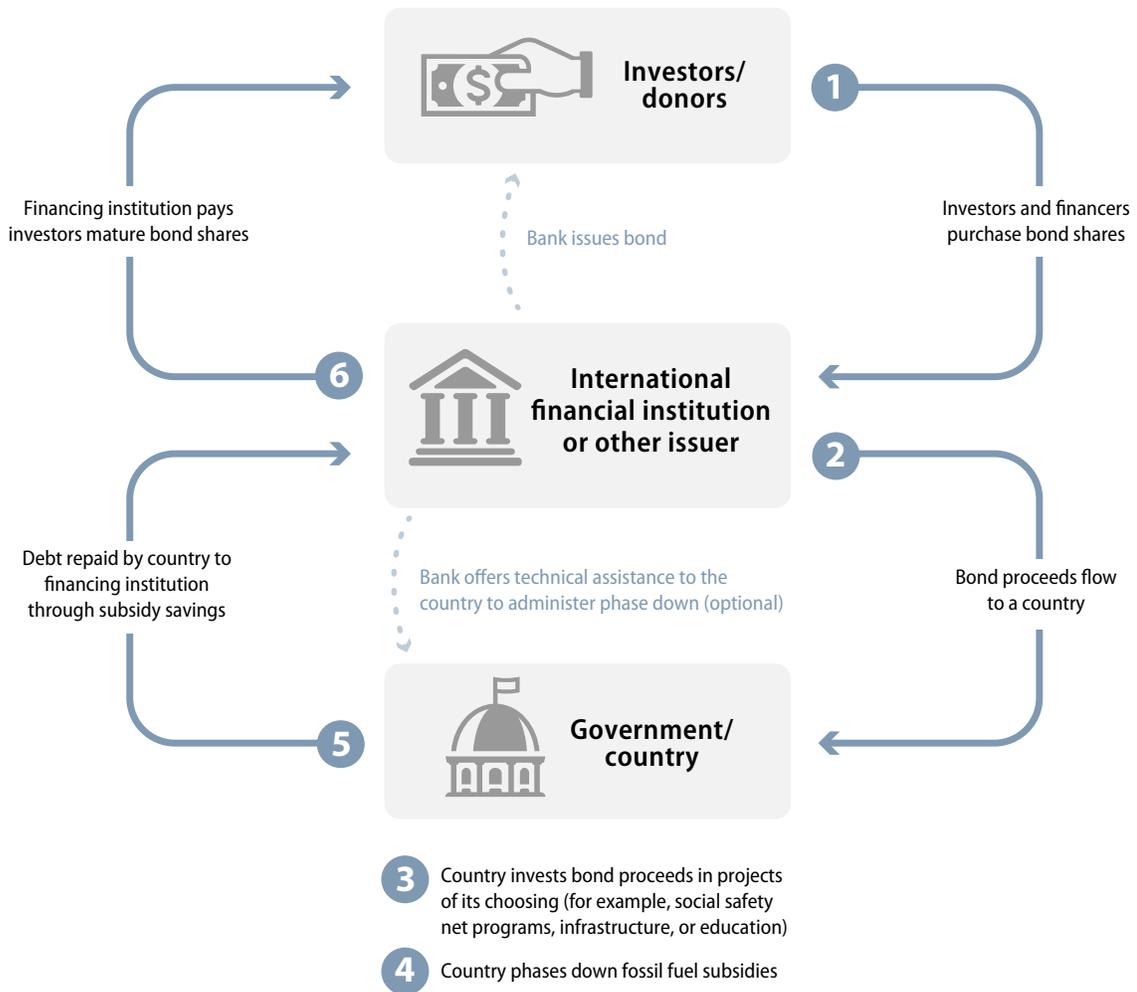
In more difficult cases, some level of public guarantee may be needed to make SPARC bonds attractive to private investors and governments. Public support for SPARC bonds—which on a dollar-for-dollar basis would provide a very attractive way for public money to leverage private capital—could come from a variety of new or existing sources. Existing sources include a redirection of some of the funding currently made available for climate activities through the Global Environment Facility or the Climate Investment Funds under the World Bank.

One promising vehicle for SPARC bonds could be the Green Climate Fund, or GCF. In the 2009 Copenhagen Accord, countries agreed to set up this new fund, and over the past few years, have established a governing structure and other protocols that will allow it to soon receive money and become fully operational. The United States and other countries have been particularly interested in the potential of this fund to better coordinate public and private climate financing, but there is concern that the fund still lacks a clearly defined function in this respect.

By taking the lead on SPARC bonds, the GCF would fill an important void. GCF could serve both as a direct channel for those interested in providing public and private support for such bonds and as the lead coordinator between investors, the World Bank, and others involved in backing and investing in such bonds. With developed countries under increasing pressure to begin pledging funds soon, a clear decision by the GCF to become the lead institution on SPARC bonds would increase its prospects of raising the money from donors that it needs to succeed.

FIGURE 1
Lifecycle of a SPARC bond

How SPARC bonds are used to phase down fuel subsidies



Why subsidy phase-out and reform catalyst bonds can work

SPARC bonds can succeed where other efforts have failed because they focus squarely on the hard realities of how, why, and where fossil-fuel subsidies are deployed.

Fossil-fuel subsidies take many forms, including direct cash transfers, tax breaks, price controls, and other instruments.⁸ Pre-tax subsidies include direct transfers or price controls and are generally more common in developing countries. An example of a direct transfer is a subsidized allotment of oil for consumers, while a price control could be capping the price of gasoline below the market rate for consumers. Post-tax subsidies include more abstract forms of subsidy, such as when fossil fuels are taxed relatively less than other consumer products. These types of subsidy are more common in wealthy countries.⁹

Because fossil-fuel subsidies are complex and data are sparse for many countries, they can be measured in different ways. The table below gives an overview of current estimates of pre-tax subsidies.

TABLE 1
Estimates of pre-tax fossil-fuel subsidies

Organization	Estimated subsidy
IEA (only consumer subsidies, 2012)	\$630 billion
OECD (34 member countries only)	\$55 billion to \$90 billion per year, 2005 to 2011
IMF (172 countries, 2011)	\$480 billion

Source: For an overview, see Shelagh Whitley, "Time to Change the Game: Fossil Fuel Subsidies and Climate" (London: Overseas Development Institute, 2013), available at <http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8668.pdf>.

Fossil-fuel subsidies vary significantly across countries and regions. The Middle East, North Africa, and India spend the highest percentages of government revenues on pre-tax fossil-fuel subsidies. Almost all energy-rich countries subsidize fossil fuels, but not all countries with subsidies are energy rich, such as China and India. On a pre-tax basis, developing countries account for nearly all fossil-fuel subsidies; on a post-tax basis, advanced countries account for 40 percent of subsidies and oil exporters account for one-third.¹⁰

In some cases, the diversion of fiscal resources to fossil fuels is extreme. Egypt, Saudi Arabia, and Syria spend more than 10 percent of GDP on subsidies, while Iran spends 20 percent.¹¹ Some Indian states have spent more than half their budgets on energy subsidies in a given year.¹²

In many cases, the beneficiaries of subsidies are companies that produce and consume fossil fuels, typically large corporations adept at defending their interests. But some subsidies also go to support important social goals, such as providing electricity to rural villages in India or heating oil for poor families in the United States. Reforming fossil-fuel

subsidies is therefore not only a problem of rolling back corporate handouts—though it is often that—but also requires ensuring governments have alternative, more targeted methods for providing social goods and services to those in need.

There are also a limited number of cases where subsidizing fossil fuels for a targeted segment of the population provides a cost-efficient and effective solution for a social need. Many would argue that is true of the energy subsidies that are targeted to the poor in the United States through its Low Income Home Energy Assistance Program, or LIHEAP. But this is not true of the vast majority of global subsidies. On average, fossil-fuel subsidies are highly regressive, conferring substantially more benefits to the rich than the poor because the former consume more fossil fuels than the latter. It is estimated that the richest quintile of the population in developing countries capture six times more in fuel subsidies than the poorest quintile.¹³

Because fossil-fuel subsidies are typically rooted deeply in a country's political economy, reforming them is extremely difficult. An IMF report summarizing its own attempts to assist countries with reform identified as many failures as it did successes.¹⁴ Moreover, the fundamentally domestic character of subsidy politics insulates them from international pressure. As we explain below, SPARC bonds offer a new way to address this problem by linking subsidy phase-out to the financial power of global bond markets.

Linking subsidy reform to bond markets

Countries, development banks, and companies are increasingly using bond markets to raise money for energy-efficiency measures, renewable installations, adaptation and resilience efforts, and other environmental projects.¹⁵ Green bond issues hit \$14 billion in 2013, and have already reached \$9 billion in just the first quarter of 2014.¹⁶ The World Bank has led this push. Since 2008, the World Bank has issued 60 AAA-rated bonds worth \$5.3 billion, raising money from a variety of investors.¹⁷ These bonds have supported green projects ranging from energy-efficiency investments in China to mass transit systems in Colombia.¹⁸

Under these arrangements, the World Bank raises money from a range of private investors, including some of the world's largest institutional investors, to implement green projects in developing countries. Host governments take the revenues from these projects—savings from increasing energy efficiency or from cuts in other parts of their budget—to pay back the World Bank, which in turn pays back investors. Other international financial institutions are also getting into the game, with the European Investment Bank issuing \$3.4 billion in green bonds in just the first quarter of this year.¹⁹

Corporate giants are utilizing green bonds as well. In the past year, companies such as Electricite de France, Toyota, Bank of America, and Unilever issued a total of \$4.4 billion green bonds.²⁰

Jim Yong Kim, the president of the World Bank Group who has made combatting climate change a central focus of the Bank's anti-poverty agenda, has also championed the growth of green bonds. At this year's World Economic Forum in Davos, Switzerland, after urging countries to "act now" to phase-out fossil-fuel subsidies, he challenged his audience:

Let's use [the] appetite for green bonds to expand the universe of investors who are investing in green assets. Let's create demand for those assets even faster. Can CEOs in energy, infrastructure, and agribusiness come to [U.N. Secretary-General Ban Ki-moon's Climate Summit] in New York in September with their green bond issue in hand or underway? And institutional investors should commit to purchasing specific significant amounts of green bonds for their portfolios. So, as a first step, we should aim to double the green bond market and reach \$20 billion by the September summit, and at least \$50 billion by the [end of 2015].²¹

Yet, as rapid and promising as the growth of green bonds has been, they currently account for just a fraction of the finance needed to address climate change, and they do little to enable fossil-fuel subsidy reform.

This is the advantage of SPARC bonds. Unlike existing green bonds, SPARC bonds would be linked directly to reductions in fossil-fuel subsidies, not specific projects, and could include some public backing to make the terms of the bond more attractive for governments. The World Bank or other appropriate entity would issue bonds on the government's behalf, with repayment linked to future savings from subsidy reductions. This is analogous to the financing model that is widely used by energy service companies, in which the company makes an upfront capital investment in the upgrade of a customer's home or commercial building and then is paid back over a fixed period of time with part of the savings from the customer's energy bill. The financing, meanwhile, could come from a blend of public and private support channeled through the Green Climate Fund or another source.

Because the bonds would mature over a number of years, their value at the time of issue could be substantial relative to annual spending on subsidies. To give a very simple example, say a country spends \$100 per year on fossil-fuel subsidies. The World Bank might issue bonds backed by a commitment to give half of that annual subsidy to investors for five years at some point in the future. This would make the bonds worth \$250 in the present, discounted by time and risk. That kind of cash would put a powerful arrow in reformers' quiver.

To make the binding effect of the bond stronger, the terms of the bonds could include a clause that imposed additional penalties on countries for failing to reform subsidies. Without such a clause, countries would be able to divert funding from other portions of the national budget to cover bond obligations while still subsidizing fossil fuels, if they chose to. This would be an expensive choice as subsidies would be, effectively, significantly more costly than before, but still feasible. A penalties clause could impose additional costs on countries that engaged in such substitution, helping to lock-in reforms.²⁴

Involving the Green Climate Fund, World Bank, and other appropriate development and financial institutions brings several advantages. First, it gives governments access to these institutions' technical expertise in bond offerings, allowing them to develop financial instruments they may not have domestic capacity to operate. Oversight from these institutions also ensures that projects would conform to guidelines on transparency, as well as social and environmental safeguards.

A hypothetical SPARC bond—the Republic of Subsidonia

Subsidonia, a hypothetical lower-middle-income country with 100 million citizens, spends about \$20 billion each year subsidizing fossil fuels—10 percent of its GDP. Most of this money goes to kerosene and diesel fuel that people depend on to light lamps and drive cars and motorbikes.

To reduce the demand for these fuels without depriving people in need with fuel for light and transportation, the government could:

- Invest in the power grid to connect homes to reliable electricity
- Expand public transportation
- Offer some compensating cash transfers—preferably distributed in a progressive manner—to help those in need pay for any increase in fuel or other commodity prices

For the purposes of illustration, suppose those costs were as follows:

1. Investment in power grid: \$10 billion; this is the same amount per capita that China is spending to upgrade its grid with ultra-high voltage lines²²

2. An upgraded subway system for the capital: \$5 billion; this is equal to the cost of New Delhi's most recent metro system expansion (\$5 billion)²³

3. Cash transfers: \$25 billion (\$250, or about 10 percent of GDP per capita for a lower-middle-income country, to each of Subsidonia's 100 million citizens; transfers could also vary in amount according to need)

Total: \$40 billion

No donor could mobilize that amount of funding. Could a SPARC bond? Suppose that Subsidonia decided it could phase-out fossil-fuel subsidies over 10 years, decreasing subsidies by approximately \$2 billion per year. Those savings would total \$110 billion over the course of the decade. Working with an international financial institution, Subsidonia could issue a SPARC bond for the \$42 billion needed to create the political conditions for reform. Adding in a premium to investors and discounting for time and risk, \$110 billion in potential savings would readily cover this amount.

Second, governments that sign up for these bonds could be eligible to receive a package of technical support from international organizations, including the World Bank but also, potentially, the IMF, OECD, IEA, and other multilateral development banks. This package would include help with planning and sequencing reforms, and, where appropriate, include grants to give countries the administrative capacity needed to implement them. This aid package would make reform more likely to succeed, thus reducing the risk of the bonds.

Third, the Green Climate Fund or other international institution could provide special contributions from donor countries or private entities to subsidize the bonds in various ways. For example, donor countries could commit to purchase a certain share of a bond, or could explore providing other forms of supplementary assistance such as political risk insurance. This support could both reduce the risk to investors and increase the value of the bonds to reforming governments.

In this way, the bonds would provide a vehicle to leverage private capital with comparatively small injections of public funding. How much subsidy needed to make SPARC bonds attractive to both private investors and governments would vary from case to case. For some countries, the mere fact that these bonds benefited from the high credit rating of the World Bank or similar institution would be enough to make them attractive. For others, additional support would be needed.

Political effects of SPARC bonds

Fossil-fuel subsidy reform bonds would provide countries with a substantial and immediate inflow of cash. This money could cover the costs of implementing the policies and projects needed to phase-out subsidies. For example, rural communities could be connected to the grid, allowing them to reduce reliance on subsidized diesel generators. The government might also fund programs to make homes and factories more efficient, improve public transportation, or invest in renewable sources of energy.

Governments could also simply increase public spending to compensate citizens for increased prices. This strategy has been used successfully before. Indonesia, for example, increased public spending on rice and health insurance to offset rising energy prices for families after the government reduced subsidies on basic fuels.²⁵ In Iran, the government actually set up personal savings accounts for all citizens and transferred subsidy funds directly to households.²⁶ This allowed Iranian families to decide for themselves how best to adjust to the true cost of fossil fuels—such as buying a more efficient air conditioner or shopping at the closer market instead of driving a long distance to a cheaper one. Being able to tap bond markets for these kinds of schemes could provide enough funds to ensure that the net impact of reform on social welfare would be robustly positive.

But recall that the chief barriers to reform are political. Here, SPARC bonds offer a number of advantages over alternative forms of financing. Pro-reform politicians or interest groups typically face powerful vested interests—occasionally including a swath of the population that does not necessarily trust that the money saved from repealing subsidies will be put to any better use. To address these concerns, they must either forge a deal that is attractive to all parties, or construct a new and sufficiently powerful coalition of interest groups to overcome groups that profit from fossil-fuel use or other defenders of the status quo.

In either case, SPARC bonds would arm reformers with a large war chest of funds raised on better terms and with more flexibility than anything currently available, and with an economically attractive path of repayment solely through savings from subsidies.

For example, imagine a creative politician who wants to spend less public money on fossil fuels and more on education. A standard green bond might help reduce fossil-fuel demand if the capital were directed toward investments in efficiency, but it would be of no use to her for education spending. However, through a SPARC bond, she could direct a portion of the funds to build new schools. This might attract a new and untapped coalition of students, parents, and teachers—as well as those involved in the construction and maintenance of the new schools themselves—to the cause of subsidy reform. At the same time, a portion of the revenue could be directed toward building a new port, which might ease or fracture the resistance of industry.

SPARC bonds also make it costly for countries to fail to implement reforms, or to roll back reforms in the future. By promising to pay a portion of the savings from the reforms to investors, politicians tie their own hands and the hands of their successors in office. If reform fails, governments will have to pay bondholders and subsidies at the same time, giving them incentives to succeed. And if governments choose to maintain subsidies, they must find funds to repay bondholders—along with any associated penalties for noncompliance with the terms of the bond—from other areas of the budget, where they will face resistance from other vested interest groups. Finally, if governments instead choose to default on their SPARC bonds, they put at risk their ability to borrow money in the future.

SPARC bonds also have the potential to create virtuous cycles. Even just reducing subsidies a small amount may allow prices to rise and reduce demand, thus reducing the government's outlay on remaining fossil-fuel subsidies. All things equal, a country would emerge in better fiscal health after repaying its bond than it was before.

Who would benefit?

To succeed, SPARC bonds must be demand-driven, not supply-driven. That is, they are tools that entrepreneurial ministries and political leaders could leverage to overcome domestic opposition to subsidy reform. International actors can make these tools available, but success ultimately depends on the ability of domestic actors to build a coalition to overcome vested interests. These bonds give them the resources to do so.

Because issuing debt creates risks, complexities, and transaction costs, SPARC bonds will likely not be appropriate for countries with high levels of political risk and very weak institutions. In a worst case scenario, a country could receive the capital from a bond and then experience a power transition that brings a government to power that cares more about satisfying fossil-fuel interests than maintaining credit worthiness or increasing fiscal efficiency. Such a government may continue subsidies and seek to pay off the bond along with any associated penalties with other sources of elements of the budget—welfare spending, for example—or may simply default. In either case, the more vulnerable sectors of the population are likely to suffer the most. International institutions and investors should be aware of these risks and only offer SPARC bonds to governments that can realistically benefit from them.

The ideal candidate for a SPARC bond would be a government with a moderate fiscal outlook and substantial fossil-fuel subsidies. In this context, an entrepreneurial administration or ministry could use the bond as a tool to build a political coalition around subsidy reform. Some candidate governments might include China, India, Vietnam, Mexico, Brazil, Turkey, Pakistan, Nigeria, Bangladesh, Iraq, Yemen, Algeria, and Malaysia.

It is also important to look beyond national governments. In certain jurisdictions, subnational governments supply fossil-fuel subsidies. Some Indian states have spent more than half their budgets on energy subsidies in some years.²⁷ When these subnational governments have the legal right to raise debt, SPARC bonds could also be issued for them. State-owned enterprises in the energy and transportation sectors are another potential recipient of these bonds.

An opportunity for leadership in climate and development finance

SPARC bonds present an opportunity for new leadership on two pressing international issues: the international climate agreement that countries have committed to negotiate by 2015, and the Sustainable Development Goals that will succeed the U.N. Millennium Development Goals, also in 2015.

Countries are now in the midst of negotiating a new international agreement to be concluded at a conference in Paris in December 2015. This new agreement will go into effect in 2020, when the current commitment periods of the Copenhagen Accord and Kyoto Protocol come to an end. But as negotiators feverishly work to put this new deal together, people are taking a hard look at how countries are faring in achieving their existing commitments—especially two of the financial commitments made by the United States and other developed countries in the context of the 2009 Copenhagen Accord: namely, to mobilize \$100 billion of climate finance from public and private sources annually by 2020 and to establish a Green Climate Fund.

While there is sharp disagreement about precisely how close developed countries are from reaching the \$100 billion target, it is indisputable that additional action is needed from a practical and diplomatic perspective to combat climate change and increase the chances of reaching a strong new agreement. SPARC bonds would offer an important new contribution: The value of the bonds themselves is large enough to make a material difference toward a \$100 billion goal, and significant additional private finance in clean energy will be unlocked when the subsidies are removed.

The Green Climate Fund, as discussed earlier, has yet to clearly define a function for itself that will motivate donor countries to pledge significant new funds or to redirect existing funds from other accounts. An arrangement with the World Bank or similar institutions whereby subsidy reform bonds and other technical services related to subsidy removal would provide a fundamentally new and important tool in global climate finance. SPARC bonds could move the needle toward the \$100 billion target and establish a valuable link between a public climate fund and private forms of financing that the United States and others have been seeking.

Concurrently with the international climate change negotiations, countries are working to define a set of Sustainable Development Goals that can guide the development agenda beyond the 2015 target date for the existing U.N. Millennium Development Goals. Fossil-fuel subsidy phase-out should be included among its objectives, and SPARC bonds could provide a way for donor countries to provide support for such a commitment. Backing, developing, and piloting robust SPARC bond programs provides a way for governments, international financial institutions, and advocacy groups to make sizeable contributions on both fronts.

World leaders—including President Barack Obama—have repeatedly called for the elimination of inefficient fossil-fuel subsidies. SPARC bonds will arm reformers with the arsenal necessary to prevail.

Thomas Hale is a postdoctoral research fellow at the Blavatnik School of Government at Oxford University. Pete Ogden is a Senior Fellow and the Director of International Energy and Climate Policy at the Center for American Progress.

Endnotes

- 1 While there is no standard accounting of climate finance, the total amount of both public and private climate finance has been estimated by one organization to be approximately \$350 billion per year in 2013. See Barbara Bucher and others, "The Global Landscape of Climate Finance 2013" (San Francisco: Climate Policy Initiative, 2013), available at <http://climatepolicyinitiative.org/wp-content/uploads/2013/10/The-Global-Landscape-of-Climate-Finance-2013.pdf>.
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- 27 Lockwood, "The Politics of Fossil Fuel Subsidy Reform."