Results-Based Climate Finance to Support Mitigation Policies in Developing Countries

Final Report

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List of Abbreviations and Acronyms

BRESL	Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency Standards and Labeling Project
BT	Thai baht
Ci-Dev	Carbon Initiative for Development
Co_2e	Carbon Dioxide equivalent
DMRE	Department of Mineral Resources and Energy of South Africa
DPL	Development Policy Lending
EE	Energy efficiency
EES	Energy efficiency standards
EES&L	Energy efficiency standards and labelling
EE4D	Energy Efficiency for Development program
EMF	Electric mobility facility
ER	Emission Reductions
ERPA	Emission Reductions Purchase Agreement
EU	European Union
EUR	Euro
EV	Electrical vehicle
FAME	Faster Adaptation and Manufacturing of Hybrid and Electric Vehicles
FCPF-CF	Forest Carbon Partnership Facility Carbon Fund
FFSR	Fossil fuel subsidy reform
GEALSP	Ghana electrical Appliance Labeling Standards Program
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse gas
GPRBA	Global Partnership for Results Based Approaches
GSI-IF	Global Subsidies Initiative's Integrated Fiscal model
HEV	Hybrid electric vehicles
HFC	Hydrofluorocarbons
HICs	High Income Countries
IADB	Inter-American Development Bank
ICCT	International Council of Clean Transportation
ICE	International combustion engine
IEA	International Energy Agency
IETA	International Emissions Trading Association
IISD	International Institute for Sustainable Development
IMF	International Monetary Fund
IPPU	Industrial Processes and Product Use
ISFL	BioCarbon Initiative for Sustainable Forest Landscapes

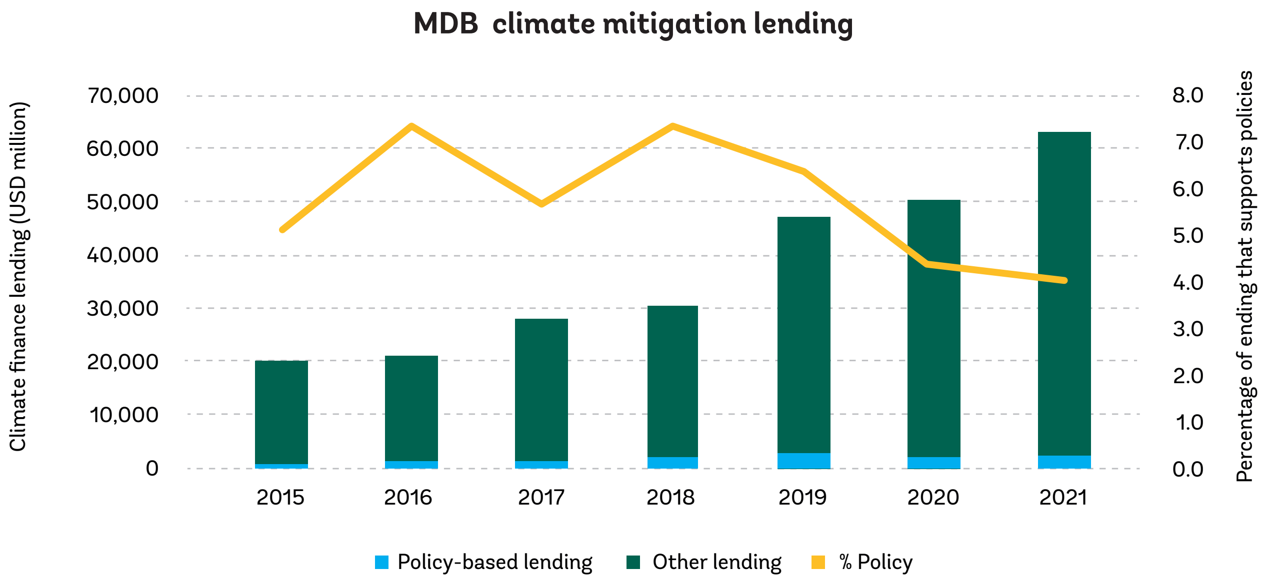
ISO	International Organization for Standardization
IT	Information technologies
ITMOs	Internationally Transferred Mitigation Outcomes
LAC	Latin America and the Caribbean
LMICs	Low- and middle-income countries
MENA	Middle East and North Africa
MEPS	Minimum Energy Performance Standards
MRV	Monitoring, reporting, and verification
MSMEs	Micro, small, and medium enterprises
M&E	Monitoring and evaluation
NAMA	Nationally Appropriate Mitigation Action
NDCs	Nationally Determined Contributions
NEEAP	National Energy Efficiency Action Plan
NO_x	Nitrogen oxides
PFCs	Perfluorocarbons
PforR	Program for Results
ProMEC	Promotion of Electric Mobility in Cabo Verde
RBCF	Results-Based Climate Financing/Finance
RBF	Results-Based Financing/Finance
REACH	Results in Education for All Children
REDD+	REDD plus Conservation, Sustainable Management of Forests, and Enhancement of Forest Carbon Stocks
RMB	Renminbi
SAEE	State Agency on Energy Saving and Energy Efficiency
SANEDI	South African National Energy Development Institute
SDG	Sustainable Development Goal
SEAD	Super-efficient Equipment and Appliance Deployment initiative
SF6	Sulphur hexafluoride
TCAF	Transformative Carbon Asset Facility
UAE	United Arab Emirates
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USD	United States Dollar
VAT	Value-added tax
VER	Verified emission reductions
WB	World Bank
3CV	Centro de Control y Certificación Vehicular de Chile (Center of Vehicle Control and Certification of Chile)

Executive summary

1. Introduction

While individual climate-friendly projects are essential to achieving climate goals, so, too, are broader climate-friendly policies, which are being implemented throughout the world in increasingly larger numbers. Despite the importance of policy in achieving climate goals, most international financial support still goes to individual projects rather than policies. From 2015 to 2020, the total amount of climate finance disbursed by multilateral development banks (MDBs) to their clients for climate mitigation was USD 184 billion, of which only USD 11 billion, or 6 percent, was explicitly used to support policies (see figure ES 1.1).[1]

Figure ES 1.1 Share of Climate Mitigation Finance Used to Support Policies



Source: Multilateral Development Banks 2022.

Responding to this, Results-Based Climate Finance (RBCF) can address this imbalance by complementing conventional climate finance to drive climate results. RBCF ties payments to predefined climate results and supports them by focusing attention on effective policy implementation; driving value for money; providing greater flexibility for governments; and encouraging the setup of solid monitoring, reporting, and verification (MRV) systems that support transparency and accountability. RBCF can also build country capacity and readiness to gain access to additional financing through carbon markets. Its use, however, is still limited (World Bank 2022e).

RBCF is a modality of climate finance, and it is distinct from carbon market mechanisms. While carbon market mechanisms transfer emission reductions from host countries to buyer countries for offsetting purposes, RBCF helps host countries achieve their own mitigation targets—that is, emission reductions paid for under RBCF stay in the host countries.

1 Further information is available in the *MDB Joint Report on Multilateral Development Banks' Climate Finance*, produced yearly from 2015 to 2020.

The characteristics of RBCF suit it especially well to climate-friendly policies. It can support policies that have relatively modest upfront financial needs but usually result in ongoing costs, which can be met by RBCF as results are achieved. Moreover, RBCF can act as a hedge against reversal. It can, of course, also be used in support of individual investment projects.[2]

This report focuses exclusively on RBCF to support the implementation of climate-friendly policies.

This report seeks to inform the use of RBCF to support the implementation of climate change mitigation policy in low- and middle-income countries (LMICs), with reference to the World Bank's RBCF trust funds by presenting illustrative blueprints for three such policies. A knowledge product of the World Bank's Transformative Carbon Asset Facility (TCAF), the report is addressed to government representatives of developing countries who are interested in gaining access to RBCF, including through TCAF; World Bank task teams that are structuring policy support programs; and providers of climate finance who are interested in supporting policies with large-scale mitigation potential through RBCF.

2. Overview of the three policies' application in developing countries

Although many mitigation policies could be applied with support from RBCF, this report focuses on three: fossil fuel subsidy reforms (FFSRs), mandatory energy efficiency standards and labeling (EES&L) for appliances, and feebates" for low-carbon vehicles. These policies show a high mitigation potential, cover different greenhouse gas (GHG) emitting sectors, and represent a broad range of interventions—a pricing policy, a regulatory policy, and an incentive/subsidy policy, respectively—that can potentially be funded by World Bank RBCF trust funds. They were deemed the most illustrative policies with the best prospects for implementation and can be summarized as follows:

- **FFSRs entail the (gradual) lowering or phasing out of fossil fuel subsidies** to reduce both government expenditure on subsidies and GHG emissions. Ensuring social and political acceptance and supporting the poorest population segments through reinforced social safety nets is of the utmost importance for successful fossil fuel subsidy and carbon pricing reforms. Although the current energy crisis has put their progress at risk, FFSRs have been gaining momentum. Between 2015 and 2020, at least 53 countries across six continents took steps to reduce fossil fuel subsidies (Baršauskaitė 2022), including at least 37 LMICs (Sanchez, Wooders, and Bechauf 2020; Merrill and Quintas 2019).
- **Mandatory EES&L for appliances stipulate their minimum efficiency levels or maximum energy-use levels of appliances,** sometimes prohibiting the sale of products whose efficiency is below the defined minimum level (IEA and OECD 2000). Between 2015 and 2020, at least 122 policies covering EES&L for appliances were passed or implemented in at least 23 developing countries, spread across almost all world regions (IEA 2021a).
- **Feebates for low-carbon vehicles impose fees on inefficient or heavy GHG-emitting vehicles and provide rebates on energy-efficient and/or electric ones** to encourage car buyers to choose more efficient, low-emission vehicles and encourage manufacturers to produce them (German and Meszler 2010). Although some developing countries provide incentives for low-emission vehicles and impose carbon taxes on high-emitting ones, feebate programs are more abundant in high-income countries. At least 34 feebate-related policies were passed in 15 LMICs between 2000 and 2020 (German and Meszler 2010).

2 Such project-based RBCF may, at first glance, seem similar to project-based carbon market mechanisms, like the Clean Development Mechanism (CDM) or Joint Implementation (JI) under the Kyoto Protocol, if payments are provided for verified emission reductions (VERs). The fundamental difference, mentioned above, is that VERs paid for under RBCF stay in the host country, whereas they are transferred out of the country under carbon market mechanisms.

3. Policy implementation barriers and proposed measures to address them

Barriers to the implementation of mitigation policies are varied and policy specific, but they include a lack of resources, limited in-country technical expertise, and weak compliance and enforcement mechanisms. Leadership and coordination also pose challenges, including resistance from industry and citizens. The present analysis focuses on supporting good practice during the implementation phase, as policies often fail because of deficiencies at this stage.

The barriers identified for the three policy reforms considered in this report are of three main types: (1) barriers stemming from insufficient government capacities and/or political will; (2) barriers stemming from negative impacts of the reform on the industry and business sectors and lack of preparedness for them; and (3) barriers stemming from negative impacts of the reform on consumers and households, along with behavioral resistance.

The proposed measures to address these barriers vary by policy and consider actions that could benefit from RBCF support. They mostly revolve around the reinforcement of technical and coordination capacities; targeted knowledge transfer and investment programs for industry; development and reinforcement of testing and technical labs when needed; large industry and consumer communication and awareness campaigns; or specific support for negatively affected industry and consumers.

4. Designing policy RBCF support programs

Rationale

RBCF could help address some of the barriers identified above. In particular, RBCF based on verified emission reductions (VERs) supports the implementation of climate policies by (1) providing additional resources and (2) creating an accountability and support framework for sound policy implementation focused on driving climate results and related spillover benefits.

Within the scope of this report, RBCF tied to VERs can support impact-driven policy implementation in four ways:

1. **By focusing attention on implementation and results**
2. **By promoting value for money**
3. **By encouraging ownership, flexibility, and innovation**
4. **By improving MRV capacity and transparency**

Related to MRV is a further fundamental difference between RBCF and carbon market mechanisms: MRV under carbon market mechanisms is regulated by a carbon market regulator—in the case of the mechanisms under the Kyoto Protocol, this is a United Nations Framework Convention on Climate Change (UNFCCC) body. MRV under RBCF is not subject to carbon market regulation but it can be informed by methodologies and procedures adopted under carbon market regulation to reach highest standards for environmental integrity.

This is especially the case for MRV of policy RBCF, which, instead of counting emission reductions from a large number of individual projects, uses modelling approaches to quantify mitigation impacts.

These benefits of RBCF align with those commonly identified in other World Bank results-based programs but are tailored specifically to driving climate policy implementation.

Conditions for effective use of RBCF for policy reform

The effective use of RBCF for policy reform requires a set of enabling preconditions that should be assessed upfront. These include the presence of political support, technical capabilities for policy implementation, administrative mechanisms, and financial capacity to manage the RBCF payment process.

In addition, policies supported by RBCF must demonstrate a clear connection between actions that are mandated by the policy and emission reductions. A policy that requires appliances to achieve prescribed efficiency standards, for example, could be suitable for RBCF payments, but a general, national climate policy lacking definition and a clear implementation process or enforcement of actions leading to emission reductions would not.

Combining RBCF with other financing instruments and support mechanisms can enhance its effectiveness, address its limitations, and provide countries with comprehensive support that responds to different financial needs at each stage of climate reform. For that reason, **this report presents RBCF with reference to the full range of World Bank financing instruments and support mechanisms,** including Investment Project Financing (IPF), Development Policy Financing (DPF), Program-for-Results Financing (PforR), and other forms of financial support, such as Technical Assistance (TA) and instruments used by the World Bank trust funds.

Project parameters

- **RBCF structure and payment metric:** In this report, RBCF is based on a model in which a donor conditions part of its payments to a government upon the achievement of VERs that result from the selected policy. This does not imply a transfer of ownership of these outcomes from the country to the donor. Instead, the host country can use the emission reductions generated to meet its Nationally Determined Contributions (NDCs) targets (TCAF 2020).
- **RBCF funding size and timelines:** The RBCF total payments per policy are assumed to be between USD 30 million and USD 50 million for a crediting period of five to seven years, considering previous experience with and practical considerations of World Bank RBCF funds.

Measures and verification process

- **Estimation of emission reductions:** Under the proposed RBCF approach, emission reductions that result from each policy are estimated using a modelling approach to isolate the policy's mitigation effect. The estimation models reflect the causal pathway along which the policies affect emissions. These impact channels are then included in the model as input variables that are adjusted ex post to estimate the emission reductions attributable to each policy. A theory of change reflects the path from policy implementation to emission reductions, identifying key steps and variables.
- **Verification process:** For approval of the disbursements, the emission reductions have to be verified by a third party.

RBCF payments

The RBCF payments are defined following a three-step methodology: (1) estimation of policy implementation costs, which help to determine the potential size of the RBCF; (2) estimation of potential emission reductions for each policy; and (3) definition of VER unit payments—the "price" the RBCF would pay per ton of CO_2 abated, which is determined using a combination of factors. These include the ratio between the costs and emission reductions estimated in the previous steps, as well as other practical considerations, such as RBCF trust fund policies or contingencies and comparability with VER prices or unit payments in similar efforts (assuming, for simplicity, that policy implementation is exclusively supported through the RBCF program).

5. Conclusions

RBCF has many characteristics that make it suitable for supporting the implementation of sound climate policy in low- and middle-income countries through payment for VERs. It can support implementation by focusing attention on results, driving value for money, providing funds for actions to address some of the barriers to implementation, guarding against policy reversal, facilitating access to carbon markets, providing flexibility for governments to achieve targeted results, and encouraging the setup of solid MRV systems that support transparency and public accountability. Existing and planned World Bank trust funds, such as the Transformative Carbon Asset Facility (TCAF)[3] and Scaling Climate Action by Lowering Emissions (SCALE)[4], are in a position to provide the RBCF needed to help bring these benefits to LMICs to support their sustainable development strategies.

3 https://tcafwb.org/

4 https://www.worldbank.org/en/programs/scale

1. Introduction

Effective implementation of transformative climate policies is critical to meet emission reduction targets. Reaching the Paris Agreement goal requires reducing greenhouse gas (GHG) emissions by 43 percent by 2030 (UNFCCC 2022a). While countries have shown varying levels of commitment to mitigating climate change through updated Nationally Determined Contributions (NDCs), these are not consistently translating into sufficient emission reductions (UNFCCC 2022a).

Low- and middle-income countries (LMICs) face specific constraints, limiting effective implementation of climate change mitigation policies despite their commitments (Trotter, et al. 2022). Overcoming these requires specialized knowledge, effective coordination, and enforcement mechanisms to apply laws and regulations, as well as data and measurement capacities. The lack of these capacities is a recurrent barrier hindering policy implementation (Hudson, Hunter, and Peckham 2019). In these circumstances, making reforms and achieving results can be particularly challenging; thus, keeping a clear focus on actionable implementation targets, rather than on future commitments, is especially important (Dubash 2020).

While policy preparation and design can be supported today through technical assistance programs, targeted support to address policy-specific implementation barriers remains limited. Effective climate finance from the World Bank and other development partners must, therefore, entail not only additional resources but targeted support to help LMICs overcome policy reform implementation challenges.

Responding to this need, Results-Based Climate Finance (RBCF) can complement conventional climate finance to drive climate results.

What is Results-Based Climate Finance?

Climate finance can be defined broadly as any finance or funding that goes to climate action. This can include development loans, international or domestic commercial investments, grants from dedicated climate entities, or government spending. Results-based climate finance is a subset of climate finance that involves payments delivered as grants to reward generated and verified emission reductions.

Results-Based Finance (RBF) is a financing arrangement in which part of the payments are contingent upon the achievement of predefined and verified results. In the last decade, its use globally has accelerated, with at least USD 26 billion in development spending tied to results between 1993 and 2017.[5] Roughly 40 percent of these resources come from the World Bank, primarily through the Program for Results (PforR)[6]. PforR demand from country clients has been growing since 2012, and its current portfolio represents around USD 40 billion, focused on education, health, and governance (World Bank 2022c).

RBCF is a form of RBF in which payments are contingent on the achievement of predefined and verified climate results (such as verified GHG emission reductions from a project or implementation of a specific climate policy) but does not involve the transfer of assets (emission reduction credits, sometimes referred to as certified emission reductions (CERs) or internationally transferred mitigation outcomes (ITMOs) from the recipient project (World Bank and Frankfurt School of Finance and Management 2017; World Bank 2022b). It differs from other types of funding, in which disbursement is based on inputs or on the execution of activities, and from carbon markets, which, like RBCF, reward emission reductions but also involve the transfer of the emission reduction credits. RBCF has a substantial track record in climate projects in which donors, like the World Bank, support specific activities, with funding conditioned on climate results. For example, climate finance facilities such as

5 Instiglio global database on RBCF projects (2021). Data are not exhaustive.

6 The GPOBA Results-Based-Financing (RBF) database (August 2021 version).

the Forest Carbon Partnership Facility-Carbon Fund (FCPF-CF) and the Green Climate Fund (GCF) have used RBCF for forest protection programs (REDD+).

It is also important to distinguish RBCF from carbon market mechanisms. The latter can look similar, but their economics and political economics are different. Mitigation outcomes enabled by RBCF remain in host countries and can be used by them to achieve their NDC targets. Under carbon market mechanisms, these mitigation outcomes are transferred for offsetting and can no longer be accounted against host country NDCs (ITMOs under Article 6 of the Paris Agreement). Selling ITMOs creates opportunity costs for host countries, as they still need to achieve their NDC targets.

RBCF can help focus attention on effective policy implementation by providing a financial incentive for successful implementation (since payments are only made if the emission reductions are achieved), providing greater flexibility for governments on how the ERs are achieved and encouraging the setup of solid monitoring, reporting, and verification (MRV) systems that support transparency and public accountability. Despite its potential to drive enhanced results, the use of RBCF is still limited, representing only 5 percent of international public climate finance provided to developing countries (World Bank 2022e). RBCF can also build country capacity and readiness to access additional financing through carbon markets.

RBCF is especially well-suited to supporting climate-friendly policies. It can support policies that have modest upfront financial needs but usually result in ongoing costs that can be met by RBCF as results are achieved. Such costs could result from the ongoing administrative costs for redistribution programs to compensate people who are negatively affected by the policy (such as low-income citizens harmed by the introduction of cost-reflective electricity tariffs) or through full rollout of the policy through necessary government and private sectors (such as for energy efficiency standards). In addition, RBCF can act as a hedge against policy reversal, as it is easier for a country to reverse a climate policy than it is to reverse an infrastructure project, where sunk costs put steel into the ground. Since payments are conditional on achieving results, RBCF incentivizes keeping policies in place.

The report focuses on RBCF in the form of grant payments to governments for verified emission reductions (VERs) associated with mitigation policies' implementation, for which RBCF is defined as entailing the following:

- **Grants:** Payments are provided in the form of grants not affecting countries' debt position.
- **Policy-based interventions:** Responding to the need for scaled-up and transformative mitigation actions, interventions go beyond projects and programs. Policies must include clear, mandated actions leading to emission reductions.
- **Mitigation focused:** Consistent with RBCF's use elsewhere, focused on GHGs emissions rather than for adaptation or resilience purposes.
- **Implementation focused:** The focus is on providing resources for implementation actions, potentially complementing other forms of support.
- **Linked to implementation costs:** The size and payments of the RBCF instrument should be consistent and linked to at least some of the costs incurred by carrying out policy implementation actions.
- **Pay for VERs:**[7] Payments take place once emission reductions have been verified. These need to be associated with the policies implemented and need to be additional (that is, they would not have happened otherwise). This payment metric is consistent with other climate finance facilities using RBCF, such as the Forest Carbon Partnership Facility-Carbon Fund (FCPF-CF), and allows

7 While the term VER can also denote an asset that is sold on the carbon market and transferred out of the country, that is not the meaning in this case, since, while the emission reduction is verified, RBCF payments do not denote transfer out of the country.

alignment and synergies with NDC targets. Consistent with the Transformative Carbon Asset Facility's (TCAF's) approach (TCAF 2021b) for policy-based interventions, and to isolate external factors, VERs are not observed from actual emission reductions inventories. Rather, emission reductions are determined by modelling two scenarios: with and without the policy.

How can RBCF support the implementation of climate policies?

The gap between policy uptake and the implementation of climate policies in LMICs is a major hurdle to reaching climate targets. Barriers to implementation are varied and policy- (and country-) specific, but they broadly relate to a lack of resources, limited in-country technical expertise, and weak compliance and enforcing mechanisms, as well as leadership and coordination challenges, including resistance from industry and citizens.

This report seeks to inform the use of RBCF for climate change mitigation policy implementation in LMICs in the context of the World Bank's RBCF trust funds. For this, it provides illustrative design blueprints for three specific policies: fossil fuel subsidy reforms (FFSRs), mandatory EES&L for appliances, and the introduction of policies to promote low-emission vehicles. These were chosen because of their high mitigation potential and their representativeness of three different types of policies that can potentially be supported by the World Bank RBCF trust funds: a pricing policy, a regulatory policy, and a subsidy policy. These three policies are highly illustrative of different kinds of mitigation policies and sectors, and of how RBCF can be applied through different interventions adapted to the specific policy. Moreover, the three policies have shown good prospects for implementation in developing countries.

The RBCF policy blueprints are intended to support (1) country governments that are implementing climate mitigation policies and interested in accessing RBCF funding to facilitate policy implementation, (2) World Bank task teams working on programs to support policy implementation, and (3) development partners who are interested in deploying new climate finance instruments.

While RBCF has not yet been used to drive the type of climate policy reforms reviewed here, the use of RBF to support climate-related projects in other contexts illustrates its potential to support effective climate policy implementation (World Bank and Frankfurt School of Finance and Management 2017).

In particular, RBCF can be useful in supporting mitigation policy implementation both by (1) providing additional resources for country governments and (2) tying the payment of those resources to the actual generation of verified emission reductions. Additional resources can support implementation by enabling governments to cover necessary implementation costs. Further, by tying the disbursement of these resources to VER, RBCF can help support climate results through such benefits as focusing attention on implementation and results, promoting value for money, enabling flexibility, and improving MRV capacity and transparency, benefits detailed further in section 4.

The present report digs deeper into these topics by presenting an overview of the current state of application of the three selected policies in LMICs (section 2), followed by an introduction to the main barriers to their implementation and some measures to address these (section 3). Section 4 presents the proposed RBCF design for each policy, including the rationale for RBCF, key project parameters and VERs as metrics for payment metric, the verification process, and a methodology to determine the payment structure. Finally, section 5 provides some conclusions and key recommendations.

2. Overview of mitigation policy implementation in developing countries

This section introduces other mitigation policies and explains why the three covered in this report have been prioritized. It also provides an overview of how the three policies have been implemented in developing countries, including a definition of each policy.

2.1 Mitigation policy landscape: High-impact mitigation policies that could be supported through RBCF

As already introduced, limiting global warming requires implementing the commitments made by countries and raising the ambition of climate change mitigation efforts. Although total climate finance has grown over the last decade, an increase of at least 590 percent in annual climate finance is needed to reach the agreed-on objectives for 2030 (Climate Policy Initiative 2021). To address this finance gap, it is key to introduce new financing instruments and approaches to maximize the limited resources available toward high-impact mitigation actions.

RBCF can be one of these approaches to mobilize efficient climate finance and support LMICs' capacities to reach their mitigation targets. Mitigation policies are diverse; a non-exhaustive list of those that could be partially financed by RBCF is provided in table 2.1.

Table 2.1 Non-exhaustive list of mitigation policies that could be (partially) financed through RBCF

Energy	Industrial processes and product use (IPPU)	Agriculture, forestry, and other land use	Waste	Transportation	Financial and monetary
· Building codes for new buildings and renovations · Fossil fuel subsidy reforms · Mandatory energy efficiency standards for appliances · Emissions trading schemes · Tax credits for low-carbon energy technology adoption · Carbon taxes · Feed-in tariff schemes · Government-administered reverse auctions · Decentralized systems for rural electrification with renewable energy · Energy labeling for appliances and equipment · Renewable energy subsidies for deployment	· Fiscal support for energy efficiency investments in industry · Carbon tax on direct GHG emissions from industrial processes · Emissions trading schemes to limit GHG emissions from manufacturing industries and from industrial processes · Mandatory energy audits for industry · Regulation of use of HFCs, PFCs, and SF6 · Regulation of energy and material usage · Tax credits for low-carbon processes in high-emitting industries (e.g., concrete) · Green industry standards for various heavy-industry sectors · Eco-design requirements for products	· Mandatory requirements for the use of slurry and manure · Green direct payments for sustainable farming and agricultural practices · Forest codes to ensure a minimum percentage of forest coverage for landowners · Reform of Agriculture subsidies. · Reform of land use regulation. · Subsidies for carbon sequestration. · Agriculture and land use emission taxes policy. · Emissions abatement subsidy for agriculture. · Tax exemptions for forestry investments. · Afforestation grants.	· Regulations for the collection, treatment, and utilization of landfill gas · Regulation to limit the generation of solid waste · Streamlining and mandatory collection schemes for household waste · National implementation of extended producer responsibility for packaging · Ceiling over NOx and other GHG emissions from large treatment plants · Limiting the percentage of biodegradable waste going to landfill · Regulations for tariff policy for municipal waste management based on the polluter pays principle · Extended producer responsibility (EPR)	· Vehicle tax reform · CO_2 standards for cars and vans · Feebates for low-carbon vehicles · Tax deductions and incentives for the purchase of new clean vehicles (private citizens) · Tax deductions and incentives for the manufacturing of new clean vehicles (industry) · Reform of fiscal framework to promote sustainable and e-mobility · Establishment of low-emission zones · Fuel economy standards on light-duty vehicles · Clean car import standards · Subsidies for electric bicycles · Tax credit for the sale or use of sustainable aviation fuel	· Green differentiated capital requirements in financial regulation frameworks · Reflection of climate transition risks in monetary policies · Establishment of classification systems (taxonomies) for green/ sustainable economic activities · Corporate governance reforms for reducing short-term bias in financial institutions · Development of green financial securities · Green quantitative easing and collateral frameworks

Source: World Bank.

Note: Infrastructure investments have mostly not been considered, as these are out of scope for this type of finance modality.

Three of these mitigation policies were selected to illustrate the possible application of the RBCF support approach for policy implementation, based on (1) their high mitigation potential, (2) their representativeness of climate change mitigation in different sectors, and (3) their representation of different types of interventions funded by the World Bank RBCF trust funds (a pricing policy, a regulatory policy, and an incentive/subsidy policy). In this context, the following policies were prioritized:

1. **FFSRs.** These can support the achievement of the Sustainable Development Goals (SDGs), enhancing energy access, reducing air pollution, and raising health standards, while bringing substantial public budget savings and leaving additional margins for social welfare and protection investments. Nevertheless, FFSRs can have deep implications at economic, social, and political levels, which may challenge the **ambitions and maintenance of the reforms**.
2. **Mandatory EES&L for appliances.** These aim to phase out inefficient appliances from the market to reduce households' energy consumption. The policy can be a cost-effective and effective way for policymakers to induce CO_2 emission reductions, lift the average efficiency levels of regulated products, drive product innovation, and bring (mid- to long-term) monetary savings to consumers (IEA 2021a). This policy must evolve with technology developments, and policymakers must define a governance framework with a clear policy roadmap, infrastructure, and funding.
3. **The introduction of feebates to promote low-emission vehicles.** Feebates seek to support the adoption of cleaner fuels and less-polluting vehicle technologies. If correctly implemented, they can support the emergence of new clean vehicle technologies that reach economies of scale. Feebates can be efficient in reducing vehicle emissions without draining government resources and, therefore, show potential for further introduction in LMICs.

These three policies were selected because they are highly illustrative of different kinds of mitigation policies, of different mitigation sectors, and of how RBCF can be applied through different interventions adapted to the specific policy. Moreover, the three policies have shown good prospects for implementation in developing countries, both from the point of view of technical implementation capacity (although there are some barriers to their implementation that will be discussed later) and from the point of view of the feasibility of structuring RBCF support. Opportunities for and limitations or challenges to their implementation are described in sections 2.2, 2.3, and 2.3, and, especially, in section 3.

2.2 Overview of fossil fuel subsidy reforms

2.2.1. Main concepts and objectives of fossil fuel subsidy reform policies

Fossil fuel subsidies (FFSs) refer to government financial aid for primary fossil fuel commodities (crude oil, natural gas, coal, and peat) and secondary refined or processed products (gasoline, kerosene, diesel fuel, liquified petroleum gas, liquified natural gas, compressed natural gas, coal, and peat briquettes) or electricity and heat generated by fossil fuels combustion (Baršauskaitė 2022). Fossil fuel subsidies allow for cheaper exploration and refinery costs for producers (9 percent of total global expenditure on subsidies in 2019, according to the IISD Global Subsidy Tracker) and/or cheaper fossil fuel energy prices for households and industry (86 percent of total subsidy expenditure 2019); hence, the main reasons they were introduced and are still maintained in many countries. According to the IISD, the remaining 5 percent of subsidies was dedicated in 2019 to "general services," which are measures applied to broader sectors or to the economy creating a favorable environment for fossil fuels through the development of private or public services, institutions, and infrastructure (Baršauskaitė 2022).

FFSR entails the (gradual) lowering or phasing out of fossil fuel subsidies to reduce (1) government expenditure on the subsidies and (2) GHG emissions. The key steps for a FFSR are introduced in annex 1. Some measures to implement an FFSR include the following:

- Periodic reductions of fuel and electricity subsidies
- Hiking up petrol and diesel excise tax, keeping prices stable in times of low fuel prices
- Automatic monthly adjustments to electricity and transportation fuel subsidies to reduce subsidy costs
- Electricity price reform for consumers, keeping subsidies for production
- Removing petroleum subsidies, phasing out diesel subsidies, and prioritizing solar or other renewable energy (RE) projects (IISD 2022a).

Ensuring social and political acceptance and supporting the poorest population segments through reinforced social safety nets are of the utmost importance for successful fossil fuel subsidies and carbon pricing reforms. If not adequately planned, the associated price increases in fossil fuels can have disproportionately negative effects on lower-income households and companies and unleash social unrest. Examples include mass protests and riots in Ecuador in 2021, sparked by the removal of the gasoline and diesel subsidies (Funke and Merrill 2019), and protests and riots in 2022 in Kazakhstan after the reform in the liquified gas subsidy, which resulted in the dismissal of the prime minister and his cabinet (Cuesta 2022).

To mitigate the social unrest caused by the rise in fossil fuel prices, it is essential to understand the policies' distributional impacts through detailed data collection on welfare losses. Moreover, FFSRs should be accompanied by targeted compensation measures aiming to mitigate the negative impacts on the most vulnerable stakeholders. Examples to reinforce social safety nets include the improvement of basic services provision, the delivery of conditional or unconditional cash transfers, and the enhancement of social security payments or employment programs (UNDP 2021). Broad and early engagements with affected stakeholder groups are important in that context.

2.2.2. Application of fossil fuel subsidy reforms in developing countries

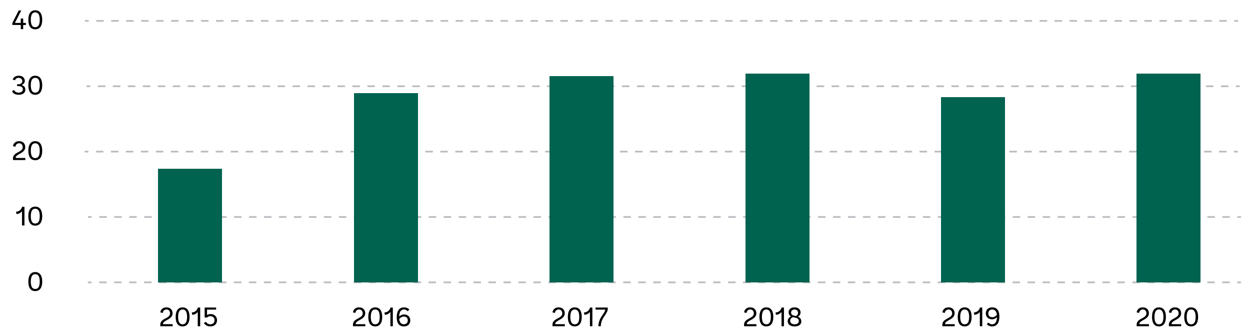
The Fossil Fuel Subsidy Tracker[8] registered government expenditure of at least USD 375 billion on fossil fuel subsidies worldwide in 2020, which represented a significant reduction from the estimated USD 525 billion in 2019 and confirmed a steady trend in the reduction of subsidies since 2010. However, with COVID-19 recovery measures, subsidies grew again in 2021, up to USD 700 billion, and they are expected to keep on expanding in the current context of international high fossil fuel prices. In 2020, at least 36 developing countries kept some fossil fuel subsidies (IEA 2022a).[9] The subsidies expenditure can represent substantial percentages of GDP, with ranges falling between 0.1 percent of GDP in Colombia and Nigeria, to 15.1 percent in Libya or over 6.5 percent in Uzbekistan and Venezuela.

8 The Fossil Fuel Subsidy Tracker uses data from the OECD, IEA, International Monetary Fund (IMF), United Nations, and World Bank. http://www.fossilfuelsubsidytracker.org

9 The database with the specific estimations of the existing fossil fuel subsidies per country is found at https://www.iea.org/data-and-statistics/data-product/fossil-fuel-subsidies-database. The methodology used by the IEA for calculating subsidies is the price-gap approach. Fossil fuel subsidies that are consumed directly by end-users or consumed are estimated as inputs to electricity generation. This approach compares average end-user prices paid by consumers with reference prices corresponding to the full cost of supply. The price gap is the amount by which an end-use price falls short of the reference price and its existence indicates the presence of a subsidy. In a given economy, the basic calculation of subsidies per product is: Subsidy = (Reference price - End-user price) × Units consumed

Despite recent developments, FFSRs have been gathering international momentum in the past years. According to Global Subsidies Initiative data, at least 53 countries reduced fossil fuel consumption subsidies between 2015 and 2020 (Baršauskaitė 2022). During the same period, at least 37 LMICs implemented an FFSR, a fossil fuel taxation reform, or a subsidy and taxation reform (Sanchez, Wooders, and Bechauf 2020; Merrill and Quintas 2019). Examples of FFSR can be found in all continents, as described in annex 2.

Figure 2.1 LMICS Implementing or Further Advancing with an FFSR and/or Taxation Reform between 2015 and 2020.



Sources: Sanchez, Wooders, and Bechauf 2020; Merrill and Quintas 2019.

However, there are still challenges burdening the raising of ambitions for FFSRs, and the maintenance of the reforms. Economic cyclic crises, the COVID-19 pandemic, and the current international energy context have affected adherence to FFSRs. Some countries have canceled or even reversed the measures introduced, increasing the subsidies again (OECD 2021b; IISD 2022b). Overall, more investments and capacity building are required to tap into the potential of the FFSRs already launched.

2.3. Overview of mandatory energy efficiency (EE) standards for appliances

2.3.1 Main concepts and objectives of mandatory EE standards for appliances

EE standards[10] stipulate the minimum efficiency levels or maximum energy-use levels of manufactured products, including appliances, sometimes prohibiting the sale of products whose efficiency is below a defined minimum level (IEA and OECD 2000). These appliances can include inter alia domestic equipment for heating, cooking, cooling, and lighting but also plug loads, such as refrigerators, washing machines and dishwashers (IEA 2021b). This report focuses on mandatory EE standards.Such standards are established via rules, and regulations per product category. Mandatory EE standards programs for appliances seek progressively to reduce and/or remove inefficient appliances and equipment from the market, while EE labeling programs aim to encourage consumers to purchase energy-saving appliances (IEA and OECD 2000). Energy Efficiency Standards (EES) policies aim to phase out inefficient appliances from the market.

10 While this document specifies energy efficiency standards (EES), labeling to denote efficiency of the targeted appliances could also be included in certain cases.

EES policies are widely present worldwide, with varying levels of stringency. High-efficiency appliances supported by these policies deliver significant annual energy savings, which contribute to reducing GHG emissions. Although high energy-efficient appliances often present a higher upfront cost for households, they result in reduced energy bills and enhanced consumer welfare.

There are three main types of EESs for appliances:

1. **Prescriptive technological standards**: These require certain features or devices that affect the EE of the appliance to be installed in all new products so they can be sold.

2. **Minimum energy performance standards (MEPS):** These establish minimum efficiency or maximum energy consumption standards for appliances for manufacturers.

3. **Class-average standards or energy labels**: These specify the average EE of an appliance. The energy labels aim both to address information barriers and enable consumers to make more informed choices at the point of purchase.

It is necessary to implement a coherent policy package that can balance mandatory measures, capacity building, and incentives and subsidies. The **necessary governance framework** should encompass adequate planning and ambitious targets. The recommendations by the IEA for the key steps to implement MEPS and energy labels can be found in annex 1.

2.3.2. Application of EE standards to appliances in developing countries

Over 120 countries have already implemented or are currently developing EESs for appliances, according to the International Energy Agency (IEA 2021a). The ones that have been operating the longest, such as those in the United States and the EU, are estimated to deliver annual reductions of around 15 percent of total current electricity consumption (IEA 2021a). The IEA also mentions a progressive decrease in the purchase price of efficient appliances, by an average of 2 to 3 percent per year in the case of Australia, thus benefitting consumers.

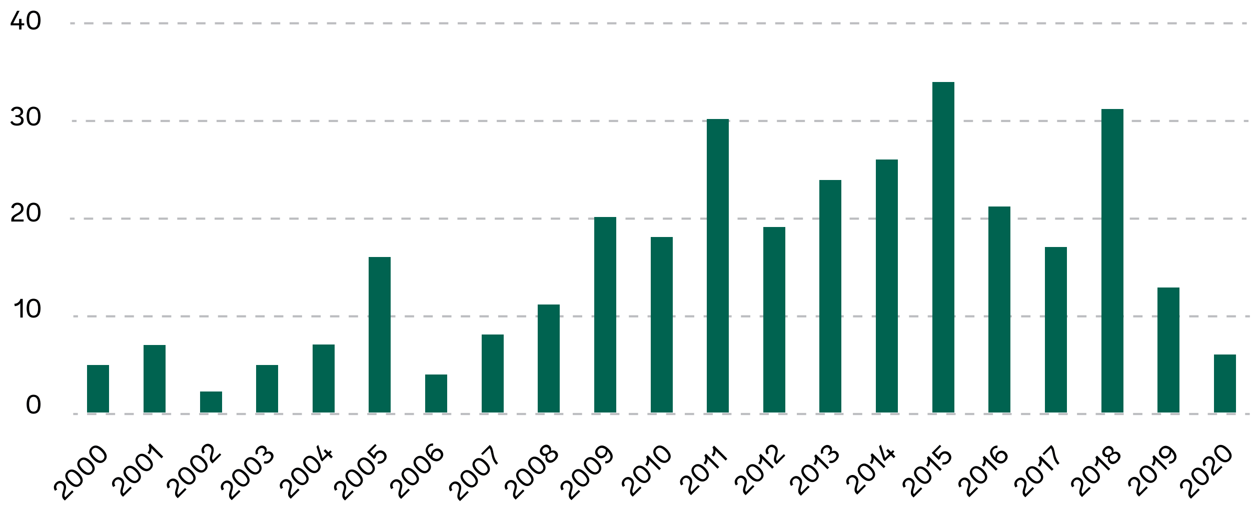
An overview of the IEA EE policy database[11] reveals that, during the period 2015–20, at least 122 policies covering EE standards in appliances were passed or implemented in developing countries. The countries applying the standards were spread across almost all world regions. Annex 2 provides further information on the prevalence of standards in developing-world regions.

The IEA database, although not comprehensive, shows that since 2000, EE standards have been increasingly adopted in developing countries. According to the database, EE standards were steadily introduced, especially in the second decade of the century, with the exception of the years 2019 and 2020, in which few new regulations were adopted (or at least were not included in the database; IEA 2023).

Despite this increasing adoption of EE standards, these standards and labels are issued on a voluntary basis in many emerging economies, thus significantly limiting their impact. Further efforts to enhance them by raising the standards and/or making them mandatory can increase the generation of more significant emission reductions.

11 The database can be consulted at https://www.iea.org/policies/about.

Figure 2.2 Number of EE Standards for Appliances Policies Included in the IEA Policy Database during 2000–2020.



Source: IEA policy database.

2.4 Overview of feebates for low-carbon vehicles

2.4.1 Main concepts and objectives of feebates for low-emission vehicles

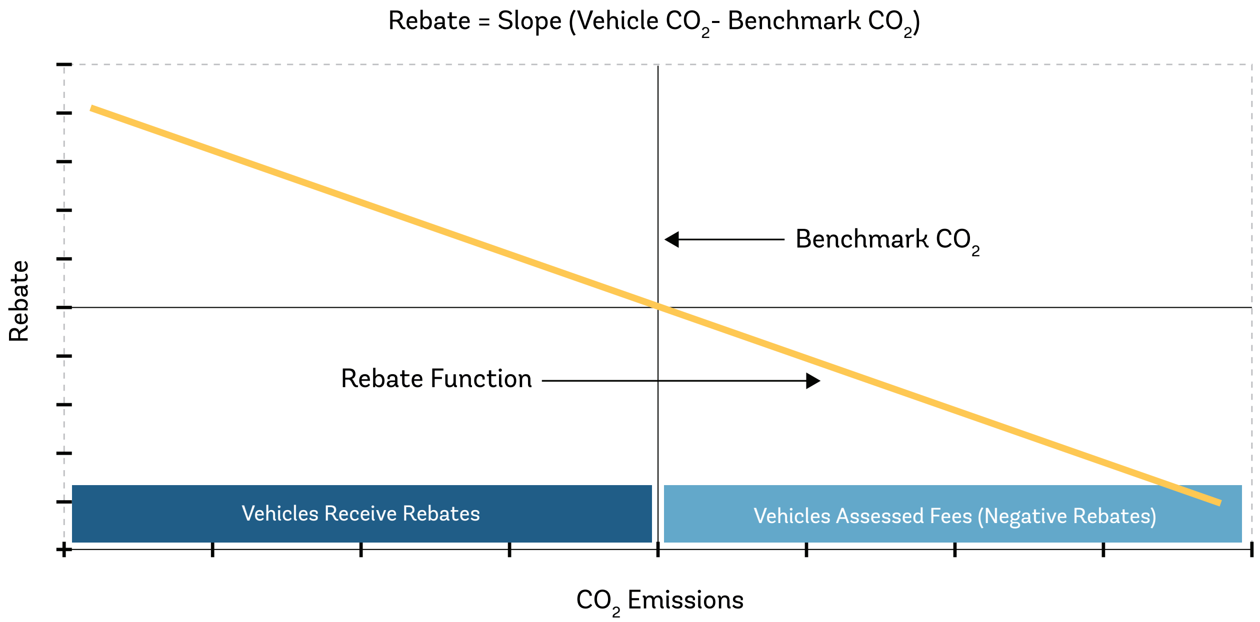
Feebates, or bonus-malus, are fiscal policies that impose a fee on inefficient or heavy GHG emitting vehicles and provide a rebate or other financial incentive for energy-efficient/electric ones to encourage car buyers to choose more efficient and low-emission vehicles and encourage manufacturers to produce them (German and Meszler 2010).

Although some developing countries have incentives for low-emission vehicles and carbon taxes for those that emit more CO_2 emissions, feebate programs are more abundant in high-income countries—for example, Canada, France, Italy, Ireland, New Zealand, Sweden, and Singapore. Feebate programs are more effective than fee-only programs and rebate-only programs, which place a strain on government funds.

By definition, a feebate is not a "tax," but a "transfer," and thus is a revenue-neutral policy. Consumers who choose to buy higher CO_2 emitting vehicles pay the fees that finance the rebates offered to consumers buying low-emission vehicles.

Feebates have two main components determining the value of the rebate and of the fee: the rate and the pivot point. In the graph in figure 2.3, rebates (with fees depicted as negative rebates) decline on a continuous basis with increasing Co_2 emissions. This places a fixed cost on CO_2 emissions and imposes a fee on increases in emissions. The pivot point or benchmark is the point at which the feebate system changes from awarding rebates to imposing fees. The changes in the feebate function or slope alter the associated price signal, or feebate rate (German and Meszler 2010). Regularly adjusting the pivot point to balance fees and rebates is key, to reflect the advancements in EE in the vehicle market and to ensure the system is self-sustaining.

Figure 2.3. Feebate System Graphic Representation



Source: German and Meszler 2010.

For countries where low-emission vehicle programs are not implemented, as occurs in many LMICs, feebates can be a relatively quick and easy option to start reducing fuel consumption and CO_2 emissions from road transportation. A feebate system is also simpler to administer and enforce than standards and incentives due to its self-regulating nature: manufacturers certify their own fuel consumption value, and the government conducts confirmatory testing or can look for opportunities to base its standards on testing done in other countries. If a vehicle fails the testing, the enforcement protocol includes a fine on manufacturer or importer for each vehicle sold with the self-certified efficiency value (Yang 2018).

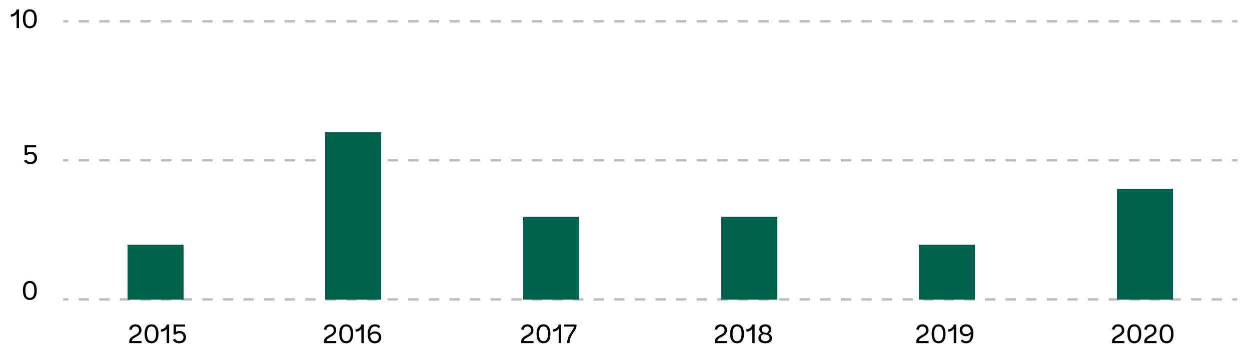
However, feebates also have some challenges and limitations. Regarding the policy's application challenges (which are further discussed in section 3), some are related to the prevalence of informal secondhand and other informal markets in many developing countries, which affects the capacity to apply the fees and rebates. Other limitations include the lack of capacity to monitor the actual emissions of the vehicles and to define the feebate thresholds without this information. In addition, raising the cost of new vehicles can delay turnover and thus leave older, less efficient cars on the road. Moreover, feebates also show certain limitations in addressing some of the challenges related to achieving a sustainable and safe transportation sector if not supported with fuel taxes; for example, they fail to address key externalities associated with road transportation, such as congestion and accidents. The amount of driving and the balance between public and private transportation is also not positively affected by them. If anything, having more efficient vehicles on the road could lead to an increase in driving since the fuel cost decreases, producing a "rebound effect." Moreover, feebates do not raise tax revenues, which could be used for distributive purposes.

2.4.2 Application of feebates for low-emission vehicles in developing countries

As already mentioned, proper feebate systems exist mostly in some developed countries, pioneered by the French example, first introduced in 2008. Other countries have introduced fees or rebate-only programs (German and Meszler 2010). However, a panoply of complementary policies supporting more efficient internal combustion engine (ICE) and electric vehicles (EVs) have been introduced in both developed and developing countries. These other policies aiming to increase the share of more efficient vehicles in national fleets can be an entry point for the later adoption of feebate schemes. Some major initiatives have also been found at urban level, as a response to the high CO_2 emission intensities found in cities and the health issues associated with poor air quality (IEA 2021c).

Considering the data from the IEA policy database, at least 34 feebate-related policies were passed in developing countries between 2000 and 2020, all of them after 2010. Of these, 20 were adopted during the 2015–20 period, covering 15 LMICs.

Figure 2.4. Annual Number of Passed Feebate-Related Policies in Developing Countries Appearing in the IEA Policy Database



Source: IEA policy database.

Most of these policies only partially cover the necessary policy framework for a feebate system, while many reduce the import taxes for electric and hybrid vehicles or exempt them from other taxes.

Although there are only a few countries in the world with a complete feebate, several LMICs have already introduced incentives for the adoption of electric vehicles (EVs) and hybrid electric vehicles (HEV) or of more efficient international combustion engines (ICEs). The list of the IEA database feebate-related policies is, however, non-exhaustive, as it does not include all existing feebates nor subsidy/rebate policies. However, some conclusions can be drawn from its data on the growing interest in sustainable mobility. Annex 2 offers further information on feebates and on fee- and rebate-only policies for automobiles in the different developing-world regions.

Feebates can be an efficient tool to reduce vehicle emissions without needing to drain government resources to do so[12] and, therefore, shows potential for introduction in a larger number of countries, also considering the adoption of fee- or rebate-only policies.

Although complete feebates have barely been applied, other policies are being applied in developing countries to cut vehicle emissions, such as fuel regulation through CO_2 standards; incentives, including EV purchase subsidies and tax rebates; infrastructure support; and shared mobility projects (which are further discussed in section 3). LMICs could benefit from additional support provided through RBCF and other climate finance instruments to develop further feebates and other sustainable transportation policies.

12 While, as mentioned above, the feebate is considered revenue neutral, this assumes a well-set "pivot point" where the penalty becomes an incentive.

3. Policy implementation barriers and proposed measures to address them

This section provides an overview of the barriers for the implementation of the three policies and possible measures to address them. It also presents country examples to illustrate the barriers and interventions, with some examples of costs (further detailed in annex 3) that would have to be calculated on a country-specific basis.

3.1. Context of barriers to and proposed measures for the policy reforms

As mentioned before, the present RBCF blueprint designs focus on the **implementation phase** of the reforms. Although the other stages are also important, this report discusses policy implementation to support good practice during this stage, as policies often fail because of deficiencies during this phase. Moreover, implementation sometimes receives less attention and funding and could benefit from additional innovative approaches that support good practices, as in the case presented here with RBCF associating the payments with successful policy implementation.

This report divides the barriers impeding policy implementation into three main types for the three policy reforms:

- **Barriers stemming from insufficient government capacities and/or political will.** These are related to gaps in government capacities to administer the reform, a weak policy and regulatory framework that fails to support its implementation, and/or (closely linked to the other two types of barriers) a lack of political commitment to stick to the reform.
- **Barriers stemming from negative impacts on the industry and business sectors and from their lack of preparedness for the reform.** The opposition of the industry and business sectors and the negative impacts they, and consequently the economy, sustain can be a significant barrier. For example, there can be inflationary tensions in the context of the FFSR; loss of competitiveness if production costs rise; and/or a risk for stranded assets if industry or energy installations become unviable.
- **Barriers stemming from negative impacts of the reform on consumers/households and from behavioral resistance.** These can present a large obstacle as, if disregarded, they can cause the living conditions of the population, especially of the poor, to deteriorate and can also lead to social unrest.

3.2. Barriers to and measures for the implementation of FFSRs

Fossil fuel subsidies, first introduced as a measure to redistribute national income, have proved to be handy but inefficient tools, since they are often regressive (with some exceptions)[13] and lead to larger public budget expenditure and usually greater use of CO_2-intensive fossil fuels. They are mostly a response of governments to distribute wealth in the absence of (or complementary to) strong and effective social safety nets and to direct targeted support for energy-intensive business sectors. In fossil fuel–producing countries, the subsidies also support the national extractive and refining industries and/or the sharing of public wealth generated from fossil fuels. Once introduced, the subsidies create dynamics that make them hard to remove, as often many industries and jobs depend upon them. An FFSR, therefore, can be challenging to implement, especially if not carefully designed and/or if adopted in times of high energy prices or with insufficient acceptance from the industry and final consumers**.** The FFSR can cause excessive hardship in the economy and for the poor if not accompanied by packages of compensation to the vulnerable and by other policies and investments in a clean energy transition[14] that reinforce social safety nets and support industry and employment (Laan, Beaton, and Presta 2010).

Strong governance and authority of institutions, accompanied by a solid political will, are essential for implementing FFSRs successfully while safeguarding livelihoods. (Rentschler and Bazilian 2016). In their absence, FFSR reversal is common, as its implementation is often impeded by limited political commitment, poor inter-ministerial coordination, or a lack of clear leadership to sustain the reform in the face of resistance from society and industry. Effective communication campaigns and solid social safety nets can help ensure an effective use of the fiscal savings derived from the FFSR and help prevent reversals.

13 There are exceptions, and, therefore, not all fossil fuel subsidies are regressive. Subsidies for kerosene and other indoor-consumption fuels for the poor are one example, as they are targeted to especially vulnerable groups. Moreover, if these were not applied many would cook or heat using firewood instead, which would be more polluting.

14 The compensation packages refer to measures aimed at reducing negative impacts at the social level, especially for the poor. They may comprise an array of measures, but some of the most usual include direct cash transfers to the vulnerable, increases in education or health expenditure, and cutting other taxes to reduce the burden of increased energy prices. These complementary measures can also be addressed to fossil fuel– or energy-intensive sectors. The policies may include support for the installation of renewable energy or EE measures, investments in the creation of jobs in new sectors, or direct compensation packages for the most affected sectors.
The clean energy transition packages refer to measures to facilitate the transition to a clean energy sector and cover the installation of new renewable capacity, reinforcement of distribution networks, and research and development of new clean sources, among others.

Table 3.1. Summary of the Barriers to and Proposed Measures for the FFSR

Category	Detected barriers	Possible measures to address the barriers
Insufficient government capacity and/or political wil	Insufficient government capacity in terms of administration of the reform and coordination	• Reinforcement of government capacities, including intergovernmental and interagency coordination, and modelling of impacts and prices
Negative impacts on industry and business sectors and lack of preparedness	Low productivity attributed to outdated technology and insufficiently trained staff	· Targeted programs for knowledge transfer and to facilitate investments in clean technologies
	Reluctance of influential stakeholders	· Implementation of large communication and stakeholder engagement campaigns
Negative impacts on consumers/ households and behavioral resistance	Opposition stemming from hardship inflicted on the poor and vulnerable	· Deployment of compensation packages for the vulnerable through reinforced social safety nets
		· Ongoing communication campaigns about the reform and the introduced compensation measures

Source: World Bank.

Barriers stemming from insufficient government capacity and/or political will

1. Insufficient government capacity in terms of administration of the reform and coordination

Governments often keep fossil fuel subsidies in place because they lack institutional capacities and effective means to implement other, more targeted policies (Whitley and Burg 2015). Governments may not reform subsidies due to reasons such as limited capacity to respond, lack of mechanisms for targeting and transferring payments, lack of strategy to integrate transfer programs and subsidy policies, and little coordination between government bodies. Moreover, distressed state-owned electricity and energy companies may be supported by government transfers, which are easier to continue than to address underlying structural issues (Whitley and Burg 2015). In addition, FFSRs already launched may require future adjustments in response to the pace of subsidy elimination; to extend the policies to other fuels or sectors; or to align them with other energy policies.

To implement the reform, it is necessary to determine the needs and invest in the reinforcement of government capacities in terms of intergovernmental and interagency coordination and the modelling of impacts, prices, and social safety net administration (see Box 3.1). Devoting teams specifically to the FFSR implementation may be required (Whitley and Burg 2015). Specialized institutions/teams could also be created, for example, for the promotion of investments in renewable energy (see Box 3.2), the coordination of the reform, and the investments derived from the budget savings. Moreover, it is essential to ensure the existence of capacity to analyze the impacts of the FFSR and to design and implement social compensation packages through **strong social safety nets.** This is needed to promote approval of the FFSR but also to ensure the reform is beneficial, ensuring a just approach to transition.

Box 3.1 Example of Reinforcement of Capacities for an FFSR in Egypt

Cost of project component **“Supporting SSN Targeting and Operational Systems” was USD 12 million**	The **Egyptian government** has acknowledged the shortcomings of its social safety net, such as low coverage rates, poor targeting, fragmentation, and poor coordination and is committed to reforming it, with an emphasis on improving targeting and delivery of the packages. The World Bank’s “Social Safety Net Strengthening Project” is supporting the reinforcement needed. One of the components is to support the operational and targeting systems of the social safety net (World Bank 2022d).

Barriers stemming from negative impacts on industry and business sectors and lack of preparedness

2. Barrier: Low industry productivity attributed to outdated technology and staff insufficiently trained in new efficient technologies

An FFSR may cause industries to lose competitiveness in the short term in the absence of preparatory or compensatory measures that can make the industry thrive in terms of EE and the use of alternative energy sources (Whitley and Burg 2015). Increased production costs as a consequence of rising fossil fuel and energy prices can create inflationary tensions, reducing national demand and dampening exports.

The FFSR can also affect the profitability of outdated widespread **technologies and generate stranded assets. Energy-intensive industries may experience increased production costs as a consequence of rising fossil fuel prices, which may lead to job losses. This is especially problematic in countries with large fossil fuel extraction industries, where unemployment becomes an additional negative effect** (Rentschler and Bazilian 2016; Timperley, Coady, and Flamini 2015; Coady, Flamini, and Sears 2015).

Targeted programs for knowledge transfer and to facilitate investments in clean technologies can be a suitable measure. National industries negatively affected by the FFSR can see these impacts mitigated through knowledge transfer and investment facilities that transform the most affected and energy-intensive sectors. These knowledge-transfer programs for the industry sector would address the need to improve the technical qualifications for new energy efficiency and renewable energy adoption. The government may work with public or development banks to introduce financial instruments and programs (that is, soft loan programs) that facilitate the businesses’ acquisition of cleaner technologies.

Box 3.2 Green Climate Financing Facility for Local Financial Institutions in Latin America

The facility was implemented for Chile, Ecuador, Panama, and Peru with a **USD 150.2 million** grant.	The GCF developed the **Green Climate Financing Facility for Local Financial Institutions in Latin America** to reduce GHG emissions through locally financed and developed climate change projects for MSMEs in RE, EE, and land use. It will provide local finance institutions with access to green finance (GCF 2020).

3. Barrier: Reluctance of influential industry and business stakeholders

If their alignment and support are not guaranteed, low acceptability among influential industry and business stakeholders can be among the biggest barriers to an FFSR (Laan and Maino 2022). This opposition is derived from the higher benefits of subsidies for the upper and middle classes and industry, who tend to be strongly opposed and are often better organized to exert political pressure (Rentschler and Bazilian 2016).

The implementation of large communication and stakeholder engagement campaigns is key to obtaining their support. They must target information and knowledge gaps and counter dis- and misinformation (Laan and Maino 2022). Although the campaigns themselves will not solve the opposition problem, they can inform the industry sector about the reform changes, as well as about the support and reinvestment programs available. Exchange networks should also be strengthened (Funke and Merrill 2019).

Barriers stemming from negative impacts on consumers/households and behavioral resistance

4. Barrier: Opposition stemming from hardship inflicted on the poor and vulnerable

The reform may face strong opposition from the poor and vulnerable, as it can inflict significant hardship on them, including loss of purchasing power, and lead to a deterioration in living conditions (Kitson et al. 2016). These adverse effects and a negative perception of the reform, if it is done too hastily, can trigger citizen backlash (see Box 3.3). To minimize the negative impacts on the economy and households, the FFSR may require some further adjustment after its introduction, as well as complementary measures to mitigate these impacts. It is also important to consider gender inequalities that can be deepened by the reform.

Box 3.3 The Failed 2019 FFSR in Ecuador

In Ecuador (2019), the government rapidly removed subsidies for gasoline and diesel as part of an austerity package. However, the reform led to a significant hike in fuel prices and sparked a wave of violent public protests and political unrest. The government had promised welfare payments but could not deliver them in time to the most vulnerable population. The reform was perceived as unacceptable by many groups and the **government had to negotiate with the different groups and reinstall part of the subsidies** (Funke and Merrill 2019). However, violent protests were widespread (El Universo 2022). The government had to reach an agreement to establish a differentiated price, to maintain the general fuel subsidy for the disadvantaged population (Ministerio de Gobierno de Ecuador 2022)

The deployment of compensation packages to the vulnerable through reinforced social safety nets is a necessary step to reduce negative impacts and promote acceptability of the FFSR (Funke and Merrill 2019). Existing social welfare systems can be reinforced with the revenues generated through this policy, as a social policy is much more effective at redistributing welfare and income than subsidies. Social safety nets must be scaled up from the initial stages of the reform and reviewed during implementation (ESMAP 2017).

To increase public support, targeted transfers to groups that would otherwise be likely to oppose the removal of fossil fuel subsidies or to suffer the worst effects of the reform[15] must be promoted (see Box 3.4).

15 According to research on carbon pricing, experts suggest it is important to design compensation mechanisms with this approach. More on this topic can be found at https://www.nature.com/articles/s41558-018-0201-2.

Box 3.4 Success Stories in Implementing Social Support Programs during an FFSR

The **cash transfer** program in **Jordan's budget was USD 450 million.** Considering the Angolan GDP (USD 87.22 billion in 2015, according to World Bank data), **the program budget was USD 435 million.**	• Targeted cash transfers have been used in the **Philippines** to strengthen the national social safety net, as well as lifeline tariffs to safeguard the poor (Mendoza 2014). • In **Morocco**, a conditional cash transfer accompanied the reform, along with health insurance and education schemes (Nordic Council of Ministers 2016). • **Jordan** introduced a targeted cash transfer after the FFSR to mitigate the negative impacts of the reform on the vulnerable population and to reduce backlash against it (Megersa 2020). • **Angola** strengthened social welfare programs. The IMF supported the setting of cash-transfer schemes, whose cost was equivalent to 50 percent of the poverty line, with an expenditure of 0.5 percent of the GDP (Whitley and Burg 2015).

The communication of the FFSR and the associated compensation and investment packages is also a key measure that should start prior to and be maintained during the implementation of the reform. This serves to ensure citizens understand the benefits of the reform, the existing compensation measures from which they can benefit, and the overall benefits of the FFSR in terms of budget savings and shared prosperity.

3.3. Barriers to and measures for the implementation of mandatory EE standards for appliances

In a context of foreseen increased electricity demand in LMICs as a result of an electrification of the energy mixture and increased demand from sources such as EVs and electric motors, heat pumps, and hydrogen production, among others (IEA 2022b), efficiency gains in appliances can contribute to moderating the electricity demand. Mandatory EES have proved a successful reform that can moderate electricity intensity in appliances, particularly in those with high energy consumption.

Many LMICs have launched EES policies, and some could benefit from additional support to face the barriers found during their implementation, such as poor government capacity to collect data on the level of efficiency to define the standards (USAID 2021); insufficient technical and equipment capacity to measure the efficiency (UNDP and GEF 2008); limited availability of EE appliances; and impacts in affordability due to higher upfront costs of these appliances (Bruha 2015). Table 3 presents a summary of barriers to EES policies and proposed measures to address them.

Table 3.2 Summary of the Barriers and Proposed Measures for the EES

Category	Detected barriers	Proposed measures to address the barriers
Insufficient government capacity and/or political will	Informational gaps and lack of experience with the energy efficiency of appliances and insufficient capacity to administer the reform	• Building of administrative capacity
	Limited capacity to measure the energy efficiency levels of appliances	• Establishment of national accredited testing facilities or agreements with external laboratories
Negative impacts on industry and business sector sand lack of preparedness	Noncompliance stemming from lack of information /insufficient awareness	• Training of and engagement with manufacturers, importers, and retailers
	Limited availability of appliances with higher levels of energy efficiency	• Promotion of a market shift and ensuring of a supply of energy-efficient appliances
Negative impacts on consumers/ households and behavioral resistance	Higher upfront costs of energy-efficient appliances	• Provision of financial incentives and other innovative financing mechanisms
	Lack of awareness about the benefits of energy-efficient appliances	• Awareness campaigns on benefits and energy saving potential

Source: World Bank.

Barriers stemming from insufficient government capacity and/or political will

1. Barrier: Informational gaps regarding EE of appliances and insufficient capacity to administer the reform

As the initial EESs can be extended to other product categories, it will, over time, be necessary to align the standards with the latest technological developments. If the government does not have the right databases, tools, and knowledge, the tasks of market surveillance and enforcement will not be effective.

The reinforcement of capacities to enforce the reform and monitor compliance is a key measure that can be achieved through training, the exchange of international experiences, and the dissemination of best practices and tools (USAID 2021). Methodologies, models and assessment tools must also be developed to aid government agencies in estimating the potential energy savings (USAID 2021; see Box 3.5).

Box 3.5. The Case of South Africa: Informational Barriers to the Implementation of EESs

The GEF awarded South Africa a **grant of USD 4.4 million** to introduce and implement the EESs. The total project cost was **USD 13 million.**

In 2011, **South Africa** introduced a mandatory EES program in the residential sector, but the country **lacked experience in the implementation of such a program, as well as reliable data on potential energy savings.** To address this, the USAID's EE for Development Program (EE4D) provided technical assistance to estimate the potential energy savings in the residential sector. Training sessions were conducted to share best practices and help the government to develop and apply the tool to other EE programs (USAID 2021).

2. Barrier: Limited capacity to measure the energy efficiency levels of appliances

Governments need to monitor appliances that are already on the market and new products. In an initial phase, it is essential to test the energy consumption, performance, and efficiency levels of appliances. It is also necessary to corroborate the certification and accreditation requirements of appliances on the market (GEF 2019). This can be challenging without proper technologies, institutional skills, and testing protocols.

The lack of test facilities is generally due to a poor regulatory framework for EESs (UNDP and GEF 2008). Furthermore, if there are no test laboratories in the country, it is necessary (and expensive) to test and label the appliances' efficiency externally (UNDP and GEF 2008).

The establishment of national (accredited) testing facilities or agreements with external laboratories can address this barrier (see Box 3.6). It is important to have dedicated staff and technical infrastructure—that is, facilities for energy performance testing—to ensure the appliances on the market comply with the EE standards (UNDP and GEF 2008). The government could also make relevant agreements with external laboratories.

Box 3.6 Example of an Energy Testing Laboratory

Hardware to upgrade the testing labs and appliances in Egypt cost approximately **USD 700,000**.	**Egypt** implemented a project for improving the EE of lighting and other building appliances. Government-operated test laboratories already existed for certain appliances. The project supported some improvements in the quality of the testing and the facilities, as well as the establishment of test labs to assess the compliance of other equipment types (Borde 2014).

Barriers stemming from negative impacts on industry and business sectors and lack of preparedness

3. Barrier: Lack of information on/insufficient awareness of the standards and necessary technology

If EES policies are not adequately designed and communicated to the industry, there may be a lack of compliance with the reform, together with negative impacts to the industry and resistance (Holuj and Waide 2021).

Training and engagement with manufacturers, importers, wholesalers and retailers is important to ensure they know the requirements and allow them to develop strategies to meet them (Lihidheb 2019; See Box 3.7). This can be achieved through awareness and communication campaigns and exchange groups. In some cases, starting with a single product group to demonstrate success can lead to a successful implementation of the EES policy (Lihidheb 2019).

Box 3.7 Case Study of Strategy for Removal of Barriers to Implement EESs

The BRESL had a budget of **USD 7.8 million.** In Pakistan, the activities cost **USD 1.5 million.**	The Barrier Removal to the Cost-Effective Development and Implementation of EE Standards and Labeling (BRESL) project was implemented in 2008 in Bangladesh, China, Indonesia, Pakistan, Thailand, and Vietnam (Wei 2008). It aimed to reduce GHG emissions by facilitating the transformation of the manufacturing and sale of highly efficient appliances. The strategy comprised the following elements (Wei 2008): • **Policymaking program** to establish the legal basis for EESs • **Capacity-building program,** including the establishment of regional working groups • **Manufacturer support program,** for the provision of information and technical assistance • **Regional cooperation program** • **Pilot projects** showcasing aspects of the design, facilitation, and implementation

4. Barrier: Limited availability of appliances with higher levels of EE

Market dynamics and lack of incentives to produce more efficient appliances can be a major barrier to introducing EES policies. For example, if the policies are too ambitious in terms of efficiency levels or timelines, local producers or retailers may not be able to adapt their production or supply chains in a timely manner. Producers and/or importers may also lack market incentives to upgrade production (UNDP and GEF 2008).

To overcome this, it is necessary to promote a market shift and ensure the supply of energy-efficient appliances. This shift must align incentives and reduce producer resistance. Additionally, the process requires establishing feasible implementation times, considering the supply capacity of local manufacturers and/or importers (Dhingra 2016). Authorities should regularly engage with manufacturers and importers to make sure the necessary technologies are available in national markets.

Donor funding can help by providing the right incentives to break market dynamics, through financing purchases, bulk procurement, and other measures (UNDP and GEF 2008; see Box 3.8). Governments can also implement fiscal instruments and subsidies (upstream programs), provided directly to appliance manufacturers to produce more efficient units (Can et al. 2013).

Box 3.8 Example of Incentives for Appliance Manufacturers

In 2012, the Chinese program had a budget of **USD 4.1 billion** (RMB 26.5 billion).	**China's Promotion Product Program** was introduced with the goal of promoting efficient household appliances and stimulating the economy. It began with compact fluorescent lightbulbs. The government offered subsidies to suppliers, to provide a 30 percent discount on wholesale purchases and a 50 percent discount on retail sales. In 2009, the incentive program was extended to air conditioners, offering subsidies per unit of energy-efficient products. In 2012, the program was extended again (Can et al. 2013).

Barriers stemming from negative impacts on consumers/households and behavioral resistance

5. Barrier: Higher upfront costs of energy-efficient appliances

The impact of an EES policy may be limited, as the usually higher upfront costs of energy-efficient appliances compared to others may make the products less attractive to consumers, whose preferences play a key role in the policy's success (Bruha 2015).

The provision of financial incentives and other innovative financing mechanisms can promote the purchase of EE appliances despite their higher upfront costs (see Box 3.9). Among the incentive instruments to promote affordability and ensure the purchasing power of consumers are fiscal incentives and cash incentives.

Box 3.9 Example of an Innovative Program to Encourage Consumer Purchases

The budget was **USD 8.7 billion** (about ¥693 billion).	Japan implemented a consumer reward program—the Eco-Point System—from 2009 to 2011. "Eco-points" were granted for the purchase of air conditioners, refrigerators, and televisions with high EE ratings and could be exchanged for green goods and services listed in a catalogue. The program resulted in estimated savings of 2.7 million tons of CO_2 per year.

6. Barrier: Lack of awareness about the benefits of energy-efficient appliances

Closely related with the previous barrier, limited knowledge about actual energy savings that compensate for the extra costs of energy-efficient appliances may lead to resistance against the reform (UNDP and GEF 2008). In developing countries, other factors often have more weight in a consumer's purchasing decision when acquiring an appliance (Dhingra 2016).

A possible measure to overcome this barrier is the introduction of awareness campaigns on benefits and energy savings potential (see Box 3.10). *To increase market penetration, it is crucial to raise consumer awareness, especially among lower-income households, to make the consumers realize EE-labelled products may actually be more affordable* (Dhingra 2016).

Box 3.10 Example of Barriers and Success Factors Related to Consumers

Tunisia established a mandatory, successful labeling and MEPS program for appliances in the residential sector in 2004. Part of its success lay in the launch of a national awareness campaign directed to consumers, which aimed to educate them about the new energy label, as well as highlight the benefits of efficient appliances (Lihidheb 2019).

3.4. Barriers to and measures for feebate implementation for low-carbon vehicles

Gains in fuel consumption efficiency and advancements in vehicle electrification are essential to decrease oil demand in the road transportation sector (IEA 2022b) and its associated GHG emissions and to reduce health issues related to poor air quality (EEA 2018). Countries are deploying an array of policies for the adoption of more efficient ICEs and EVs, although there are challenges for its implementation.

Feebates have the potential to accelerate the production and adoption of low-emission vehicles (Wappelhorst 2022). They have been successfully implemented in some high-income countries (HICs) with barely any uptake in LMICs. More countries have introduced fee- or rebate-only policies. Feebate policies present the advantage of having the potential to be revenue neutral, if rigorously designed and reviewed (Wappelhorst 2022). However, a number of barriers can deter its successful implementation (Ally 2016; Wappelhorst 2022). Moreover, if not duly prepared and supported with other, complementing measures, its adoption could cause a loss of competitiveness of the national ICE-vehicle manufacturing industry. All these barriers may be deterring the adoption of the feebate but can be addressed through RBCF and other financial approaches. The application of fee- or rebate-only policies may be also a suitable approach, although less efficient than feebates.

Table 3.3. Summary of the Barriers and Proposed Measures for Feebates for Low-Emission Vehicles

Category	Detected barriers	Proposed measures to address the barriers
Insufficient government capacity and/or political will	Limited enforcement and feebate adjusting capacity	• Building administrative capacity (teams and systems) to implement and adjust a system to collect the fees and distribute the rebates
	Insufficient facilities and capacities for vehicle emission testing	• Investment in technology and capacity building for the emission testing facilities or in the promotion of partnerships for this purpose
Negative impacts on industry and business sectors and lack of preparedness	Limited buy-in of the reform by manufacturers, importers, and dealers because of poor communication and lack of incentives to introduce low-emission vehicles in the market	• Implementation of communication campaigns and incentive programs that can send clear messages to the vehicle market stakeholders
	Loss of competitiveness of national vehicle industry due to limited capacity of national manufacturers to produce EVs	• Investment in the development and strengthening of national EV industries
Negative impacts on consumers/ households and behavioral resistance	Lack of awareness and consumer incentives to buy low-emission vehicles	• Communication campaigns to raise awareness about the benefits of higher-efficiency vehicles, especially EVs, and about the feebate program
		• Development of clear incentives for consumers
	Lack of appropriate infrastructure for low-carbon vehicles	• Support for the development of infrastructure necessary for the adoption of EVs

Source: World Bank.

Barriers stemming from insufficient government capacity and/or political will

1. Barrier: Limited enforcement and capacity for adjusting feebates

The implementation of a feebate requires an effective fiscal collection and distribution system, which can be challenging for governments with weak governance and coordination capacities. Moreover, technical capacity is needed to adapt the feebate regularly and to consider market developments.

Reinforcing administrative capacity to implement a system to collect the fees and distribute the rebates and to regularly adjust it is necessary for the implementation of the feebate. Public sector agencies responsible for the feebate can benefit from support addressed at reinforcing their data management, their mechanisms for collecting the fees/administering the rebates, and their coordination capacities to make the reform succeed in contexts of limited capacity (University of Nairobi Enterprises and Services LTD 2015).

An appropriate feebate policy requires periodic adjustments to the pivot point and a correct assessment of the vehicle market, which can be challenging in contexts of reduced information on the characteristics of the national vehicle fleet (see Box 3.11). The system must also consider vehicle technology developments. Therefore, the technical teams must be trained in the process of updating the feebate regularly (Wappelhorst 2022).

Box 3.11 Example of the Costs Incurred due to Imbalances between Fees and Rebates

France had EUR 300 million (USD 307 million) in direct costs in the first years and a decline of EUR 300 million (USD 307 million) in VAT revenue due to sales of smaller/cheaper cars. **Mauritius spent USD 28 million** due to the imbalance between fees and rebates.	In **France**, the *bonus-malus* program ran a deficit in the early years, peaking with over EUR 500 million in 2009 and obtaining **average losses of EUR 300 million in the first years**. Since 2014, the program has achieved a constant positive balance (Wappelhorst 2022). Similarly, in Mauritius, in the first two years after its introduction, the rebate exceeded the levy by more than Rs 1 billion (approximately USD 28 million), causing a burden on the public sector budget (Ally 2016).

2. Barrier: Insufficient vehicle emission testing facilities and capacities

The unavailability of vehicle emission testing facilities to test the actual emissions per type and model of vehicle (and possibly also to measure not only grams of Co_2 per km but also noncarbon pollutants emitted) is another operational challenge found in countries wanting to apply the feebate system. These facilities need equipment that can be costly, as well as sufficiently trained personnel (Ally 2016). Furthermore, for countries that import vehicles with their own test standards, converting the different test standards for CO_2 emissions can be challenging (Ally 2016).

Investment in technology and capacity building for the vehicle emission testing facilities or in the promotion of partnerships for this purpose is needed to address this barrier (see Box 3.12). It is recommended that countries establish their own testing facilities with sufficient technical equipment and technical staff. Studying partnership with laboratories in third countries may also be an option (Yang 2018). To ensure credibility, the vehicle information collected by motor vehicle inspectors needs to be stored by a government agency appointed for this purpose with a robust data management system (University of Nairobi Enterprises and Services LTD 2015).

Box 3.12 Example of a Testing Lab in Chile

The lab had an **initial investment of USD 3.3 million** in the facility and equipment, **USD 230,000 in operational costs,** and **over USD 2.5 million in other investments.** It has an **annual budget of USD 1.7 million.**	**Chile established a national CO_2 emission testing lab for vehicles** within the Centro de Control y Certificación Vehicular (3CV) under the Ministry of Transportation. This 3CV lab has various different labs that are responsible for testing different issues concerning vehicles, such as quality of technologies for different types of vehicles and fuel efficiency (Soto Cadiz 2018).

Barriers stemming from negative impacts on industry and business sectors and lack of preparedness

3. Barrier: Limited buy-in to the reform by manufacturers, importers, and dealers because of poor communication and lack of incentives to introduce low-emission vehicles in the market

A lack of support for the reform by manufacturers, importers, and dealers may cause substantial distress in its implementation. Thus, it is essential to ensure their buy-in to the reform from the initial stages.

However, their resistance may be difficult to avoid in cases where they lack clear incentives to introduce low-emission vehicles in the market. To overcome this, it is essential to implement communication campaigns and incentive programs that can send clear messages to the vehicle market stakeholders.

The introduction of incentives to grow the national market for more efficient ICEs and for EVs beyond direct investments in manufacturing capacity (see the next barrier for more detail of direct support to the industry) provides a favorable framework. Incentives such as reduced import taxes for more efficient vehicles can be a strong signal to renew the interest of importers and dealers in supplying thesevehicles to the national market.

Box 3.13 Example of Incentives Applied in the Georgian Market through Import Tax Benefits

A relevant initiative corresponds to **tax advantages** introduced by the government of **Georgia** in 2016. Hybrid car imports benefited from being taxed approximately 60 percent less than their conventional-fuel counterparts, while electric vehicles were free of tax. This resulted in a massive increase in the number of hybrid car imports as a percentage of total imports, from 5.7 percent in 2016 to 42 percent in 2017 (*Georgian Journal* 2018).

Communication about the reform and about the investment and incentives is also essential to ensure the support of the different stakeholders involved in the national vehicle markets. These stakeholders must be involved in the process since the beginning, and communication and engagement efforts must also be addressed to them during implementation. It is also important that they understand perfectly the feebate system, as they will be the contact point with the consumer.

4. Barrier: Loss of competitiveness of national vehicle industry due to limited capacity of national manufacturers to produce more efficient ICEs and EVs

The feebates, and other, complementary clean mobility solutions, aim to encourage the adoption of more efficient vehicles. This can also motivate the national industries to produce these vehicles and their components. However, if there is low technical and investment capacity or if value chains are not prepared for the production of these vehicles and their components, the reform can adversely affect national manufacturers who cannot keep up with international manufacturers' technology updates.

Investments in the development and strengthening of national efficient vehicle industries can address these challenges. Many countries, even if they are not implementing feebates, have been adopting different policies and regulations to boost local innovative ICE and EV industries, among which tax exemptions for producers and EV vehicles owners (for example, a reduction in the circulation tax) are some of the more popular (Mali et al. 2022). Support for components and maintenance services may also be offered (see Box 3.14).

Box 3.14 Examples of Incentives for Vehicle Manufacturers to produce EVs

The financing for this project component in Jamaica is **USD 975,000** (total project cost: USD 13.2 million).

USD 1.2 billion (1,200 million) has been allocated for the second phase of the FAME scheme.

The government of **Jamaica** is implementing a project called Supporting Sustainable Transportation through the Shift to Electric Mobility. One of the objectives is to prepare for the scaling up and replication of **low-carbon electric mobility**. The expected outputs include the following:

- Fostering business spinoffs related to eMobility through business incubators
- Integration of eMobility concepts and technologies into academic courses and projects
- Implementation of on-campus events and workshops targeting various sectors
- Professional training of drivers, mechanics, and first responders (GEF 2020)

India deployed the Faster Adaptation and Manufacturing of (Hybrid and) Electric Vehicles (FAME) scheme in 2015 to **promote electric and hybrid vehicles**, as well as to achieve national fuel security. The first phase of the FAME scheme (2015–19) had a budget of Rs 895 crore[a] (about USD 110 million). The second phase (2019–24) has an outlay of Rs 10 thousand crore. (Ministry of Information and Broadcasting n.d.).

A recently announced battery swapping policy is expected to encourage the population to adopt EVs and benefit manufacturers, as spare parts of machinery will be more easily available (Sheeraz n.d.). Moreover, in 2020, the Indian government introduced Bharat Stage VI standards, in line with the Euro 6 emission limits, with the goal of controlling pollutant vehicle emissions (Ricardo 2020). These have motivated national manufacturers to make significant design improvements.

a. Rs crore refers to 10 million Indian Rupee.

Barriers stemming from negative impacts on consumers/households and behavioral resistance

5. Barrier: Lack of awareness and consumer incentives to buy low-emission vehicles

There are a series of reasons that may disincentivize the purchase of efficient vehicles (particularly EVs) in developing countries, with pricing and lack of awareness being the most common, though not the only, ones. However, the lack of other incentives may also play a key role:

- **EVs normally have higher prices than non-electric cars.** However, new, more efficient ICEs that include the newest technologies also have higher prices. If feebates are to be really effective in developing countries, the rebate amounts must be substantial to make them attractive (Kongklaew et al. 2021).

- **The cost of conventional ICE cars is already unaffordable to large segments of the population, in developing countries.** Moreover, in many countries, the secondhand market is also an important source for vehicles. EVs are normally more expensive than ICEs (although often lower in life-cycle costs), which makes them less affordable—even more so, if compared to secondhand ICE vehicles (Khan et al. 2022; Kongklaew et al. 2021). New ICEs may still exceed the purchase capacity of large segments of the population.

- **Lack of awareness.** The application of feebates has not seemed to spark much discontent among populations, although a lack of understanding of their functioning has been reported (Monschauer and Kotin-Förster 2018). Communications about the feebate and on benefits of shifting to EVs and to vehicles that consume less fuel must reach a large audience so consumers are aware and can make their vehicle purchase decisions in an informed manner.

- **Insufficient consumer incentives.** A lack of clear incentives can make the adoption of efficient vehicles less attractive (see Box 3.15). The introduction of such incentives as reduced EV charging rates and circulation taxes or parking benefits can boost the adoption of lower-emission ICE vehicles and EVs by the general public.

Box 3.15 Example of Insufficient Consumer Incentives for Switching to EVs in Nepal

A study analyzing the difficulties of Nepal in increasing the EV fleet has indicated that **incentives for consumers of EVs are poor or inexistent**. For example, there is no official standard tariff structure in practice for EV charging purposes. There is a severe need for a lower electricity tariff for EV charging in Nepal. Power availability is also an issue, since with the increasing number of EVs, the national energy demand will increase significantly, resulting in problems in the electricity sector (this is closely related to the issues described elsewhere in this section concerning the barrier of lack of infrastructure for EVs). Also, the tariff rate of power/energy is high (Mali et al. 2022).

This lack of awareness and incentives needs to be addressed through different measures, such as communication campaigns and targeted consumer incentives.

Launching public awareness campaigns about more efficient vehicles—for example, in collaboration with manufacturers, dealers, electric utilities, and charging station operators—may spark consumers' interest. Demonstrations of EV technology via exhibitions and experience centers may also help raise awareness (Kohli et al. 2022). Such campaigns must not only be about the benefits and functioning of the efficient vehicles but must also be considered opportunities to explain the functioning of the feebate.

These shall be accompanied by clear incentives for consumers. Clear signals and investment facilities for purchasers of low-emission vehicles are essential to promote the transition to less emission-intensive transportation. The feebate itself may already be a strong incentive, but it can be complemented by others, such as targeting the system to the level of income of the purchaser.

Other incentives can include exemptions from customs duty and VAT for imported EVs, reductions of circulation taxes, special regimes for EV components and charging equipment, and waived parking fees (Khan et al. 2022).

Box 3.16 The NAMA for Electric Mobility in Cabo Verde and Its Incentives for the Adoption of EVs

The **EMF is expected to leverage EUR 5.4 million (USD 5.53 million) from the public sector and EUR 12.3 million (USD 12.6 million) from the private sector.**	The Nationally Appropriated Mitigation Actions (NAMA) Facility-supported project "Promotion of Electric Mobility in Cabo Verde (ProMEC)" (EUR 7.2 million) is supporting the Cabo Verde government in the development and implementation of its strategy for the promotion of electric vehicles. The project will provide **incentives for the acquisition of 600 electric vehicles, the installation of a network of 40 commercial and 55 private EV charging stations, and the implementation of several e-bus demonstration projects.** It will establish an electric mobility facility (EMF), with a rebate covering part of the incremental cost of EVs (NAMA Facility n.d.). Another example of incentives is China and its subsidy program to provide 9,299 Yuan for the private purchase of new PHEVs in different cities (Sheldon and Dua 2020).

6. Barrier: Lack of appropriate infrastructure for low-emission vehicles

Particularly when considering the adoption of EVs, the lack of charging infrastructure is a key barrier in developing countries (Mali et al. 2022; Khan et al. 2022). It can diminish the effect of the incentives introduced, as consumers will not buy EVs unless they have a supporting infrastructure to operate them. In most countries, the existing charging stations are mostly located in the biggest cities, while remoter areas have very few or no charging points.

The newer and more efficient ICE vehicles do not need, in principle, any additional infrastructure beyond the basic infrastructure required for any traditional ICE vehicle, provided there is a functioning supply chain that can provide spare parts for the maintenance of these vehicles using updated technologies.

Further support for the development of infrastructure necessary for the adoption of low-emission vehicles, and in particular of EVs, is needed. The provision of sufficient funding and technical capacity to promote the installation of a solid network of charging stations is essential for greater inclusion of EVs in national vehicle fleets. These can be funded by the government or the private sector or through public-private partnerships.

Many countries are currently reinforcing their networks of charging stations and implementing models to define exactly where the stations should be placed (see Box 3.17). Energy security is also an issue that must be addressed in many countries before, or in parallel to, the deployment of EVs.

Box 3.17 Initiatives in Costa Rica and Cabo Verde to Support the Necessary Infrastructure for EVs

The **ProMEC** project has a budget of EUR 7.2 million **(USD 7.37 million).**	An example of supporting the necessary infrastructure is found in Costa Rica, which is making advancements in terms of public chargers and has introduced a law that establishes a methodology to place charging stations strategically (Quirós-Tortós, Victor-Gallardo, and Ochoa 2019). In a similar case, Cabo Verde has set a target for establishing a nationwide network of charging infrastructure by 2030 and is installing private and commercial charging stations under the internationally funded five-year NAMA support project (ProMEC) (Khan et al. 2022).

4. Designing policy RBCF support programs

This section provides the RBCF blueprints for the selected policies. It presents the benefits RBCF could bring to encourage the implementation of FFSRs, EES policies, and feebate policies. Later it outlines some necessary conditions that represent the foundation for a well-designed RBCF program, followed by a summary of the project parameters. Next, the definition of VERs as a payment metric and the verification process are presented to conclude with key payment considerations for the RBCF instrument.

4.1 Rationale for RBCF

As outlined before, LMICs face significant barriers to implementing climate change mitigation policies. These are rooted in context-specific economic, political, and technical challenges, which broadly translate into a lack of resources, limited in-country technical expertise, weak compliance and enforcing mechanisms, and leadership and coordination challenges.

RBCF is a promising tool with the potential to address some of these barriers. In particular, RBCF based on VERs offers several benefits in support of the implementation of mitigation policies. This section starts by outlining these benefits and provides an overview of how RBCF applies to each specific policy area.

4.1.1 Benefits of RBCF for climate policy implementation

RBCF can help advance climate policy implementation through a number of channels. Within the scope of this report, RBCF provides two main categories of benefits.

First, RBCF provides additional resources[16] targeted toward implementation actions, enabling governments to cover costs derived from policy operationalization without affecting their debt positions. These costs can include, for example, support for administrative systems and databases or communication campaigns. With the additional funding offered by RBCF, governments are better placed to implement the reforms effectively.

Second, by tying funding to VERs, RBCF can create an accountability and support framework focused on driving climate results and related spillover benefits. While RBCF has not been widely used to drive climate policy reforms of the type reviewed in this report, the use of RBF to support policy reform and climate-related projects in other contexts illustrates its potential to support effective policy implementation (World Bank and Frankfurt School of Finance and Management 2017). Annex 4 outlines several cases that demonstrate the use of RBF for policy and institutional reform in several contexts.

RBCF tied to VERs can support impact-driven policy implementation by doing four things:

1. Focusing attention on implementation and results. By tying funding to VERs, RBCF can help bring together the interests of different government stakeholders, aligning incentives toward the same goal. By giving visibility and tangible value to mitigation results, RBCF can help coordinate and motivate actors toward their achievement. Tying funding to results (VERs) incentivizes governments to overcome roadblocks by carrying out all necessary steps and making complementary investments when needed to implement the policy effectively. It also promotes the internalization of the benefits of climate reforms within government agencies, reducing potential governance gaps during their implementation. By adding a longer-term perspective, RBCF mitigates the risk of reform reversal. For instance, in a variety of energy efficiency RBCF programs, the increased attention on results from all the actors in the energy chain has led to energy savings (Bregazzi et al. 2022).

Additionally, while the focus of the RBCF is to support implementation, by ensuring extra financial support linked to successful implementation, RBCF can motivate governments to kickstart reforms—

16 Note that this refers to the additional resources provided by an RBCF program relative to no funding. The complementarities between RBCF and other financial support instruments are discussed in box 18, below.

that is, though not its focus, RBCF can provide some incentives to trigger reform, which may be consequential in some contexts, such as the implementation of EE standards.

2. Promoting value for money. By tying funding to the achievement of VERs, well-designed RBCF promotes cost-effective climate finance, as payment is only made when results are achieved. Paying for VERs rather than for activities or even intermediate outcomes, such as legislative reform, can ensure donors that funding is only directed toward actual emission reductions, thus addressing the risk of policy reversal and protecting donors from financing reforms that do not get effectively implemented. Moreover, paying for VERs is consistent with the fact that mitigation policies deal with a global externality (GHGEs). In this context, climate finance departs from traditional development finance in that it brings about not only local benefits, but also climate mitigation impacts at a global scale. Thus, financial instruments like RBCF that link payments for VERs are a pertinent tool to incentivize climate change mitigation impacts. This approach is used by a number of RBCF facilities, such as funds managed by the World Bank. For example, the Climate Change Fund Management Unit[17] develops financial instruments for low-carbon, climate-resilient development and supports policy and regulatory environments to lower the cost of capital by paying for VERs. TCAF supports countries in achieving NDCs by also paying for VERs These funds only make payments based on reported and verified results, ensuring the effective use of their resources (World Bank 2021).

3. Encouraging ownership, flexibility, and innovation. Within the scope of this report, payments are related to VERs and not associated with specific activities to achieve these results. Thus, RBCF provides flexibility for each government to decide how to implement the reform to achieve VERs. By focusing on VERS, rather than intermediate outputs, RBCF complements other RBF instruments (such as PforR) and can provide countries with the space to adapt their implementation to achieve results. By doing so, it promotes greater agent ownership and incentivizes the pursuit of innovative strategies that are relevant to the local context. For example, the Ci-Dev Carbon Fund pilot for rural electrification in Senegal demonstrated that committing to emission reductions facilitates the engagement of local stakeholders and the potential for country ownership (Carbon Limits, Climate Focus, and Ci-Dev (Carbon Initiative for Development) 2016). Likewise, the World Bank's RBF Clean Stoves Initiative was reported to give suppliers flexibility to innovate on the design, production, and commercialization of stoves based on their knowledge of local conditions (Bregazzi et al. 2022).

4. Improving MRV capacity and transparency. RBCF requires robust MRV systems and capacity, since financing is contingent on the achievement of VERs. For instance, experience from different projects within the BioCarbon Fund Initiative for Sustainable Forest Landscapes illustrates that, to comply with requirements for VERs payments, it was necessary to build capacity in advance and have access to expert advice on MRV methodologies (World Bank 2020b).

MRV under RBCF does not fall under often burdensome carbon market regulation, and MRV for policies can be based on modelling policy impacts. This avoids transaction costs and time-intensive MRV on a project-by-project basis which would require tracking of each individual mitigation activity and, typically, site visits in the verification process.

MRV capacity and data protocols bring about long-term benefits and capacities that can be used in other policy areas. MRV systems increase transparency by giving visibility to climate results, bringing about a range of positive spillover effects beyond the RBCF:

a. MRV requirements for estimating emission reductions build countries' capacity to *report on NDCs and participate in carbon markets* (World Bank 2022e). Most mitigation targets are expressed in emission reductions; thus, building capacity to report on VERs enhances countries´ ability to

17 The Climate Change Fund Management Unit houses a variety of trust funds focused on climate, including the Forest Carbon Partnership Facility-Carbon Fund (sustainable forest and land use), the Carbon Initiative for Development (clean energy access), and the Carbon Partnership Facility (broad sectoral scope outside agriculture, forestry, and other land use).

benefit from carbon markets and other climate finance mechanisms.

b. The generation of climate information and regular reporting on results provides a signaling effect that contributes to creating attractive conditions for private climate finance (World Bank 2021).

Box 4.1 RBF Added Value for Driving Change and Examples of Theories of Change around RBF

How does RBF drive change?

The benefits of RBF in enhancing results (its theory of change) vary across the range of sectors and institutional contexts in which it has and can be applied.

The theory of change implied by the benefits identified here aligns with other RBF programs and analysis of the potential of RBF by various actors. For instance, related theories of change are detailed in the following programs and reviews:

- An early review of the **World Bank's PforR program** identified the core benefits of this RBF modality as including a focus on results, strengthening country systems, improving accountability and legitimacy, and building monitoring capacities to improve performance. (Gelb, Diofasi, and Postel 2016)
- Similarly, in a key report on RBF strategies, **the Global Partnership for Results-Based Approaches (GPRBA)** identified that RBF can add value through four drivers of impact: (1) drawing attention to what matters, (2) aligning incentives to the welfare of program beneficiaries, (3) providing flexibility to maximize results, and (4) enhancing the accountability of the incentivized agent to beneficiaries (GPOBA 2018; adapted from Perakis and Savedoff 2015).
- Likewise, a **World Bank report on RBF used broadly across 74 climate programs** identified the benefits of RBF in terms of (1) increasing MRV capacity, (2) supporting domestic policy process, and (3) crowding-in private actors by linking payments to results (World Bank and Frankfurt School of Finance and Management 2017).
- **Results in Education for All Children (REACH),** a World Bank results-based initiative, focuses on RBF's potential to (1) focus policy attention on education system enhancements, (2) attract and retain attention to ultimate results, (3) align key actors in the pursuit of results, and (4) instill a culture of measurement (World Bank 2017).

Despite the benefits outlined in this section, tying funding to VERs by design entails some limitations:

- Tying RBCF to VERs is meant to support implementation but is not designed to kickstart a policy change. Paying for VERs can facilitate and encourage effective implementation, but it will not generate direct incentives to kickstart a policy reform. Political commitment and buy-in for the climate policy reform is assumed, and it is a precondition for a successful RBCF, as explained in section 4.2. To manage this limitation, an RBCF program can be complemented along the mitigation policy cycle by other climate finance tools—such as technical assistance or Development Policy Loans (DPLs) that provide support for advocacy or policy design—as required for a given context.
- An additional limitation is that reaching climate goals often implies large investments in infrastructure, which pose considerable challenges to LMICs. While RBCF may offer incentives to carry out additional investments, the capacity of LMICs to raise sufficient investment financing may remain constrained in the absence of additional support and targeted interventions.

The RBCF approach presented in this report sits within the context of a larger set of World Bank financing options. The limitations outlined above can be addressed by blending and combining an RBCF intervention with complementary World Bank financing options, such as those presented in Box 4.2.

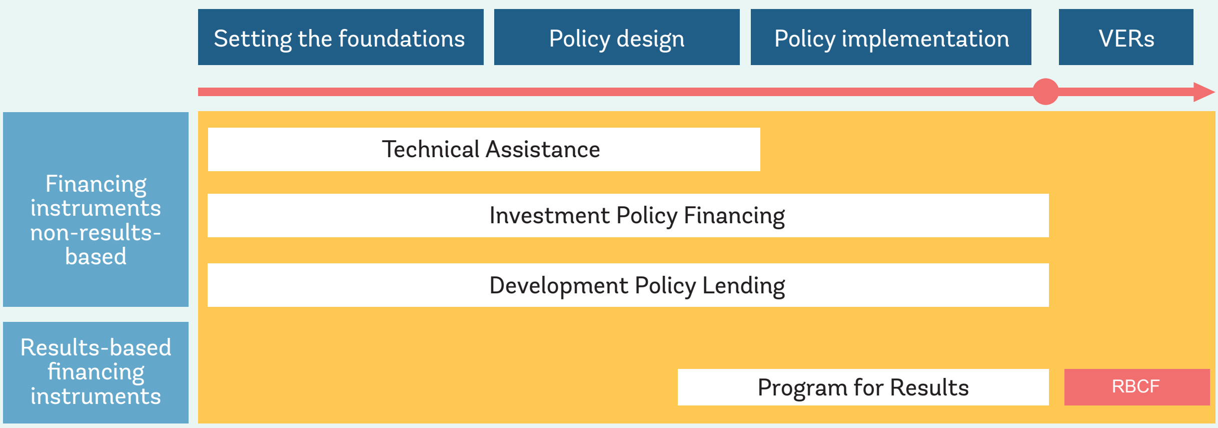
Box 4.2. RBCF across the World Bank's Financing Instruments

RBCF is presented in this report in the context of World Bank financing instruments and support mechanisms, including Investment Project Financing (IPF), Development Policy Financing (DPF), PforR, and other forms of financial support, like Technical Assistance (TA) and instruments used by the World Bank Trust Funds. RBCF offers complementary support by acting and making funds available at different phases of the policy cycle, addressing different development challenges, and incentivizing other policy actions.

Combining RBCF with other financing instruments and support mechanisms can enhance its effectiveness, addressing its limitations and providing countries with comprehensive support that responds to different financial needs at each stage of climate reform.

For example, depending on their fundamental focus and their disbursement timelines, some instruments can provide incentives to trigger policy change by carrying out advocacy actions and providing timely support to build the foundations for successful policy implementation. Other World Bank financing options can provide funding upfront, addressing the fact that RBCF funds are only available once ERs have been verified[a]. Figure 4.1 illustrates World Bank financial and technical support across the climate policy cycle.

Figure 4.1 World Bank Financing Instruments: Funds Availability by Policy Stage



Note—This diagram intends to provide an overview of the complementarities among the World Bank financing instruments. The application between instruments and policy cycle stages is for illustrative purposes, based on each instrument's main focus. In practice, the application of an instrument is case and context specific.

At early stages of the policy development cycle, technical assistance can provide services, skills, and technology to build countries' capacity prior to climate policy reform.

Investment Project Financing (World Bank 2023b) can provide support to governments investing in infrastructure and for other capital-intensive investments needed for climate reform that demand significant financial efforts before and during implementation.

Development Policy Lending (World Bank 2023a) can cover countries' prefinancing needs to carry out institutional reforms and policy actions by rapidly disbursing financing. This instrument provides credits to countries to advance on their development goals. It can be used throughout the policy cycle and complement RBCF by providing additional financing. DPL can also serve to build up country capacity and fulfill other prerequisites for successful climate policy, given its conditionality to prior actions.

Program for Results (PforR) is a form of RBF that entails disbursements linked to the delivery of predefined indicators (World Bank Group 2020). This instrument is usually applied to support policy implementation. PforR ties support to the achievement of a range of key milestones in the results chain, in contrast to RBCF, which only pays for VERs; thus, it can support and provide timely funding to advance key steps in policy implementation before ERs have been verified.

[a] The liquidity risk is discussed in detail in section 4.3, alongside other preconditions needed for RBCF.

4.1.2 Benefits of RBCF for implementation of selected policies

Although some challenges are applicable to most countries, as detailed in section 3, many barriers to implementation are country and policy specific. Thus, RBCF would benefit different policy areas in different ways and to different extents in different countries. This subsection provides an overview of how RBFC can help overcome barriers and facilitate implementation in the three selected policy areas, focusing on the RBCF benefits most pertinent to each policy.

RBCF benefits for FFSR implementation

As discussed in previous sections, FFSR reversal is common, as its implementation is often impeded by limited political commitment, inter-ministerial coordination issues, or a lack of clear leadership to sustain the reform in the face of resistance from society and industry (World Bank 2011). Effective communication campaigns and solid social security systems can help ensure an effective use of the fiscal savings derived from the FFSR and help avoid reversals.

In this context, RBCF can support FFSRs by providing additional resources to meet these costs and by setting up incentives against reversal. In terms of additional resources, RBCF can help governments' financial efforts to upgrade and expand social security systems, build and maintain the needed infrastructure to support businesses, and implement well-designed communication campaigns.

By tying funding to results, RBCF can bring about the following main benefits specific to FFSR:

- **A well-designed RBCF can promote value for money.** The benefit of only paying for VERs is particularly relevant to the case of FFSR, as it addresses the risk of reform reversal, identified above as one of the main barriers impeding FFSR successful implementation. By only paying for VERs, RBCF ensures donor resources are only provided for FFSR once it has been successfully maintained to achieve the targeted results.
- **RBCF enhances institutional trust through the improved MRV capacity and transparency** necessary for FFSR. Lack of institutional trust can create further consumer and producer resistance to FFSRs in the absence of clear accountability and transparency mechanisms (Kyle 2018). Solid MRV systems that are a precondition for RBCF can address this barrier by giving visibility to climate impact and improving existing information systems.

Despite the benefits outlined above, there are also limits to how much can be expected from RBCF in the case of FFSR. Climate-related policy reforms, in particular the removal of fossil fuel subsidies, often involve political pressures that may outweigh RBCF's potential. Despite donors offering a range of support in the form of technical assistance, grants, or loans to governments targeting the removal of fossil fuel subsidies, reforms may not be sustained in the longer term. An illustration of the complexity of this issue is the tense negotiations between the IMF and governments on compliance with FFSR conditionalities on loans. IMF development loan packages involve conditionalities, often including commitments to FFSR. This has proved a source of tension between countries seeking to pull back on subsidy reforms (often in the context of elections or increased fuel prices) and the IMF pushing to enforce loan conditions—for example, in the cases of Nigeria (Olayiinka 2021) and Zambia (Hill and Mitimingi 2021) in 2021 and Pakistan in 2022 (Shahzad 2022; France24 2022).

RBCF benefits for EES implementation

The implementation of EES policies entails significant technical challenges, especially related to compliance and enforcement mechanisms. A common factor hindering effective implementation of EES policies is noncompliance (for example, if labels do not reflect real performance, or some products are being sold that do not meet required MEPS). Compliance frameworks are complex and require regular updates so countries can climb up the energy efficiency ladder as standards improve. This process is resource intensive, as it calls for comprehensive databases and agencies that record and test appliance performance regularly. Additionally, EES policies seek to promote a market transformation; thus, they often require iteration to adapt to market responses and evolving consumer preferences. Indeed, consumer behavior plays a key role in the success of EES policies as, for example, preferences for brands, product characteristics, and low upfront prices may outweigh efficiency considerations.

Responding to these barriers, RBCF can provide *additional financial resources* that specifically target EES implementation costs related to the setup of testing facilities and building in-country capacity to conduct testing and market surveillance. Additionally, for the case of EES, RBCF that supports policy implementation can have a positive signaling effect, with governments anticipating further support, and thus help trigger policy reform. Section 4.5 below builds on the cost examples introduced in section 3 and explains in more detail how RBCF can help address EES implementation costs.

Given the main barriers to EES implementation, the main benefits that RBCF can bring to advance this reform include the following:

- **By tying funding to results, RBCF can help governments focus on effective implementation of EES, which entails sustained efforts to monitor the market and enforce compliance.** By tying funding to VERs that are attributable to EES, RBCF can help governments internalize benefits from EES and close the gap between the shorter-term costs assumed by the governments and the long-term materialization of savings from improved EE. This can be particularly valuable for sustaining EES reforms, as the costs of these reforms are relatively modest and can be covered by an RBCF program, making the incentives and alignment potential of RBCF an important benefit.
- **RBCF can promote reform ownership and local market relevance by providing the flexibility to iterate and adapt**. Increased flexibility can help increase political commitment and incentives and allows the policy to be tailored to the local context, considering consumer preferences or patterns in the use of appliances. Flexibility also helps to incorporate lessons learned—for example, those related to consumers' reactions—as the EES reform advances.

RBCF benefits for feebate policy implementation

Feebate policy implementation in LMICs presents challenges related to institutional, technical, and market readiness gaps. Given their tax policy nature, feebates call for solid fiscal *governance* for effective revenue collection and distribution. Limited compliance and enforcement capacity as well as coordination challenges can, thus, impede the effective implementation of feebates. On the *technical side*, a feebate policy requires periodic adjustments to the pivot point and a correct assessment of the vehicle market.[18] Thus, a lack of data and testing capacity to reevaluate efficiency thresholds regularly and adjust the policy can hinder implementation. Moreover, the prominence of secondhand vehicle markets in LMICs creates additional frictions, as feebates may need to be tailored for this segment and accommodated to include a range of CO_2 testing standards[19] Finally, a *market shift* toward low-emission vehicles requires some preconditions to allow consumer uptake and sustained use of electric or hybrid vehicles. Market issues can, for example, include a lack of affordable options of LMICs, limited consumer awareness about the long-term benefits of low-emission vehicles, or infrastructure barriers to the effective use of low-emission vehicles (that is, limited availability of electric vehicle charging stations).

RBCF can support the implementation of feebate policies by providing additional resources that alleviate financial efforts to cover implementation costs. These could include awareness campaigns for consumers and importers, adapting infrastructure to low-emission vehicles, studies, and capacity building to carry out pivot point adjustments and strengthen tax governance. Additional resources could also cover the costs of setting up or providing access to CO_2 testing facilities that are often not readily available in LMICs.

Furthermore, by tying funding to results, RBCF can support feebate implementation, as it can address some of the challenges outlined above. The specific benefits RBCF can bring are the following:

18 France, for example, adjusts its pivot point annually. As part of this process, manufacturers update their CO_2 certificates periodically, and governments need to conduct confirmatory tests on in-use vehicles (Yang 2018). See section 3 for more detail on this.

19 For example, when Mauritius kickstarted its feebate program in 2011, the secondhand car dealer association sued the government due to discrepancies on CO_2 testing standards between new and secondhand vehicles that were imported from different countries. The government had to review its rates and make a compromise in the case of the secondhand segment (Ally 2016).

- By shifting attention to advancing feebate policies that lead to VERs, RBCF can help align government stakeholders and facilitate fiscal governance coordination. As a tax policy, feebate schemes call for reinforced compliance and enforcement mechanisms, a strong revenue collecting authority, and coordination with other government agencies.
- RBCF requires solid MRV systems to facilitate sustained feebate implementation. The improved monitoring and reporting systems driven by RBCF are key to the design of effective feebate policies that need accurate diagnosis of vehicle emission levels and regular monitoring.
- Finally, RBCF can lead to locally relevant implementation processes by providing the flexibility to iterate and adapt. By focusing on VERs, RBCF can allow governments to adapt the fiscal strategies and systems in place to achieve effective implementation of feebate schemes. This flexibility can increase reform ownership and allow solutions to be tailored to the local context, which can help sustain the reform in the longer term. The tailoring can include, for example, adjusting the policy for relevant market segments, such as used vehicles, or being responsive to market reactions and adapting implementation actions to consumer or importer behavior.

4.2 Conditions for effective use of RBCF for policy reform

As described above, RBCF is a valuable tool that can achieve greater results from climate finance and has the potential to facilitate the effective implementation of climate policies. However, RBCF calls for a set of country-enabling preconditions that set the basis for successful implementation and that should be assessed upfront. These conditions include the presence of political support, technical capabilities for policy implementation, administrative mechanisms, and financial capacity to manage the RBCF payment process.

For RBCF, the necessary conditions could be particularly demanding due to the level of country commitment required and the strong MRV capacity needed. In the event a gap is identified in the necessary conditions for RBCF, donor support should at first be focused on building these conditions. Box 4.3 expands on how conditions for RBF are built.

Box 4.3. Building the Necessary Conditions for RBF

The **conditions needed for effective RBF** are key determinants of its anticipated benefits. Therefore, it is critical to identify comprehensively any gaps in these conditions and develop approaches to addressing them prior to implementation.

Creating the conditions for RBCF may require strong engagement and technical assistance by the World Bank and other donors to government entities to align agendas and strengthen capacities. This has been the case of Colombia, which now has one of the most developed RBF ecosystems in the world as a result of the coordinated work of several stakeholders that have promoted the use of these instruments in the country[a]. Strong technical assistance was provided by donors such as the Inter-American Development Bank and the Swiss State Secretariat for Economic Affairs to different government agencies that had enough political will and commitment to make the necessary institutional adjustments to implement RBF (Social Finance and Fundación Empresario por la Educación 2021).

Also, administrative conditions were strengthened with the creation of a government-based outcomes fund, a financing vehicle that allows the development of multiple RBF projects under the same contracting structure to promote the use of RBF in the country (Social Finance and Fundación Empresario por la Educación 2021). In addition, and thanks to coordinated efforts across stakeholders, the government launched a regulatory policy framework with the objective of strengthening institutional capacity and stakeholder articulation, improving risk management, and promoting the dissemination of lessons learned from other RBF mechanisms focused on innovative and social interventions (National Planning Department of Colombia 2021).

a. RBF programs implemented so far have focused primarily on workforce development for vulnerable populations, and some have focused on sustainable value chains (cocoa and coffee). However, engagement with government entities has varied in many social and climate mitigation sectors, including competitiveness, early childhood development, maternal health, and migrants.

The following subsections describe the basic conditions for a successful implementation of the RBCF approach. These fall into three categories: political support, technical conditions, and administrative capacity.

Political support

Host country government buy-in and alignment with the policy reform are fundamental for a successful RBCF program. Where this support is absent, RBCF is unlikely to be useful in supporting reform implementation. Government stakeholders should demonstrate strong reform ownership and commitment to take sustained actions toward successful policy implementation. Since policy implementation is likely to be a time- and resource-intensive process, governments should own the reform and implementation approach to be able to make necessary adjustments and overcome roadblocks.

Global experiences with RBF illustrate the importance of political buy-in and commitment as the basis for achieving results, particularly when those results relate to policy and institutional reforms. For instance, the Mozambique Public Financial Management Reform, supported by PforR between 2014 and 2019, faced a high degree of resistance due to a lack of reform buy-in at various government levels (i.e., districts, schools, and health facilities). The PforR loan had to be reformulated to align incentives and improve coordination between ministries to allow for implementation.

Related to the policies at hand, this condition is particularly salient for FFSR, given the politically sensitive nature of these reforms in the face of social and industry pressures (Timperley, Coady, and Flamini 2015). As such, an RBCF program is unlikely to support effective FFSR implementation in the absence of strong political commitment at the outset. While likely to be less critical, this condition should also be assessed in relation to the implementation of EE standards and feebate policies in LMICs. Commitment may be limited given the longer-term nature of the benefits these policies provide in terms of energy savings, as they imply a market transformation (UNDP 2015).

Technical conditions

The successful rollout of RBCF in support of policy implementation relies on **well-designed policies as a precondition**. Proper diagnosis should be conducted and comprehensive policy frameworks should be present before implementation happens.

In particular, to carry out policy implementation actions in the three selected policy areas, governments must have the following in place:

1. Strategies and resources for mitigation or social and business sector compensation measures, particularly for FFSR
2. Institutional capacities, solid governance, and legal and regulatory frameworks to implement climate policies.
3. Relevant institutional arrangements, such as intra-government coordination bodies and clear leadership.
4. External consultation channels with industry leaders and civil society, in addition to communication strategies that inform on implications and benefits related to policies

For instance, FFSRs often face critical barriers to implementation that call for solid technical diagnosis and planning. Phasing out fuel subsidies often disrupts the status quo and has impacts on prices, affecting consumers and industry. Thus, an FFSR requires a thorough diagnosis of country conditions, well-designed phasing-out plans, and upfront preparation for the implementation of the policy, including mitigation or compensation measures to reduce negative impacts, if deemed necessary (OECD 2019; Funke and Merrill 2019).

Likewise, EES and feebate policies call for a thorough diagnosis of the appliance and vehicle market, respectively. This involves highly specialized knowledge and is the basis for setting up efficiency thresholds that are appropriate for each country context. For example, implementation of South Africa's EES program in 2011 stalled due to lack of country experience and an informational gap regarding potential energy savings (USAID 2021). This was addressed by partnering with the SEAD Initiative,[20] which provided support for preliminary testing at the Berkeley Lab in California.

Administrative conditions

RBCF implementation requires a basic level of administrative competence that allows for in-country management of the program. Countries should have the financial capacity and liquidity to make investments before receiving payments. RBCF implies that payments will only be effective once emission reductions are verified. Thus, there is a gap between when costs are incurred by governments and when RBCF payments are made. As discussed in section 3, policy implementation can be a resource-intensive process that may require government resources to cover significant costs upfront. Implementation costs may be associated with institutional adjustments, system updates for social transfers, the setting up of testing facilities, or the rollout of communication campaigns, among others.

This condition requires governments to maintain a cash flow to invest in the implementation of policies. As discussed above in box 20, this liquidity issue can be addressed through some other forms of donor support that offer prefinancing options. A combined and blended approach with other financial instruments is key to setting a solid basis for RBCF. For instance, a review of different programs under the BioCarbon Fund found that, since results-based payments were made only

20 The Super-Efficient Equipment and Appliance Deployment (SEAD) initiative is a multigovernmental partnership led by the IEA, working toward improved energy efficiency.

for verified ERs, maintaining a cashflow during the period prior to payment was essential to avoid problems related to a lengthy verification process. A lack of sufficient liquidity can disincentivize local engagement in the implementation of project activities, especially in large-scale programs that involve more stakeholders. For instance, farmers in Costa Rica Agroforestry Project realized after going through the first round of verification and payment that the high transaction costs coincided with the long waiting period before payment. As a result, incentives to continue in the program were reduced, and many of the farmers sold their land to external buyers. At the end, this affected the overall performance and volume of ERs expected from this project (World Bank 2020b).

Countries need to have operational capacity and solid MRV systems in place. The measurement of emission reductions requires governments to have strong MRV mechanisms. For host country governments, this includes such elements as functional data processing units, IT systems, protocols, technical units and personnel, and intra-government coordination practices. Box 21 in section 4.4 provides more detail on MRV requirements. The RBCF program supported by World Bank trust funds contemplated in this report would cover the setup of solid MRV systems to ensure this condition is met.

Even though setting up MRV systems can be costly and may require external support, as seen in multiple REDD+ schemes (Köhl, Raj, and Mundhenk 2020), doing so is critical to achieving the defined results. For instance, Jordan has made significant investments in digital infrastructure related to MRV and its emission registry systems to position itself better to participate in carbon markets. By tracking emissions in sectors such as energy and agriculture, Jordan has been able to comply better with NDC targets and integrate climate change into other relevant policy decision making (World Bank 2022a). Jordan's successful trajectory has been supported by the World Bank's Climate Warehouse program and Partnership for Market Readiness, which have invested in the necessary capacity building to develop and test the MRV system. Additionally, the Jordan Inclusive, Transparent, and Climate Responsive Investments PforR has worked on the expansion of the MRV system to other 22 agencies and ministries to increase its impact (World Bank n.d.).

4.3 Project parameters

This section provides an overview of key project parameters that define the RBCF blueprints for each policy. RBCF parameters provide boundaries and the conceptual basis for the development of the blueprints for each policy area. These include the RBCF's structure, payment metric, financial size, and timelines in which RBCF payments can be disbursed.

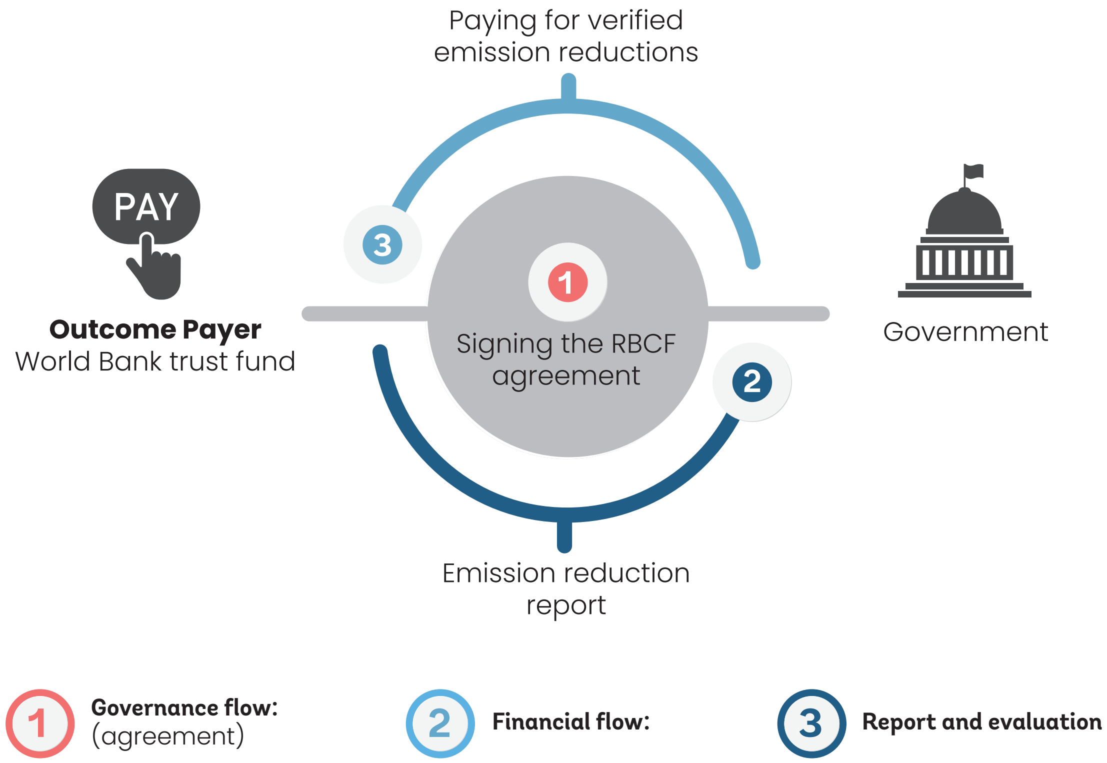
RBCF structure and payment metric

RBCF agreements share a common structure. An outcome payer establishes an agreement with a funded entity to deliver pre-agreed climate results and conditions part or all of its payments on the achievement of those results (World Bank and Frankfurt School of Finance and Management 2017). In the context of this report, we focus on an RBCF model in which a donor, through World Bank trust funds, conditions part of its payments to a national government upon the achievement of VERs associated with the selected policy areas. Figure 4.2 illustrates this RBCF structure.

For this report, RBCF entails payments only when emission reductions have been verified by an independent agency. As explained in section 1, even though the World Bank trust funds pay for the VERs, this payment does not imply a transfer of ownership of these mitigation outcomes by public or private actors from the country to the donor, as occurs with ITMOs under the Paris Agreement.[21] This means the host country government can leverage the emission reductions generated to meet its NDC targets, unlike with carbon market mechanisms, where once the carbon credits are sold, only the buying country can use them to meet its NDCs (TCAF 2020).

21 As defined in the Article 6 of the Paris agreement (TCAF 2021c).

Figure 4.2 Diagram of an RBCF Agreement



RBCF funding size and timelines

In the context of this report, RBCF total payments per policy per year are assumed to be on the order of USD 30 million to USD 50 million for a crediting period of five to seven years, following the existing practice of relevant World Bank RBCF funds. Table 4.1 provides an overview of potential key project parameters that will be used in the following sections to develop the policy blueprints.

Table 4.1 RBCF Parameters

Parameter	Description
Outcome payer	World Bank trust funds
Payment metric	Verified emission reductions
Size of the program	USD 30 million to USD 50 million in total per policy
Timing	5-7 years

These RBCF parameters align with similar existing World Bank trust funds that offer RBCF payments to mobilize climate finance and enhance mitigation policy reforms. Some examples are the Forest Carbon Partnership Facility–Carbon Fund, the Bio-Carbon Initiative for Sustainable Forest Landscapes, the Carbon Initiative for Development, and TCAF. Table 4.2 provides a benchmark for the project parameters (that is, magnitude and timing) for RBCF programs implemented through World Bank trust funds.

Table 4.2. Benchmark for World Bank Trust Funds

World Bank trust funds	Description	Magnitude and timing
Forest Carbon Partnership Facility-Carbon Fund (FCPF CF)	The FCPF assists developing countries in their efforts to reduce emissions from deforestation and/or forest degradation, conserve forest carbon stocks, impose sustainable management of forests, and enhance forest carbon stocks ("REDD+") by building their capacity and developing a methodological and policy framework that provides incentives for the implementation of REDD+ programs. The Carbon Fund provides incentives through RBCF and carbon finance.	USD 12 million to USD 110 million committed per emission reduction program and over USD 900 million committed for the 15 ER programs under the Carbon Fund for emission reduction payment agreements over five to six years (Forest Carbon Partnership 2022)
BioCarbon Initiative for Sustainable Forest Landscapes (ISFL)	ISFL promotes and rewards reduced greenhouse gas emissions and increased sequestration through better land management, including reducing emissions from deforestation and forest degradation (REDD+), climate-smart agriculture, and smarter land-use planning and policies.	USD 20 million to USD 70 million committed to emission reduction payment agreements over 10 years (Bio Carbon Fund n.d.)
Carbon Initiative for Development (Ci- Dev)	Ci-Dev provides RBF payments to clean energy access programs in low-income countries in the form of purchases of pre-2020 certified carbon emission reductions and post-2020 emission reductions verified under the Standardized Crediting Framework.	USD 70 million to USD 80 million in emission reduction payment agreements by 2025 (Ci-Dev n.d.)
Transformative Carbon Asset Facility (TCAF)	TCAF provides RBF payments to pay for verified emission reductions resulting from transformational policy and sectorial programs.	USD 20 million to USD 50 million in verified emission reductions over five to seven years

4.4 Measurement and verification process for an RBCF program

This section describes the payment metric (VERs) and how it is applied in the context of the RBCF, outlines the RBCF verification process, and describes roles and responsibilities. Methodological considerations are based on the TCAF Crediting Blueprint Synthesis Report (TCAF 2021b).

4.4.1 Measurement of emission reductions for policy-based RBCF

Under the proposed RBCF approach, emission reductions associated with each policy would be determined using a modelling approach to isolate the policy mitigation effect. Emissions from policy-based interventions can be affected by a range of external factors that are independent of the climate policies, such as market trends, other unrelated policies, or macroeconomic and geopolitical dynamics. Thus, the estimation of VERs for the policy RBCF does not rely on measurement of the actual emissions after the policy has been implemented. Instead, ex post estimations are used to estimate emission reductions as the basis for payments. Emission reductions are determined by modelling emissions without the policy (the baseline scenario, or counterfactual) and with the policy (the project scenario).[22] This process is described in detail below. The ex post modelling approach to estimate emission reductions for policy interventions is consistent with approaches used by similar RBCF World Bank trust funds, such as TCAF (TCAF 2021b). An illustration for the case of Morocco is provided in the *Morocco Energy Policy MRV report* (World Bank 2018). It is necessary to undertake

22 Note that this modelling approach is technically demanding. The definition of the models should be based on existing evidence on relationships between the variables and policy impact. Ideally, model design should be backed up by qualitative research that ensures the relevance of the model for a given market and country context (e.g., consumer surveys or focus groups).

robust modelling for each policy from the outset; and, even if this is applied, there is no guarantee that any specific policy will deliver either the emission reduction volumes required or that it will do so at an attractive USD/tCO_2.

The emission estimation models reflect the causal pathway, or channels, through which the policies affect emissions. These impact channels are then included in the model as input variables that are adjusted ex post to estimate ERs attributable to each policy. A theory of change reflects the path from policy implementation to emission reductions, identifying key steps and variables. The estimation models then reflect these causal pathways and the relationships among variables.

Identifying potential GHG effects of each policy and mapping the causal change path as comprehensively as possible are critical steps in emission reduction estimations. This process helps organize and account for policy effects of different types, such as intended, unintended, and shorter or longer term. Based on this analysis, key variables reflect the impact pathway from policy to GHGE reductions (Rich et al., n.d.).

In the case of an FFSR, the model reflects how increases in fuel prices promote less consumption (considering demand elasticity) and, thus, fewer emissions. For an EES policy, the model reflects how the adoption of standards and labeling shifts the market toward a larger share of efficient appliances, which translates into electricity savings and associated emission reductions. In the case of feebates, the model outlines how incentivizing low-emission vehicles and taxing inefficient ones shifts the market to a progressively larger share of low-emission vehicles, reducing emissions in the transportation sector. In cases where data are not available, the estimates would need to be conservative.

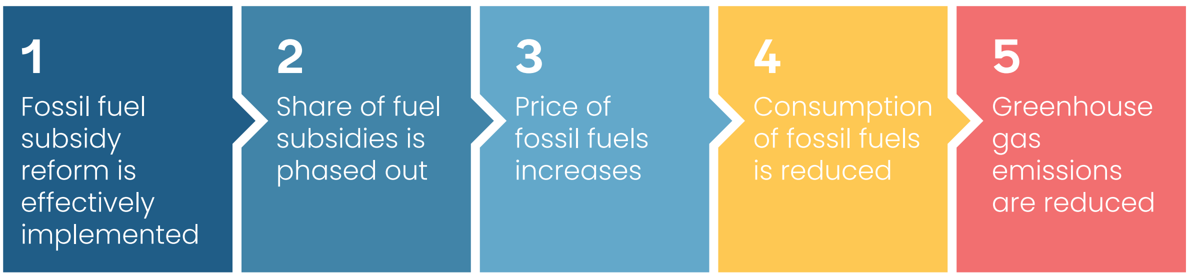
Below, by means of illustration, a brief theory of change outlines the causal pathway explaining how each policy leads to emission reductions. This logic could be used as the basis for modelling ERs derived from the selected policies. In practice, these theories of change need to be refined, depending on the specific modelling approach selected and the country context, but they represent a model that can be applied as well to other mitigation policies to support their implementation through RBCF.

Estimation of emission reductions for an FFSR

Figure 4.3 outlines a theory of change showing how FFSR can lead to reduced emissions. As described in previous sections, FFSR involves removing or reducing subsidies, which will cause an increase in the price of fossil fuels across the value chain and for end consumers. This increase will promote a transition to alternative, more cost-competitive sources of energy by industry and consumers, leading to reduced consumption of fossil fuels. As a result, emissions derived from fossil fuel production, processing, and consumption will drop. Based on this theory of change, input variables, which can be used to estimate emission reductions, can be derived. These would need to be monitored over time to assess the emission reductions that can be attributed to the reform. Potential input variables include the following:

1. Ratio of fossil fuel subsidies to total fuel price
2. Fuel price levels in the country
3. Fuel consumption levels
4. Share of consumption of alternative sources
5. Price and demand elasticities

Figure 4.3. Theory of Change for FFSR



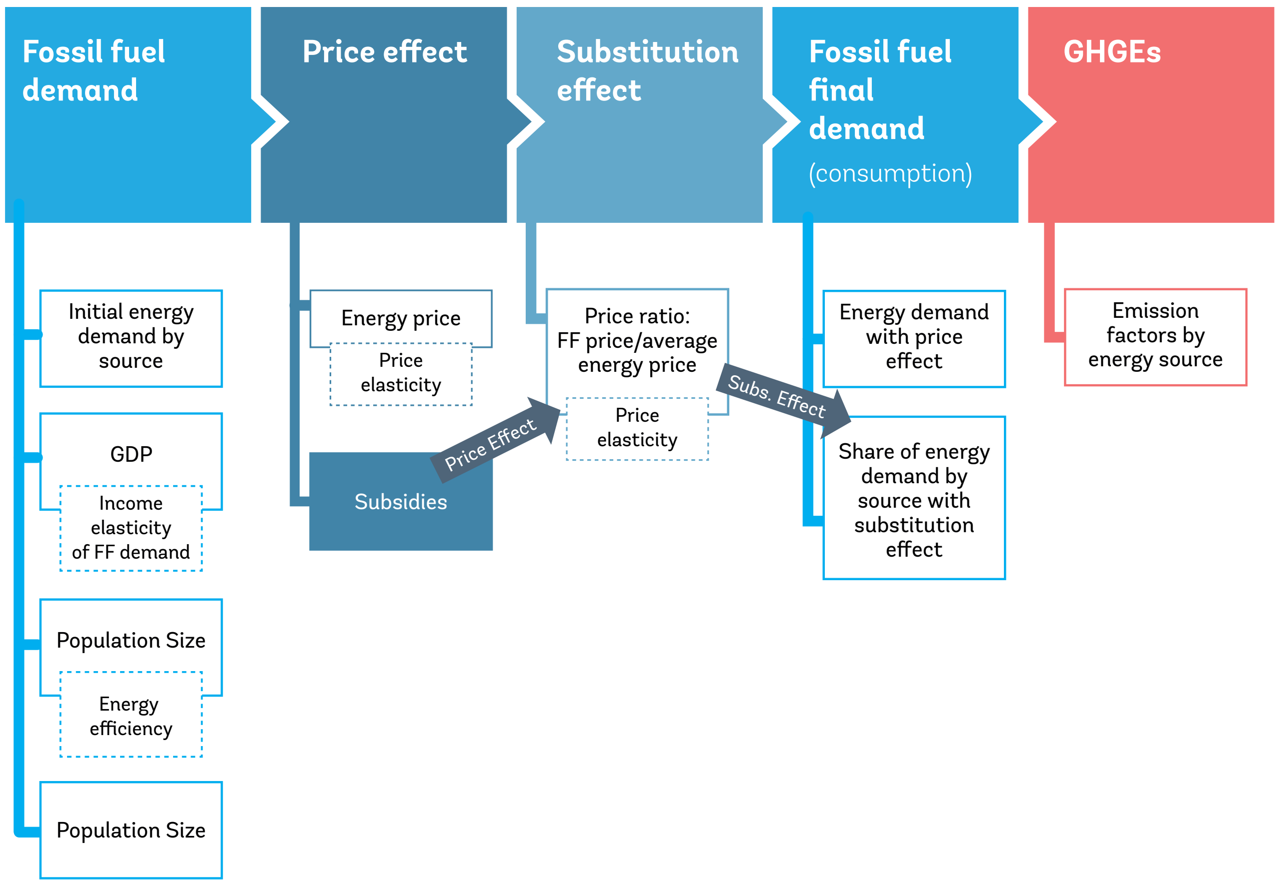
Source: Based on Kuehl et al. 2021.

A number of models[23] have been used in literature to estimate emission reductions derived from FFSR. General equilibrium models, such as the GSI-IF,[24] that estimate emissions derived from forecasted energy demand and consumption by energy source have been widely used. The GSI-IF model estimates emissions based on changes caused in the energy mixture by subsidy removal through a price and a substitution effect. It uses historical data from 1990–2017 (from IEA databases, among others) on variables like GDP, population, EE levels, and technology to estimate baseline levels of fossil fuel demand. It then forecasts emission reductions for different subsidy levels, considering fossil fuel demand elasticities (see Figure 4.4).

23 For example, the IMF model and the World Energy Model used by the IEA. For a compilation of models used to estimate emission reductions from FFSR, see Merrill et al. 2019, Annex 5.

24 Global Subsidy Initiative's Integrated Fiscal Model, first introduced by Merrill et al. (2015).

Figure 4.4 Illustration of the GSI-IF Model for Estimating Emission Reductions Resulting from an FFSR



Source: Adapted from Kuehl et al. 2021.

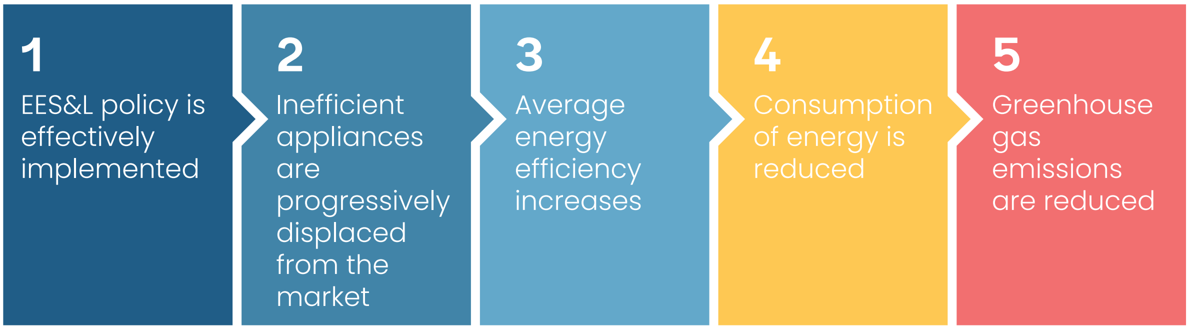
Note: Income elasticity of fossil fuel demand refers to how much fossil fuel demand varies with income. Population elasticity refers to how much fossil fuel demand varies with population changes. Price elasticity reflects how much fossil fuel demand varies with price changes.

Estimation of emission reductions for an EES policy

Estimating and then verifying emission reductions from energy efficiency policies can be challenging. The policies affect only part of the product markets, and outcomes depend on aspects such as unobserved intensity of use, rebound effect, substitution, timing of durable purchases, whether older models are retired, and secondhand market responses, among others. Therefore, robust modelling is needed from the outset of policy planning and implementation.

The first step for modelling emission reductions from EES is to understand how these policies lead to reduced emissions. The theory of change in figure 4.5 depicts the causal pathway from effective implementation to emission reductions. By introducing MEPs, for example, inefficient appliances below the threshold are no longer allowed in the market. As consumers replace older appliances with more efficient ones, inefficient appliances are progressively displaced from the market. Assuming constant demand, this will lead to the desired impact of reduced energy consumption and, thus, reduced emissions.

Figure 4.5 Theory of Change for EES Policy



Source: Authors' elaboration based on Tamakloe 2021 and IEA 2019.

Based on the theory of change, input variables that reflect the causal pathway from EES to emission reductions and could be included in the estimation models include the following:

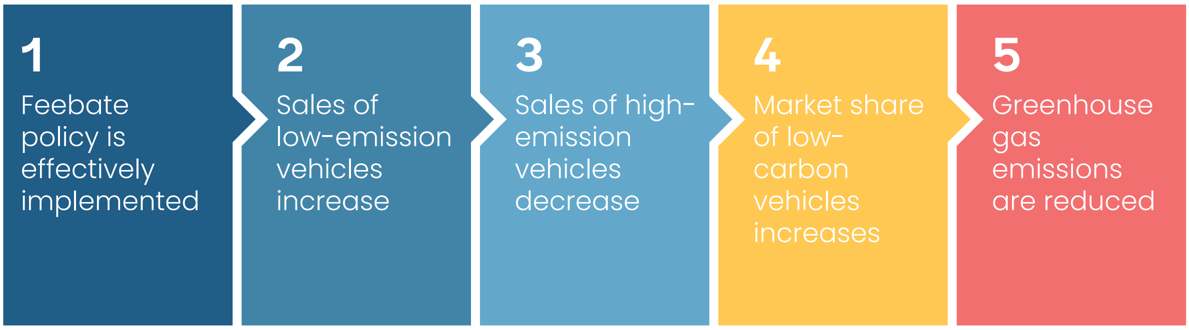
1. Market share of efficient appliances
2. Average appliance efficiency for a given service (for example, refrigeration)
3. Annual electricity savings
4. Energy consumption
5. Energy consumption by energy source
6. Electricity grid emission factor
7. Consumer preferences, price elasticities

The specific model to estimate emissions is chosen to be coherent and representative of country and market context. The process to estimate the emission reductions from an EES reform starts by gathering data on initial electricity demand in a given country, including the share of electricity demand by consumption source and by appliance. After considering the standards introduced, an estimation of the possible electricity savings is calculated and this is deducted from the initial electricity demand, considering demand elasticities and assuming a substitution effect toward efficient appliances. The result of this calculation is then converted into GHG emissions, considering the factor of emissions of the national electricity mixture.

Estimation of emission reductions for a feebate policy for low-emission vehicles

As an input for modelling emission reductions, figure 4.6 shows a theory of change describing the causal pathway from the introduction of feebates for low-emission vehicles to reduction of emissions. Introducing a feebate policy that encourages the purchase of low-emission vehicles should increase sales of efficient vehicles. This will then lead to a progressively larger share of low-emission vehicles in the market, which will ultimately replace high-polluting vehicles and, thus, lead to reduced emissions.

Figure 4.6 Theory of Change for a Feebate Policy



Source: Based on Durrmeyer 2021.

The theory of change helps identify input variables that could be included in the emission reduction estimation model, such as the following:

1. Market share of low-emission vehicles
2. Rate of inefficient car replacements
3. New vehicle emission averages in comparable units (for example, CO_2/km)
4. Energy consumption by energy source
5. Consumer preferences, price elasticities

Carrying out a robust modelling exercise in the first stages of policy reform is of the utmost importance. After a context-relevant modelling approach is chosen, the estimation of emission reductions associated with the feebate policy starts by gathering data on GHG emissions associated with the road transportation sector for the specific country. These are retrieved from the national emission inventory by economic sector (transportation) to get the baseline emissions. Then, the information on the existing efficiency levels within the national vehicle fleet is gathered or estimated. The efficiency gains are calculated based on the objectives of the introduced feebate plan. With this information, a scenario that contemplates the policy is developed to determine its mitigation potential.

Summary of Potential Inputs for Policy Variables Associated with the Three Policies

Table 4.3 provides an overview of input variables that could be included in the models for all three target policies. These are mentioned as an illustration of how estimation models can reflect the causal pathway from policy implementation to emission reductions. In practice, these would need to be tailored to each specific country's case.

Table 4.3 Potential Inputs for Policy Variables Based on the Theories of Change

Policy	Potential input variables
FFSR	• Ratio of fossil fuel subsidies to total fuel price • Fuel price levels in the country • Fuel consumption levels • Share of consumption of alternative sources • Price and demand elasticities
EES	• Market share of efficient appliances • Average appliance efficiency for a given service (for example, refrigeration) • Annual electricity savings • Energy consumption • Energy consumption by energy source • Electricity grid emission factor • Consumer preferences, price elasticities
Feebates	• Market share of low-emission vehicles • Rate of inefficient car replacements • New vehicle emission averages in comparable units (for example, CO_2/km) • Energy consumption by energy source • Consumer preferences, price elasticities

Sources: World Bank.

4.4.2 Emission reduction estimation and verification process

The verification of emission reductions ensures that payments effectively reflect the government's performance in advancing climate mitigation policies. Verification also promotes transparency and accountability throughout the program, as it requires the rollout of solid MRV systems. As an illustration of how verification could work for the proposed RBCF approach, this section covers the steps to determine emission reductions and defines roles and responsibilities.

As explained above, and following the established methodology for RBCF policy interventions (TCAF 2021b), emission reductions in the proposed approach are determined following a modelling approach. The process to estimate emission reduction attributable to the policy follows four steps illustrated in figure 12.

1. **Estimation of baseline emissions.**[25] These are calculated by means of a modelling tool and represent the scenario without the policy. In other words, baseline emissions are the counterfactual against which the policy scenario will be compared to estimate emission reductions. This step involves the following:

- Defining a qualitative theory of change that outlines the channels through which the policy affects emissions. As detailed above, these impact channels will enter the model as input variables, to be later adjusted (in step 4) with their ex post values. These input variables are specific to each policy and include, for example, fuel prices, electricity savings, or low-emission vehicle sales, depending on the policy.

- Defining the modelling approach and scope that are more appropriate for each policy, considering the causal pathway through which the policy affects emissions (that is, a general equilibrium model or other modelling tools).

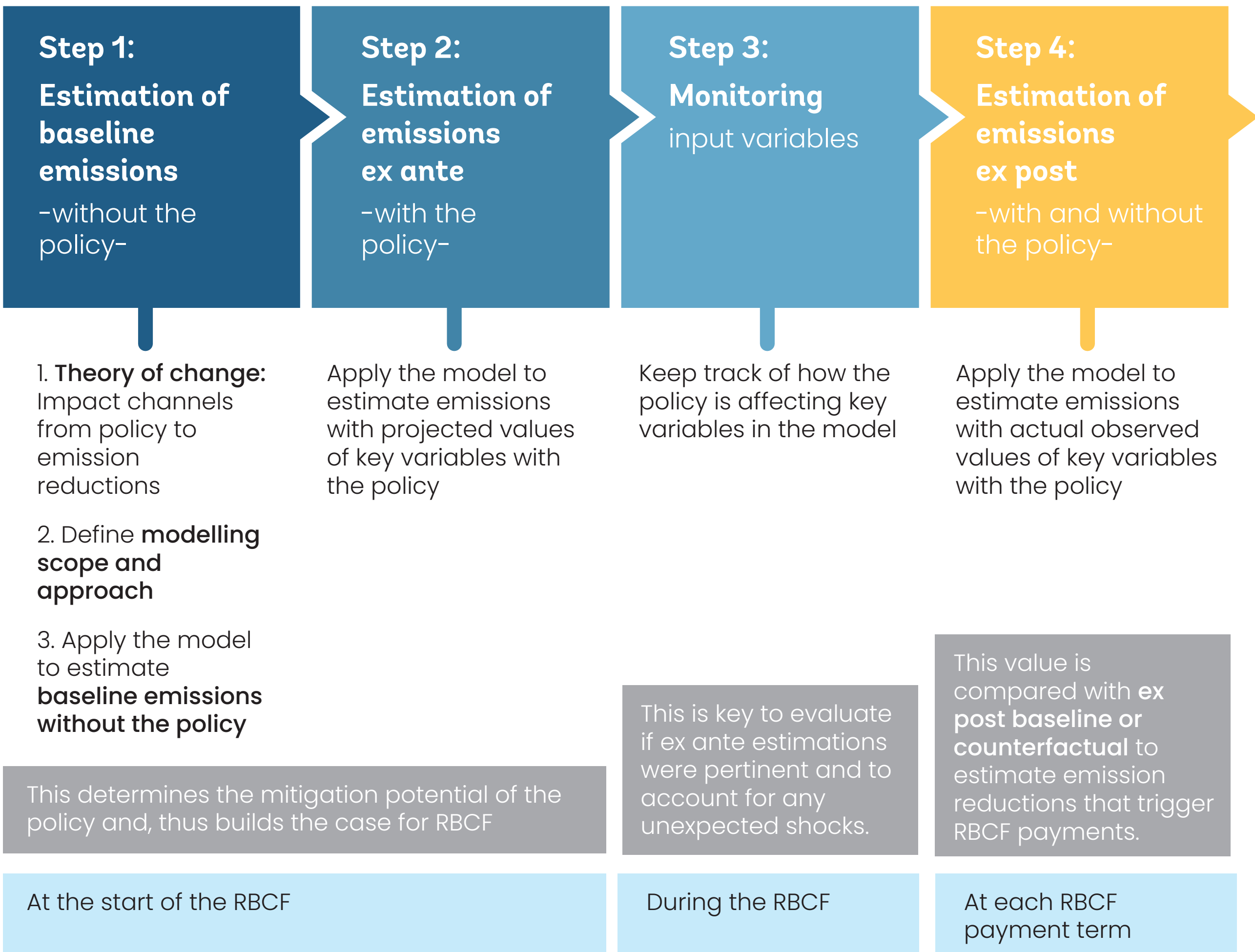
- Applying the model to estimate baseline emissions without the policy. This is calculated on an ex ante basis to determine the mitigation impact of the policy.

25 Note that the TCAF baseline is set up as conservative, applying two layers of additionality. Layer one determines the TCAF crediting baseline below business-as-usual emissions, so as not to overlap emission reduction efforts that would have been in place due to own efforts. Layer two of additionality ensures emission reductions are attributable to TCAF by applying the percentage of total country climate finance represented by TCAF support.

- At a later stage, this baseline or these counterfactual emissions are recalculated on an ex post basis based on actual observed values of the input variables.

2. **Estimation of ex ante emissions with the policy**. As a reference point, the same model is estimated using ex ante estimations or projections of the input variables. These estimates represent the policy scenario ex ante and support the definition of emission reduction targets, if required. This estimation is crucial, as it determines the mitigation potential of the policy and, thus, it builds the case for the RBCF.
3. **Monitoring input variables.** Actual values of input variables are monitored over time to track progress of the effect of the policies on, for example, fuel prices or sales of efficient appliances. Tracking values of key input variables helps with evaluation of whether ex ante estimations from step 2 were sensible and allows the detection of shocks and the performance of adjustments as needed.
4. **Estimation of ex post emissions and emission reductions.** Each year, or payment term of the RBCF, the estimated emissions ex post are calculated. This is done by updating the input variables with actual observed data. Next, ex post emissions are compared with the baseline values without the policy, which are also calculated ex post at this stage to act as a counterfactual to determine the emission reduction levels achieved that will trigger RBCF payments.

Figure 4.7 Determining Emission Reductions from Climate Policies



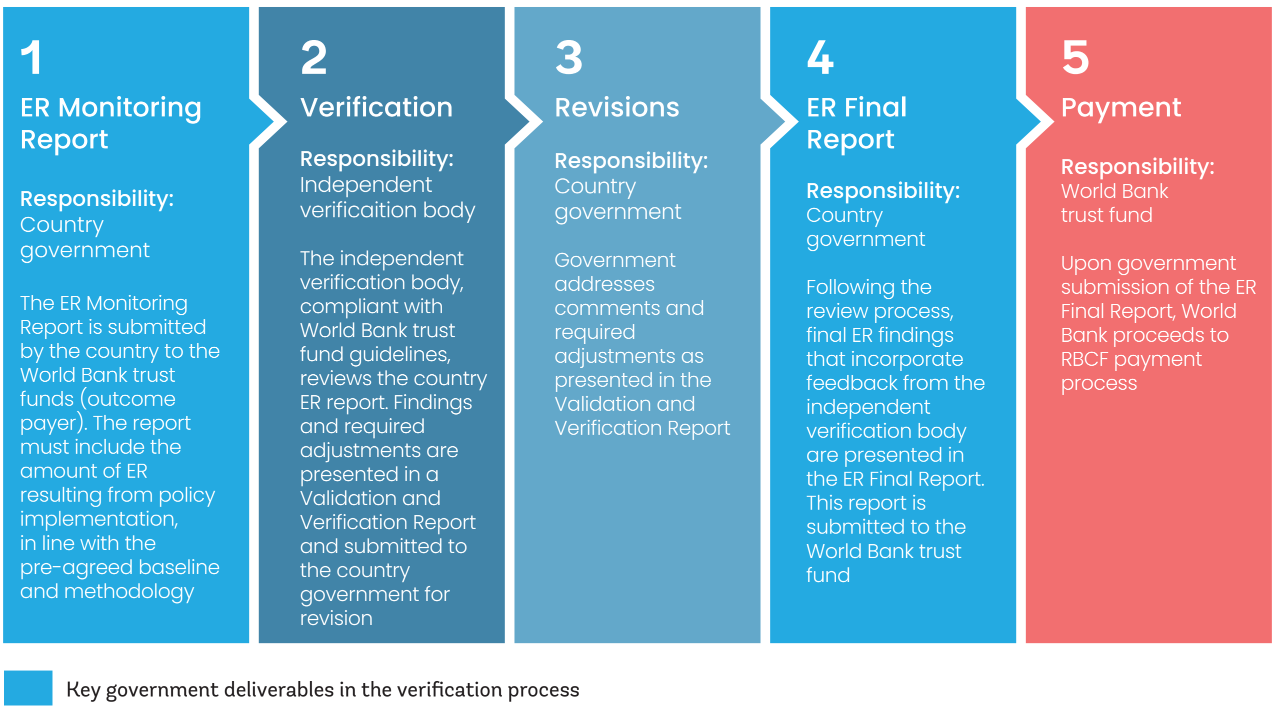
Roles and responsibilities in the verification process

MRV responsibilities should be divided between governments and independent verification agencies.

1. **Governments should be responsible for regular monitoring and reporting of emission reductions.** This includes sharing the baseline used, intermediate monitoring activities, and ex post calculation of emissions associated with each policy. This activity requires the setup of demanding MRV systems and institutional coordination to ensure accountability and clear responsibilities in the process. Box 4.4 outlines the requirements that in-country MRV systems should meet for robust estimation and verification of emission reductions, based on the established RBCF framework from REDD+. Before each RBCF payment period, countries should submit a monitoring report that includes emission reduction results to be verified.

2. **Emission reductions should be verified by an independent verification body.** At this stage, the emission reductions monitoring report should be submitted to an external verification agency to ensure rigor and alignment with international best practices. External verification bodies must comply with a set of requirements determined by the World Bank trust fund guidelines. For instance, these may include compliance with ISO norms on validation and verification of emission reductions[26] and considerations of relevance, consistency, accuracy, transparency, impartiality, and confidentiality. After a review process, the external verification body should submit a verification report to the country government detailing any required adjustments and modifications. This external process is aligned with other RBCF facilities, such as the FCPF-CF (Forest Carbon Partnership 2021).

Figure 4.8 illustrates the verification process and highlights key deliverables by governments to trigger the payment process.



Source: World Bank.

26 For example: ISO 14064-3:2006 – Greenhouse Gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions; ISO 14065:2013 – Greenhouse Gases – Requirements for greenhouse gas validation and verification bodies for use in recognition and other forms of recognition; ISO 14066: 2011 – Greenhouse Gases – Competence requirements for greenhouse gas validation teams and verification teams.

Box 4.4 Requirements for an MRV System

Rigorous and accurate monitoring, reporting, and verification systems and processes are a prerequisite for RBCF based on emission reductions.

At a minimum, and pursuant to the Paris Agreement recommendations, countries are required to create capacity to report biennially on their progress in implementing NDCs. In practice, based on such established RBCF frameworks as REDD+, national MRV systems require the following elements:

- **Coordination.** Setup of a national coordination or steering mechanism that connects relevant government agencies involved in the implementation of specific institutional arrangements
- **Measurement and monitoring.** Setup of systems and protocols, as well as technical units for collecting and analyzing the data related to specific climate policies
- **Reporting.** Setup of a unit responsible for managing and centralizing the analysis of relevant data to report on national estimates according to international standards
- **Verification.** Setup of frameworks for verifying the effectiveness of climate policies.

Source: Adapted from (Herold and Skutsch 2009).

4.5 RBCF payments

This section discusses the pricing methodology and the payment structure for the RBCF policy blueprints.

RBCF payments are designed to reflect generally some of the costs associated with the policy reforms and to account for the value of these reforms in terms of VERs. Relating payments to costs is important, as the RBCF aims to support policy implementation by enabling governments to cover implementation costs. Likewise, connecting payment to some measure of the value of these reforms is necessary to ensure the use of RBCF is cost effective and that it provides value for money by paying for VERs. Accounting for the value of these reforms also creates space for payments that exceed costs, helping creating the incentives for reform.

Bringing these considerations together, the RBCF payments are defined following a three-step methodology:

1. Estimation of policy implementation costs, informing the size of the RBCF
2. Estimation of potential emission reductions from each policy
3. Definition of VER unit payments: the "price" the RBCF will pay per ton of CO_2 abated, which is calculated using a combination of factors, including the quotient between the costs and emission reductions estimated in the previous steps, as well as other practical considerations, such as RBCF trust fund policies or contingencies and comparability with VER prices/unit payments in other, similar efforts (assuming the RBCF program is the only support the policy receives; otherwise, attribution of emission reductions to different sources of financial support may become necessary).

Box 4.5 "Pricing" Verified Emission Reductions under RBCF

RBCF is a modality of public climate finance, and **RBCF payments should be cost efficient**, that is, proportioned to what is needed to enable the delivery of the desired outcomes, that is, verified emission reductions (VERs) in the context of this report. Paying less will jeopardize implementation and performance of the underlying mitigation activity, while paying more will not be an efficient use of taxpayers' money. While in theory there is an optimal solution to payment determination, in practice it is difficult to find this optimum, that is, the minimum payment required to enable implementation and operation of the mitigation activity generating the targeted mitigation outcomes.

In cases of targeting individual investment projects through RBCF programs, such as methane avoidance projects for landfills, animal sites, or wastewater facilities, **reverse auctions** can be an effective mechanism for price discovery, as demonstrated by the World Bank's Pilot Auction Facility (PAF).[27] Obviously, auctions cannot be used for price discovery for RBCF policy programs supporting individual governments in policy implementation. For policy, RBCF program **determinations of RBCF payments need to rely on heuristic approaches** informing negotiated solutions. In this context, **theories of change** are key and form the natural starting point for payment determination: What are the barriers for robust policy implementation RBCF programs are expected to overcome? What cost gaps need to be closed? What incentives need to be improved or changed?

In cases where RBCF providers require host countries using VERs for compliance with their domestic mitigation targets—that is, they exclude selling carbon assets from those VERs to carbon markets—host countries might ask for price premiums to compensate for the loss of potential carbon market opportunities. In the opposite case, where RBCF providers provide host countries with the option to opt out any time from RBCF contracts and instead sell carbon assets to carbon markets after having reimbursed RBCF received, RBCF providers may be able to lower payments as they facilitate host country access to carbon markets.[a] In summary, payment determination for VERs under RBCF policy programs will need to follow an informed negotiation process between RBCF provider and host country government to determine appropriate VER unit payments ("prices"), depending on the concrete country and program contexts.

It is worth noting that RBCF unit payment determination is fundamentally different from pricing carbon assets on a carbon market. The equilibrium price in a competitive carbon market will reflect the marginal cost of generating the mitigation volume that satisfies demand. This implies that intramarginal volumes will achieve a price that exceeds generation costs. In bilateral carbon market transactions absent a liquid and competitive market, an agreeable carbon price cannot be lower than the marginal cost of the seller country of achieving its mitigation target (opportunity cost of selling carbon assets) and not higher than the marginal cost of the buyer country to achieve its target through purely domestic action.b Here again, the carbon asset price will typically deviate from the VER generation cost.

a. In the case of carbon markets under Article 6 of the Paris Agreement, this potential role of RBCF of providing a "floor price" enabling mitigation activities for potentially later carbon market participation can play a key role in overcoming critical Article 6 carbon market participation barriers. b. See (TCAF 2021).

27 See https://www.pilotauctionfacility.org/content/about-paf.

In practice, determining the payment structure of the RBCF requires an analysis of expected implementation costs (as illustrated in section 3), emission reductions potential (as described in section 4.4), and other practical or contextual factors, including the incentive environment tailored to each specific policy and country context, as well as others noted above. These steps are detailed in the following three subsections.

4.5.1 Implementation costs per policy and RBCF size

As a first step to define the payment structure, the costs associated with the implementation of each policy are used as a basis for defining a suitable size for RBCF funding. To incentivize successful implementation effectively and provide additional resources for this process, RBCF payments should cover a significant fraction of the costs incurred during the implementation process. Section 3 showcased some country-specific examples of implementation costs for the three policy reforms.

As per the RBCF design parameters (subsection 4.2), the duration of the RBCF program is set to a time frame of five to seven years. However, each policy requires different timelines to achieve emission reductions. For example, experience suggests that five years is the minimum time needed for countries to adopt, implement, and observe initial benefits of an EES reform (Directorate-General for Energy 2015). FFSR could create substantial emission reductions (around 6 percent per country) in less than four years after its implementation (Inchauste and Victor 2017; IISD 2021).

For simplicity, this section assumes (1) an RBCF program duration of six years and (2) an RBCF size or budget per program aligned with the implementation cost examples outlined in section 3 for each policy.

4.5.2 Potential emissions abated per policy attributable to RBCF

The second step in the payment structure design is to consider the CO_2 that could be avoided if each policy were implemented successfully and the value of these mitigation outcomes as the basis for ensuring RBCF payments reflect value for money. The methodology to estimate emission reductions is detailed above in section 4.4.

In accounting for VERs, payments should reflect the additionality provided by RBCF, avoiding double counting of VERs attributable to other donor support or payment for emission reductions that would have been achieved anyway (for example, due to other policies or declining costs of renewable energy). The existing practices of TCAF serve as a useful reference point illustrating how this would work for the proposed RBCF approach. In this context, TCAF maps all the international support for a specific policy and establishes a grant equivalent.[28] Based on this, it determines the fund's share and calculates the attributable emission reductions (TCAF 2021a). For example, if TCAF gives USD 50 million in support for a specific policy that has a grant total of USD 60 million, 83 percent of the emission reductions generated will be attributable to TCAF (TCAF 2021b).

The levels of additionality applicable to the RBCF program will be determined on a country-by-country basis. Context-specific factors, such as the amount of donor support for a specific country and a specific policy, will guide this calculation. This percentage should then be applied to total estimated emission reductions to estimate how much is attributable to the RBCF. Analysis should also be undertaken to ensure payments are sufficient to activate the benefits of RBCF identified in section 4.1, including in terms of providing incentives for policy implementation.

4.5.3 RBCF unit payments

Building from an understanding of policy reform costs and the value they can generate, RBCF payments should be designed to cover a portion of these costs and provide value for money in

28 Grant equivalents are usually calculated by the World Bank based on the IDA grant element calculator.

terms of emission reductions achieved. These data points allow for the calculation of unit payments in terms of a price per ton of VER as the ratio of implementation costs to the total attributable emissions abated.

Determining a fair value per ton of CO_2 averted through these policies is difficult given limited reference points and requires balancing the provision of sufficient financial support with value-for-money considerations. If the RBCF payments cover many of the implementation costs incurred by a policy, then it can incentivize a sustainable policy implementation process in which the government has the capacity to work toward emission reductions. This is different from incentivizing the implementation of an individual investment project which follows a logic of closing a commercial viability gap whereas for policy crediting the rationale is more to improve the quality of policy implementation. This means the RBCF instrument is more likely to be considered fair and value-add in recognizing the financial burden a policy's implementation may imply. Likewise, to ensure value for money, payment levels should reflect common carbon benchmarks. For instance, the Green Climate Fund (GCF) and the Clean Technology Fund have paid between USD 42 and USD 144 per ton of CO_2 across all their programs and between USD 3 and USD 71 per ton of CO_2 in their EE programs (Juden and Mitchell 2021). In an RBCF context, REDD+ programs payments have equated to approximately USD 5 per ton, though research on the cost of these programs indicates these payments may be too low to meet program costs fully, as detailed in box 4.6.

Box 4.6 RBCF Payments in REDD+ Schemes

In initial REDD+ schemes, each ton of CO_2 was priced at around USD 5 (Köhl, Raj, and Mundhenk 2020). This value was calculated by considering both the opportunity cost of the forestry sector[a] and implementation costs to reach the estimated emission reductions (Forest Carbon Partnership Facility 2011). Some costs associated with REDD+ programs are showcased in table 4.4.

However, the REDD+ practice evidenced the need to contemplate implementation costs more comprehensively in RBCF payments. Even though the price of USD 5/tCO_2 was initially estimated to compensate for the opportunity costs of avoided forestry, recent research has concluded that significant change in global deforestation will come at a price of approximately USD 25/tCO_2 (Rakatama et al. 2017). For instance, Costa Rica calculated that even if it received financing to cover 92 percent of the implementation costs of the REDD+ program, it would still need payments of USD 30/tCO_2 to break even (UNEP 2015b).

Table 4.4. REDD+ Cost Examples

REDD+ program	Associated costs (USD)	Description
REDD+ scheme in Colombia	2.8 million	Costs of the REDD+ program by Green Climate Fund (GCF) in Colombia between 2015 and 2016, including MRV, capacity building, and management costs[a]
REDD+ in Costa Rica	1.5 billion	Costs of GCF's REDD+ program in Costa Rica between 2016 and 2020, including MRV, transaction, and management costs[b]
REDD+ in Guyana and Suriname	3.3 million to 3.71 million	MRV related costs[c]
Multiple	• **Opportunity cost**: 11/tCO_2 • **Implementation cost**: 3.39/tCO_2 • **Total cost**: 24.87/tCO_2	Research indicates that the current price of 5 USD/ton is insufficient to reflect costs involved. When considering different cost categories of REDD+, the total carbon price that should be disbursed by REDD+ is around USD 25/tCO_2.[d]

a. GCF 2023.

b. UNEP 2015b.

c. Köhl, Raj, and Mundhenk 2020.

d. Rakatama et al. 2017.

a. The opportunity cost approach for REDD+ is based on estimates of returns to forest and to alternative land uses.

5. Conclusions

Policies intended to have positive climate outcomes often run into hurdles in the implementation phase. Traditional climate finance has so far focused on supporting country governments in the design or advocacy phases but rarely in the implementation phase, thus leaving country governments with a lack of support during one of the most challenging phases of policy reform, a phase in which policies can fail or even be reversed.

Responding to this need, RBCF can complement conventional climate finance and support sound climate policy implementation in LMICs by paying for VERs. RBCF can support implementation by focusing attention on implementation and results, driving value for money, providing greater flexibility for governments to achieve targeted results, and encouraging the setup of solid MRV systems that support transparency and public accountability.

Implementation of climate change mitigation policies can be challenging for several reasons, in particular for the three policies reviewed (an FFSR, mandatory EESs for appliances, and the introduction of feebates to promote low-emission vehicles). The key barriers identified stem, first, from insufficient government capacities to implement the reform in terms of the availability of technical knowledge and resources; second, from negative impacts of the reform on industry; and, third, from negative impacts of the policy on society. These barriers should already be accounted for in the policy design phase and specifically addressed during the implementation of the policies, considering the possibility of external support.

RBCF can be used to support country governments precisely during the implementation phase and in this way improve the outcomes of climate policies. A first step in developing RBCF to support climate policy implementation involves identifying the challenges and costs related to implementation and developing the frameworks to design RBCF schemes.

This report proposes an RBCF program that would pay for VERs with total payments per policy of between USD 30 million and USD 50 million for a period of five to seven years. These additional resources can alleviate countries' financial efforts to cover implementation costs. Paying for VERs brings about a set of benefits that can further support implementation by focusing stakeholders' attention on results, driving value for money, stymieing reform reversal, providing greater flexibility for governments to achieve targeted results and tailor reforms to the local context, and encouraging the setup of solid MRV systems that enhance transparency and public accountability.

Three illustrative RBCF design blueprints for three climate policies were outlined in this report. It developed these schemes for the three specific policies—FFSR (a subsidy policy), mandatory EESs for appliances (a regulatory policy), and the introduction of feebates to promote low-emission vehicles (a pricing policy)—to serve as a blueprint for World Bank trust funds, donors, and country governments interested in engaging in RBCF. Each type of policy has its own specific barriers and ways in which RBCF could dislodge these barriers. In the case of FSSR, which is susceptible to reform reversal, RBCF can promote effective implementation and enhance transparency and institutional trust and thus help sustain the reform. EES policies usually need to be tailored to specific contexts, and often require iteration and adaptation; RBCF can offer country governments the flexibility to tailor the policy as necessary for the local context. In terms of feebate policies, RBCF can contribute to creating the fiscal governance necessary for implementation.

To reward VERs effectively, the proposed RBCF uses a measurement and verification process based on emission reductions modelling. This means emission reductions associated with each policy are determined using an ex post modelling approach to isolate the policy mitigation effect. For each payment term of the RBCF, VERs are determined by estimating the difference in emissions with and without the policy. After external verification by an accredited verification agency, RBCF payments are made.

These RBCF payments are defined based on VERs. They should cover a significant portion of the implementation costs of each policy and account for the value of these reforms. Relating payments to costs is important to incentivize policy implementation. Likewise, connecting payments to some measure of the value of these reforms (such as emissions abated) is necessary to ensure the use of RBCF provides value for money.

This report has argued that understanding barriers and quantifying implementation costs is a key first step to addressing the challenge of poor climate policy implementation outcomes in LMICs, in particular for the three priority policies. The blueprints presented are illustrative in part because their purpose is to showcase frameworks rather than solutions for specific country cases but also because data on climate policy implementation costs are extremely limited and unsystematized. Competencies on policy implementation often fall across different government agencies or government cycles, which complicates cost compilation and comparison. Furthermore, the potential emissions abated per policy and per country are also unclear because of limited climate information and reporting systems in LMICs.

As RBCF schemes are implemented in the future, it will be important for these programs to share publicly the policy implementation costs, as well as ex post emissions abated, so others can extract lessons learned and good practices for future RBCF implementation.

Annexes

Annex 1. Key steps and parameters to implement the three mitigation policies

The following introduces some key steps and/or parameters that must be observed for the successful implementation of an FFSR, EE standards in appliances, and feebates for low-emission vehicles.

FFSR

First, as FFSRs can have deep implications at economic, social, and political level, they should be implemented considering some key stages needed for a successful intervention:

- **Assessment of the existing subsidies**, defining, identifying, and measuring the fossil fuel subsidies and later assessing the potential impacts of a reform, keeping in mind GHG emission reductions as well as economic and social impacts of the measure, aiming to minimize the negative externalities
- **Building political and social support** through communication strategies and stakeholder engagement to secure buy-in across society and different sectors and prevent the social unrest that can be caused by the elimination or reduction of subsidies
- **Social compensation and mitigation measures**, introducing measures that ensure access for companies and citizens to clean, safe, and affordable energy, aligned with the SDGs
- **Revenue distribution and reinvestment from the obtained savings** as infrastructure investments, institutional reforms, etc.
- **Complementary measures**, including support for such climate-driven initiatives as improving energy efficiency, expanding renewable energy, and lower-carbon public transportation
- **Pricing policies**, which should include sequencing the reforms considering different fuels and sectors and decreasing gradually the fossil fuel subsidies until an eventual phase out of fossil fuels

EE standards in appliances

Regarding the EE standards in appliances, the International Energy Agency developed an EE performance ladder as a basis for setting energy efficiency levels (Lane 2020). This ladder can be applied to defining performance requirements for EESs, including MEPS and label thresholds, among others. The ladder identifies the following key steps for the implementation of MEPS and rating and endorsement label thresholds:

1. Agree on the procedure for testing and measuring energy efficiency of the appliances.
2. Define the efficiency thresholds (this is, the tiers or steps on the ladder) and other requirements; for example, for lighting, the requirements can be about efficiency but also about lifetime, color rendering, mercury content, or temperature environment, among others.
3. Map the EE requirements for the threshold.
4. Set the targets to establish how products will "climb up the ladder."

Feebates for low-emission vehicles

Finally, considering feebates, and according to the International Council on Clean Transportation (ICCT), the following are some important features of a successful feebate program (German and Meszler 2010):

- Continuity and linearity of the feebate rate line (Feebate Function), without any breaks or discontinuities
- Setting of the pivot point such that the system is sustainable and self-funding
- Periodic adjustments of the pivot point to compensate for variabilities in the self-funding capacity of the system and to reflect vehicle technology improvements
- Use of a linear metric, such as fuel consumption or CO_2 per unit of distance (German and Meszler 2010)
- An attribute adjustment (if one is used) based on vehicle size

Annex 2. Overview of the regional application of the three priority policies

FFSR

Considering a regional analysis of the FFSR, at least five countries in the Latin America and the Caribbean (LAC) region have implemented FFSR policies, while some Latin American countries still spend up to 10 percent of their national budgets to subsidize fossil fuels (World Bank 2020a). On top of that, since 2019, some countries that had introduced FFSRs renewed support for these fuels in the context of COVID-19 recovery packages. For instance, Mexico's government tripled fossil fuel support between 2017 and 2019, providing direct transfers to PEMEX, the country's state-owned petroleum company (OECD and IEA 2021).

Several African countries have introduced fossil fuel pricing mechanisms, mostly in the form of FFSRs. A UNFCCC study identified several efforts to phase out fossil fuel subsidies, including Ethiopia's removal of fossil fuel subsidies in 2008 and subsequent introduction of a gradually increasing import tax for high-emission vehicles and Kenya's rolling out of several reforms to remove fossil fuel subsidies. (UNFCCC, n.d.).

Some countries in the Middle East and North African (MENA) region have adopted FFSRs. According to a report from the International Emissions Trading Association (IETA), by 2016 at least seven African countries had included in their NDCs the reform of the subsidies: Burkina Faso, Egypt, Ethiopia, Ghana, Morocco, Senegal, and Sierra Leone, sometimes with concrete plans to implement them, as in the case of Egypt (IETA 2016). Moreover, FFSRs have sometimes been accompanied by social policies to mitigate the risk of social unrest in response to the hike in oil prices, as was the case, for instance, after the 2019 Lebanon protests. For example, Morocco successfully introduced a social reform policy in parallel to its fossil fuel and food subsidy reduction. The government rolled out the Tayssir unconditional and conditional cash transfer program (the conditional disbursements were subject to the school attendance of children in rural areas), allocating an annual budget of USD 70 million to deliver conditional cash transfers to up to 466,000 families in 2014. The households targeted were mainly located in poor rural areas and were assigned USD 153 per year, a similar amount to prereform (net) household fossil fuel subsidies in the case of a family of four (Kitson et al. 2016).[29]

In the East Asia and Pacific region, several countries have adopted FFSRs to incentivize the production and use of renewable energy, although this can still be further reinforced. For example, Indonesia introduced major fossil fuel subsidy reforms in 2014 by removing gasoline subsidies and reducing diesel subsidies (Beaton et al. 2013).

In South Asia, some countries have undergone significant fossil fuel subsidy reductions to accompany the gradual phasing out of fossil fuels. For instance, India still heavily relies on fossil fuels to meet its energy requirements, with a total share of 58.6 percent in power generation capacity coming from fossil fuels (mostly coal, with a 50.7 percent share; Ministry of Power 2022). However, its implementation

29 More detail on examples of social security compensation packages is provided in section 3 of the report.

of progressive FFSRs demonstrates a shift toward a clean energy transition. Between fiscal years 2014 and 2017, subsidies to oil and gas dropped by 76 percent, although subsidies for coal mining and coal-fired power remained stable (IISD 2018). Pakistan has also taken important steps to reduce its GHG emissions, notably through FFSR for natural gas and other petroleum projects, which in 2019 represented 0.7 percent of the country's GDP (IEA 2020).

A few countries have implemented FFSR in Eastern Europe and Central Asia. For instance, Armenia, Belarus, and Ukraine saw a decline in the subsidization levels of fossil fuels between 2015 and 2019, although this was reversed with the onset of the COVID-19 pandemic and recovery packages. Armenia and Georgia also witnessed a surge of government support for fossil fuels, with subsidies growing by 170 percent in Armenia and 480 percent in Georgia from 2019 to 2020 (OECD 2013; OECD 2021a).

EE standards and labeling of appliances

On a regional note, in the LAC region, out of 26 Interamerican Development Bank (IADB) members, in 2019 at least 10 had already implemented an EE law, 7 were developing them, and the remaining 5 had yet to define a law project in this area (IDB 2019). In 2003, Brazil was the first country in the region to implement voluntary EE labeling and MEPS regulations, which became mandatory in 2008. This national scheme was followed by others in Argentina, Chile, and Mexico and, later, by Colombia and Uruguay, among others.

In Sub-Saharan Africa, many countries have published a national EE strategy, but only a few have implemented EESs, such as Ghana, Malawi, Mauritius, Nigeria, and South Africa. A leading example is Ghana's Electrical Appliance Labeling Standards Program (GEALSP), which introduced an S&L plan in 2003, leading with a room air conditioner MEPS, followed by a refrigerator MEPS in 2009. Other examples can be found in Mauritius, where the labeling for appliances has only been implemented in the form of a guide for consumers, and in South Africa, where compliance with standards is voluntary in all sectors except for mandatory building codes (UNEP 2015a).

In the MENA region, many countries are currently drafting or adopting national EE policies and action plans concerning appliances. However, the scale of these initiatives remains limited. Many countries have applied several minimum EE standards, which are important to phase out inefficient equipment in the residential sector (World Bank 2016) . Some countries, including Bahrain, Egypt, Jordan, Kuwait, Saudi Arabia, and the United Arab Emirates, have recently adopted EE labeling for some appliances, based on a set of technical regulations, and begun providing consumers with reliable information to compare products (MENA-ACCESS 2019). In 2016, Bahrain and Qatar implemented energy labeling and MEPS in their national EE plans (IEA 2018).

In recent years, many East Asian countries have introduced standards and labeling schemes to address the need for greater EE. For instance, Malaysia implemented the EE criteria for Material and Electrical Equipment, featuring the MEPS star rating, a mandatory standards and labeling program introduced in 2016 as part of the country's National Energy Efficiency Action Plan (NEEAP; ASEAN SHINE 2015). Thailand also implemented the EE label for refrigerators and air conditioners, combined with MEPS (ERIA 2020).

In the South Asia region, some countries, such as Bangladesh, India, and Sri Lanka, have started the implementation of EE standards. For example, Bangladesh and India have dedicated acts on Energy Efficiency and Conservation, both of which mandate the display of labels on specified equipment and appliances. In Bangladesh, the government released a draft on S&L regulation entitled "SREDA Standard and Labeling (Appliance & Equipment) Regulation 2018" that establishes the rules and procedures for prescribing minimum EESs of appliances and equipment based on their EE performance (ADB 2021).

The Eastern Europe and Central Asia region has been making some progress in terms of EE policies, particularly in the form of S&L schemes. Some examples of this are found in Uzbekistan, with the introduction of a system of mandatory energy efficient labeling and certification for household appliances (Asia Pacific Energy Portal, n.d.); in Kazakhstan, which was recently developing an EES program through a GEF funded project; and in Ukraine, where the government based its national energy S&L policies on the respective European Union policy framework and assigned the State Agency on Energy Saving and Energy Efficiency (SAEE) the legal mandate to lead the setting up of the national energy S&L scheme (Adviesbureau Voor Energie Strategy 2013).

Feebate and low-emission vehicle policies

On a regional basis, the LAC region has taken positive steps for the introduction of different EV policies, with Chile having the system most similar to a feebate system. Other countries have introduced policies to improve infrastructure, minimum energy efficiency standards for vehicles, or subsidies for the importation of EVs (UNFCCC 2021).

In Africa, despite a relatively unfavorable context for the deployment on a large scale of low-emission vehicles, there are countries that have announced ambitious electrification targets and have started rolling out incentives and infrastructure to boost EV sales (ICCT 2022), although feebate systems as such are still rarely found in the region, with the exception of the Mauritian feebate system for imported vehicles. For example, Cabo Verde included in its Nationally Appropriate Mitigation Action (NAMA) a five-year-long project to help consumers pay the high upfront costs of EVs (more information on this example is provided in section 3; NAMA Facility, n.d.).

The MENA region's transportation sector is still mostly powered by oil, and no country in the region has established yet a full feebate system. However, the purchase and use of EVs in many MENA countries is starting to gain traction, encouraged by the introduction of policies providing subsidies and incentives for EVs, pilot electric shared mobility projects, and EV charging infrastructure. For instance, Jordan is considered a pioneer in the region in terms of electric mobility, with more than 18,000 EVs circulating on its roads as of 2018. This adoption of EVs was pushed by government policies successfully driving electric car prices below those of conventional fuel cars and providing exemptions from custom duties and licensing taxes. Nevertheless, appropriate infrastructure for EVs in Jordan is lagging, with EV owners often having to wait an hour and a half at charging stations and lacking battery maintenance services (Ebert-Stiftung 2019).

The East Asia and Pacific region has shown significant advancements in the electrification of the transportation sector in the past decade, led by China. Another relevant example is found in Thailand, where in 2022 the government approved a package of incentives to stimulate the growth of the share of EVs, with a target of 30 percent of the total vehicle fleet by 2030. These incentives include a 40 percent reduction in import duties for EVs costing up to BT 2 Million (USD 60,500), and a 20 percent reduction for EVs valued between BT 2 Million (USD 60,500) and BT 7 Million (USD 212,000). Moreover, there is a reduction of the import excise tax on EVs, and domestic car manufacturers will also receive subsidies for each electric car and motorcycle produced (Oxford Business Group 2022). Despite these examples of progress in the region, feebates have not yet been introduced, with some countries applying fee- or rebate-only systems.

Similarly, in the South Asia region, there have been some advancements that can pave the way for feebate schemes, such as programs for the electrification of the transportation sector, in which India stands out, and a differentiation of import taxes with more advantageous conditions for hybrid and electric vehicles, as seen in Sri Lanka (IEA 2021c). The Indian government introduced Bharat Stage VI standards in April 2020 to control vehicle emissions, thus forcing manufacturers to make significant design improvements to meet those standards. Moreover, India deployed the Faster Adaptation and Manufacturing of Electric Vehicles (FAMEII) scheme in 2019, which is the main pillar of national policy for EV support, allocating USD 1.4 billion to 1.6 million hybrid and electric vehicles and encouraging domestic manufacturing of EVs. India's national schemes are, moreover, complemented by city-led initiatives in cities like New Delhi, Kolkata, Pune, Nagpur, and Bangalore to accelerate the electrification of vehicle fleets (IEA 2021c).

Lastly, in the Eastern Europe and Central Asian region, as in other regions, there is no feebate in force, but there are some promising steps in this direction, with different incentives to make EVs more attractive for consumers. For example, at least Belarus, Moldova, Ukraine, and Uzbekistan have been offering purchase and usage incentives to make EVs more cost competitive for consumers, by waiving or reducing taxes, duties, and fees on EVs. For instance, Belarus approved a VAT rebate for EV purchases inside the country and waived parking fees in public parking lots and public road usage taxes for EVs. In some instances, nonmonetary incentives have come hand in hand with infrastructure development, as in the case of Ukraine, which adopted priority parking, including access to charging facilities (IEA 2021c).

Annex 3. Specific country cases considered for the illustration of barriers, solutions, and costs for the three policies

Table Annex 3.1 Examples of Costs Incurred in Different Countries When Implementing the Proposed Measures (or Similar Ones) for an FFSR

Solution applied	Cost item	Country	Dates of implementation	Total cost	Description	Source
Reinforcement of government capacities in terms of intergovernmental and interagency coordination and modelling of impacts and prices to implement the reform	Capacity building	Belize	2019-2022	USD 170,000	Among the components of the project "Capacity Building for Public Transport Reform" in Belize, were the capacity-building of the Ministry of Transport, including the creation of operational manuals, and the provision of training.	https://www.iadb.org/en/project/BL-T1115
		Paraguay	2022-Ongoing	USD 300,000	The project "Capacity building for fiscal policy and management in Paraguay" aims at strengthening Paraguay's Ministry of Finance in fiscal policy and management by strengthening the capacities of its human resources.	https://www.iadb.org/en/project/PR-T1325
		Egypt	2015-2023	USD 12 million	Project "Strengthening Social Safety Net Project". This project provided funding to expand and improve Egypt's social safety nets to ensure that they reach the most vulnerable households. This includes the development and implementation of the targeting and operational systems, the improvement of the administrative infrastructure of social units and the training officials and staff.	https://projects.worldbank.org/en/projects-operations/project-detail/P145699
Targeted programs for knowledge transfer and facilitation of investments in clean technologies	Development of a green financing facility	Chile, Panama, Ecuador and Peru	2020-Ongoing	USD 37.5 million	The Green Climate Fund developed the Green Climate Financing Facility in Latin-America. The Program will provide Local Finance Institutions in the region with access to a green finance credit line to finance the adoption of renewable and energy efficient technologies. This also includes technical support and capacity building. The total budget is of USD 150,2 million, which has been split to illustrate a possible cost per country into 4.	https://www.greenclimate.fund/project/fp149

Implementation of large communication and stakeholder engagement campaigns	Awareness campaigns	Turkey	2016-2021	USD 1.45 million	Among the components of the project "Promoting Energy-Efficient Motors in Small and Medium Sized Enterprises (SMEs)" were training, public awareness, and PR campaign for EE Motors. Outcomes included the development and delivery of comprehensive nationwide awareness campaign on EE motors. Also included detailed training for manufacturers, industry, and end-users, including the general public; awareness raising of electric motor manufactures and industrial companies of the financial and environmental benefits.	https://www.thegef.org/projects-operations/projects/9081

Deployment of compensation packages to the vulnerable through reinforced social security nets	Compensation packages	Egypt	2015	USD 400 million	The Government signed a USD400 million loan with the World Bank to introduce new food subsidies and cash transfer programs.	https://www.ids.ac.uk/publications/subsidy-reforms-lessons-from-the-middle-east-and-north-africa-mena-region/
		Jordan	2012	USD 450 million	To mitigate social unrest and promote social security nets, the Government launched a cash transfer aimed at the most vulnerable and poorest households. The cost of the cash transfer program introduced was approximately USD 450 Million per year. It was estimated that the cash transfer program overcompensated the majority (almost 70%) of Jordanian households.	https://documents1.worldbank.org/curated/en/118591468171850113/pdf/97159-WP-P156034-Jordan-31May2015-PUBLIC-Box391451B.pdf
		Indonesia	2015	USD 2.5 million	Regions and villages received an IDR 34 trillion (USD 2.5 billion) increase in transfer funds. This supported food sovereignty, revitalized traditional local markets, improved regional connectivity, and supported health services.	https://www.undp.org/publications/fossil-fuel-subsidy-reform-lessons-and-opportunities?utm_source=EN&utm_medium=GSR&utm_content=US_UNDP_PaidSearch_Brand_English&utm_campaign=CENTRAL&c_src=CENTRAL&c_src2=GSR&gclid=EAIaIQobChMI1KiumMO3-wIVg_XVCh33Awp3EAAYASAAEgI-SvD_BwE
		Angola	2015	USD 435 million	The IMF supported the Ministry of Social Assistance in Angola in setting a cash-transfer schemes, the estimated cost of which was equivalent to 50% of the poverty line.	https://data.worldbank.org/indicator/NY.GDP.MKTP.KD?locations=AO
Ongoing communication campaigns about the reform and the introduced compensation measures	Communication campaigns	Pakistan	2022-Ongoing	USD 1 million	The Green Climate fund provide a grant for an awareness campaign in the context of the "Pakistan Distributed Solar Project". The objective of the campaign is to create awareness among the general public about the reliability of renewable solutions.	https://www.greenclimate.fund/project/sap024

Table Annex 3.2. Examples of Costs Incurred in Different Countries When Implementing the Proposed Measures (or Similar Ones) for EE Standards in Appliances

Solution	Cost Item	Country	Dates of implementation	Total cost (USD)	Description	Source
Building of administrative capacity	Training sessions and development of tools	South Africa	2011–19	13 million	For South Africa's mandatory EESL program. USAID provided technical assistance to DMRE and SANEDI (training sessions; guidance to use the Demand Resource Energy Analysis Model to estimate potential energy savings; development of the International Database of Efficient Appliances tool to establish a baseline of the national appliance market).	https://www.thegef.org/projects-operations/projects/2692 https://pdf.usaid.gov/pdf_docs/PA00XHN1.pdf
Establishment of national accredited testing facilities or agreements with external laboratories	Upgrading of preexisting test laboratories	Egypt	2010–15	700,000	Egypt upgraded the quality of the testing and facilities of preexisting test laboratories. New test labs were established to test compliance of other appliances.	https://info.undp.org/docs/pdc/Documents/EGY/00060162_Final%20Draft%20-%20Project%20Document.pdf
		Turkey	2016–21	5 million	The project "Promoting Energy-Efficient Motors in Small and Medium Sized Enterprises (SMEs)" in Turkey aimed to transform the market for energy-efficient motors. The Turkish Standards Institute (TSI) test laboratory was upgraded to be capable of testing energy-efficient motors for compliance with performance standards. Detailed training and capacity building were provided. Another outcome was a better structured implementation and verification program with adequate staffing for laboratory testing and market surveillance. Technical Assistance: USD 800,000 Investment: USD 4.2 million	https://www.thegef.org/projects-operations/projects/9081
	Costs needed to set up and operate testing facilities	Worldwide	N/A	500,000	SEAD Global Appliance Testing Costs Catalogue. Indicative laboratory capital and operational costs for energy efficiency performance verification testing of five appliance categories across the world.	https://www.clasp.ngo/research/all/sead-global-appliance-testing-costs-catalogue/
	Price for a single product unit to be tested at an accredited lab	Worldwide	N/A	14,000	Low estimate, assuming that 15 appliances are tested per year (3 for each of the five product categories considered in the catalogue).	ASSUMPTIONS based on https://www.clasp.ngo/research/all/sead-global-appliance-testing-costs-catalogue/
		Worldwide	N/A	50,000	High estimate, assuming that 15 appliances are tested per year (3 for each of the five product categories considered in the catalogue).	ASSUMPTIONS based on https://www.clasp.ngo/research/all/sead-global-appliance-testing-costs-catalogue/

Training and engagement with manufacturers, importers, and retailers	EES manufacturer support programs and training	Pakistan	2010–14	260,000	UNDP's project, "Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency Standards and Labeling (BRESL)." The activities conducted under the component "ES&L Manufacturer Support Program" included educational workshops for manufacturers and retailers on impacts of standards and ways to work with standards to increase profitability.	https://info.undp.org/docs/pdc/Documents/PAK/PRODOC%20BRESL%20Final.pdf
		Sudan	2018–22	2.3 million	The objective of the project "Leapfrogging Sudan's Markets to More Efficient Lighting and Air Conditioners" was to transform Sudan's markets for energy-efficient lighting and air conditioners. Among the components were awareness building of the new Minimum Energy Performance Standards and regulatory mechanism. The objective was to increase capacities of local supply chain stakeholders and end users to comply with new MEPS and to bring energy-efficient products to the market at competitive and affordable prices.	https://www.thegef.org/projects-operations/projects/9328
Promotion of a market shift and ensuring of the supply of energy-efficient appliances	Subsidy program directed at suppliers	China	2012	3.7 billion	China's "Promotion Product Program" offered subsidies to suppliers of high-efficiency household products.	https://www.cleanenergyministerial.org/content/uploads/2022/05/26-a-global-review-of-incentive-programs-to-accelerate-energy-efficient-appliances-and-equipment.pdf
Provision of financial incentives and other innovative financing mechanisms	Costs of a tax credit scheme	France	2005–9	2.6 billion	France introduced a tax credit scheme through which personal income tax credits could be claimed for the purchase of energy-efficient boilers and heat pumps. Four years after its introduction, 1.5 million households had benefited, amounting to EUR 2.6 billion of lost revenue to the French government.	https://www.cleanenergyministerial.org/content/uploads/2022/05/26-a-global-review-of-incentive-programs-to-accelerate-energy-efficient-appliances-and-equipment.pdf
	Costs of a consumer reward program	Japan	2009–11	8.7 billion	Japan implemented a consumer reward program, the "Eco-Point System," in which points were granted for the purchase of highly efficient appliances. The points could be exchanged for green goods and services, listed in a catalogue sponsored by the government.	https://www.cleanenergyministerial.org/content/uploads/2022/05/26-a-global-review-of-incentive-programs-to-accelerate-energy-efficient-appliances-and-equipment.pdf

Awareness campaigns on benefits and energy savings potential	Operational costs of awareness campaigns	Turkey	2016-2021	1.5 million	Among the components of the project "Promoting Energy-Efficient Motors in Small and Medium Sized Enterprises (SMEs)" were training, public awareness, and a PR campaign for EE motors. Outcomes included the development and delivery of a comprehensive nationwide awareness campaign on EE motors. Also included were detailed training for manufacturers, industry, and end users, including the general public, and awareness raising among electric motor manufacturers and industrial companies of the financial and environmental benefits.	https://www.thegef.org/projects-operations/projects/9081

Table Annex 3.3 Examples of Costs Incurred in Different Countries When Implementing the Proposed Measures (or Similar Ones) for Feebates

Solution	Cost items	Country	Dates of implementation	Total cost	Description	Source
Building of administrative capacity (teams and systems) to implement and regularly adjust a system to collect the fees and distribute the rebates	Trainings and information systems	Jamaica	2021–25	USD 2.80 million	The government of Jamaica is implementing a project for "Supporting Sustainable Transportation through the Shift to Electric Mobility." The project seeks to institutionalize low-carbon mobility and enhance administrative capacities by providing Regional Support and Investment Platform Assistance to policymakers and sector staff to develop eMobility policy and regulation; drafting regulatory instruments and technical standards for eMobility Systems; drafting proposals for tax policy and financial incentives for eMobility; and establishing an information clearinghouse for eMobility data to support policy design and market development	https://www.thegef.org/sites/default/files/documents/10289_CEO_Endorsement_Request.pdf
N/A	Budget to cover the difference between fees and rebates[30]	France	2008–11	USD 300 million per year	The French feebate cost the government approximately EUR 300 million in direct costs in the first years and EUR 300 million in decline in VAT revenue due to higher sales of smaller and cheaper cars.	Incentivizing zero- and low-emission vehicles: The magic of feebate programs - International Council on Clean Transportation (theicct.org)
N/A[31]	Budget to cover the difference between fees and rebates	Mauritius	2011–13	USD 9.3 million per year	The estimations consider that the Mauritius government spent around USD 28 million in 2011–13 on the feebates.	https://wedocs.unep.org/handle/20.500.11822/16847
Investment in technology and capacity building for vehicle emission testing facilities or in the promotion of partnerships for this purpose	Establishment of a CO_2 emission measuring lab	Chile	N/A	USD 6.03 million for the establishment of the lab; USD 1.07 million for yearly operation	Chile established a Co_2 emissions testing lab within the Centro de Control y Certificación Vehicular (3CV) under the Ministry of Transportation. The Chilean testing laboratory had an initial investment cost of around USD 3.3 million in facility and equipment investments; USD 230,000 in operational costs, including maintenance and critical materials; and over USD 2.5 million in other investments. The lab has an annual budget for its operation of USD 1.7 million, which is almost compensated by the USD 1.4 million income retrieved from the homologation services.	https://theicct.org/sites/default/files/ 1300%20Alfonso%20Cadiz%20Chile%20PPT_3CV_2018_BA.pdf

30 These are not costs directly associated to the implementation of the solutions, but misalignment in the defined fees and rebates can make governments incur in substantial additional expenditure.

31 Although the cost of funding the different between the fees and the rebate is not necessarily a cost incurred by all countries implementing a feebate system (if the system is duly designed the fees and rebates amounts should be balanced), it has been found that in practice, in most cases there is a mismatch between both and governments end-up paying more rebates tan receiving fees. The amounts of extra expenditure caused by this circumstance are large enough to be taken into account in the context of a feebate reform.

Investment in the development and strengthening of national EV industries	Packages of investment to support development of the EV industry	Spain	2021–23	USD 3.05 million (EUR 2.98 million)	Spain has launched a program to support the EV industry in the country, promoting PPPs and public sector investment for specific projects. The program is called "Grants for Integral Actions in the Industrial Chain of the Electric and Connected Vehicle within the Strategic Project for the Recovery and Economic Transformation in the Electric and Connected Vehicle Sector (PERTE VEC)" and covers the period 2021–23. It is expected to mobilize EUR 2,975 in grants (Energías Renovables 2022). It supports actions in areas such as the following: · Manufacture of electric batteries and accumulators · Manufacture of instruments and appliances for measuring, testing, and navigation · Programming, consultancy, and other computer-related activities · Manufacture of rubber products · Specialized design activities · Manufacture of electronic components and assembled printed circuits · Manufacture of motor vehicles, trailers, and semitrailers · Research and development · Manufacture of electric motors, generators, and transformers and of electrical distribution and control apparatus · Manufacture of plastic products · Manufacture of computers and peripheral equipment · Valorization · Waste treatment and disposal	https://planderecuperacion.gob.es/como-acceder-a-los-fondos/convocatorias/BDNS/615575/orden-ict-209-2022-de-17-de-marzo-por-la-que-se-efectua-la-convocatoria-correspondiente-al-ano-2022-y-se-modifica-la-orden-ict-1466-2021-de-23-de-diciembre-para-la-concesion-de-ayudas-perte-vec-en-el-marco-del-prtr
	Professional training for industry stakeholders	Jamaica	2021–25	USD 975,000	The government of Jamaica is implementing a project for "Supporting Sustainable Transportation through the Shift to Electric Mobility." One of the objectives is to prepare for scaling up and replication of low-carbon electric mobility. The expected outputs include professional training of drivers, mechanics, and first responders on use, maintenance, repair, and safety of EVs and ancillary systems; fostering business spinoffs related to eMobility, following a business incubator concept; and implementation of on-campus events and workshops targeting various sectors (government, academia, private sector, investors, end users), among others.	https://www.thegef.org/sites/default/files/documents/10289_CEO_Endorsement_Request.pdf
	Introduction of policies to promote electric and hybrid vehicles	India	2019–24	USD 1.20 billion (Rs 10,000 crore) [32]	The Ministry of Heavy Industries of India deployed *the* "Faster Adaptation and Manufacturing of (Hybrid &) Electric Vehicles (FAME)" scheme in 2015 as part of the National Electric Mobility Mission Plan 2020. This policy was launched with the goal of promoting electric and hybrid vehicles, as well as achieving national fuel security. The second phase of the FAME scheme begun in April 2019 and will remain in force until 2024, with an outlay of Rs 10,000 crore.	https://static.pib.gov.in/WriteReadData/specificdocs/documents/2022/jul/doc202271169601.pdf

32 Rs crore refers to 10 million Indian Rupee

Communication campaigns to raise awareness about the benefits of EVs and about the feebate program	Communication and awareness raising	EU countries	2006	USD 4.72 million (EUR 4.60 million)	The European Commission implemented in 2006 a public awareness campaign on climate change called "You Control Climate Change." The purpose was to reach EU citizens to increase their awareness of climate change and demonstrate how individuals can help fight it. The campaign communicated through different channels, such as campaign banners on public buildings and statues in the capitals wearing campaign T-shirts; TV, outdoor, and newspaper advertising; and a range of electronic tools, such e-mailings, to attract attention. There is also a dedicated webpage.	https://ec.europa.eu/commission/presscorner/detail/en/MEMO_06_218
Communication campaigns to raise awareness about the benefits of EVs and about the feebate program	Communication and awareness raising	Pakistan	2022–ongoing	USD 1.00 million	The Green Climate Fund provided a grant for an awareness campaign in the context of the "Pakistan Distributed Solar Project." The objective of the campaign is to create awareness among the general public about the reliability of renewable solutions.	https://www.greenclimate.fund/project/sap024
Development of clear incentives for consumers	Incentives to consumers	Cabo Verde	2020–25	USD 5.53 million	The NAMA-supported project, "Promotion of Electric Mobility in Cabo Verde (ProMEC)," includes support for the development of a facility to address the financial barrier of the higher costs of EVs. The project will establish an electric mobility facility (EMF) that provides a rebate covering part of the incremental cost of electric cars and buses to early adopters, companies, and institutions.	https://nama-facility.org/projects/cabo-verde-electric-vehicles/
	Purchase of incentives (subsidy)	Romania	2018–ongoing	USD 6.00 million	The Romanian market has benefited from direct government subsidies for the purchase of electric cars. The purchase incentive was EUR 10,000 (about USD 10,300), which has resulted in over 600 pure EVs purchased in 2018. This means a 222 percent increase over 2017. Hybrid car purchasers could benefit from a EUR 4,500 subsidy.	https://www.euronews.com/next/2022/10/19/helping-you-to-switch-to-electric-cars-how-do-countries-in-europe-compare_
Lack of appropriate infrastructure for low-carbon vehicles	Support for the development of infrastructure necessary for the adoption of EVs	Cabo Verde	2020–25	USD 7.38 million (EUR 7.20 million)	The NAMA-supported project "Promotion of Electric Mobility in Cabo Verde (ProMEC)" (EUR 7.2 million funding) provides incentives to facilitate the adoption of EVs. The project will provide incentives for the acquisition of 600 electric vehicles, the installation of a network of 40 commercial and 55 private EV charging stations, and the implementation of several e-bus demonstration projects. The EMF is expected to leverage EUR 5.4 million from the public sector and EUR 12.3 million from the private sector.	https://nama-facility.org/projects/cabo-verde-electric-vehicles/
	Importation of the technology and installation of charging stations	Cuba	2020–30	USD 1.50 billion	The Cuban NDC foresees the introduction of more than 55,000 electric vehicles and the installation of around 25,000 charging stations by 2030. The funding required to cover the importation of the technology is about USD 1.261 million.	https://unfccc.int/sites/default/files/NDC/2022-06/Cuban%20First%20NDC%20%28Updated%20submission%29.pdf

Annex 4. Summary of RBF and non-RBF cases considered for the design of the proposed three RBCF concepts

Table Annex 4.1 Summary of Non-RBF Donor Support Case Studies

Case study	Policy area	Funding size	Years	Donor	Barriers	Drivers
Rwanda phasing out electricity subsidies	Electricity subsidies reform	USD 348,000	2017–on-going	World Bank (ESMAP)	Limited political incentives (costs of interest groups) Technical challenges for governments in designing policy (policy design capacity)	Providing specialized knowledge Investing in existing capacity
Egypt energy subsidies	Energy subsidies (petroleum and electricity) reform	USD 246,000	2013–16	World Bank (ESMAP)	Limited political incentives (costs of interest groups) Technical challenges for governments in designing policy (policy design capacity)	Providing specialized knowledge Investing in existing capacity Aligning relevant stakeholders
Ukraine cities energy efficiency	Energy efficiency investments (i.e., gas and heating infrastructure)	USD 636,000	2014–17	World Bank (ESMAP)	Limited political incentives (governance and accountability)	Providing specialized knowledge Investing in existing capacity Aligning relevant stakeholders
Bangladesh fuel subsidies reform	Fossil fuel subsidy reform	-	2012	IMF	Limited political incentives (costs of interest groups)	Investing in existing capacity Encouraging compensation measures
Jordan fuel subsidies reform	Fossil fuel subsidy reform	-	2012	IMF	Limited political incentives (costs of interest groups)	Investing in existing capacity Encouraging compensation measures
Nigeria oil sector reform	Oil production management	USD 17 million	2010–16	DFID	Limited political incentives (governance, public accountability) Info/relationship challenges to design policy (relationships)	Providing specialized knowledge Aligning relevant stakeholders
Rural water and attendance program in Tanzania	WASH	USD 1.8 million	2007–14	The Netherlands Development Organization (SNV)	Limited enforcement capacity (governance) Technical challenges for governments in designing policy (data and measurement gap)	Providing specialized knowledge Aligning relevant stakeholders
Health worker pay and attendance program in Sierra Leone	Health	USD 13.7 million	2010	DFID	Limited political incentives (governance) Limited enforcement capacity (governance)	Investing in existing capacity
Property rights reform in the Philippines	Land and property rights	USD 38 million	2005–9	World Bank and AusAID	Limited political incentives (high cost of reform to government, lack of internalized benefits)	Investing in existing capacity Aligning relevant stakeholders

Table 4.2 Summary of RBF Donor Support Case Studies

Case study	Policy area	Funding size	Years	Donor	Type of RBC	Barriers	Drivers
Public sector management reform in Sierra Leone	Civil service	USD 17 million	2012–18	World Bank	Pay and performance project	Limited compliance and enforcement (lack of internalized benefits, public accountability) Info/relationship challenges to design policy (data and measurement)	Flexibility Aligning incentives Accountability and transparency
Local government development in Uganda	Systems strengthening	USD 17.5 million	1997–2001	UN	Funding conditional on minimum conditions performance	Limited political incentives (governance gap, public accountability) Info/relationship challenges to design policy (country alignment, relationships)	Shifting focus to results Aligning incentives Accountability and transparency
Public financial management reform in Mozambique	Public financial management	USD 50 million	2014–19	World Bank	PforR, country level, and PBA, local level	Technical challenges for governments in designing policy (policy design capacity) Limited compliance and enforcement (data and measurement)	Flexibility Aligning incentives
Cabo Verde compact II	Land and property rights	USD 17.5 million	2012–17	MCC	Conditions precedents for PIR and RBF for implementation	Technical challenges for governments in designing policy (policy design capacity, data and measurement gap)	Shifting focus to results Aligning incentives
Honduras threshold	Public financial management and public-private partnerships	USD 15 million	2014–19	MCC	Conditions precedents	Limited political incentives (public accountability) Info/relationship challenges to design policy (information)	Flexibility Accountability and transparency

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