

ENERGY SECTOR MANAGEMENT
ASSISTANCE PROGRAM

ANNUAL REPORT 2020

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ABOUT ESMAP

The Energy Sector Management Assistance Program (ESMAP) is a partnership between the World Bank and 18 partners to help low- and middle-income countries reduce poverty and boost growth through sustainable energy solutions. ESMAP's analytical and advisory services are fully integrated within the World Bank's country financing and policy dialogue in the energy sector. Through the World Bank Group (WBG), ESMAP works to accelerate the energy transition required to achieve Sustainable Development Goal 7 (SDG7) to ensure access to affordable, reliable, sustainable, and modern energy for all. It helps to shape WBG strategies and programs to achieve the WBG Climate Change Action Plan targets. Learn more at: <https://esmap.org>

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ABBREVIATIONS

ARISE	Accelerating Renewable Energy Integration and Sustainable Energy
ASPIRE	Accelerating Sustainable Private Investment in Renewable Energy
BESS	battery energy storage system
CIF	Climate Investment Fund
DABS	Da Afghanistan Breshna Sherkat
DfID	Department for International Development (now FCDO, UK)
ECCH	Efficient, Clean Cooking and Heating (ESMAP initiative)
EESL	Energy Efficiency Services Limited
EEU	Ethiopia Electric Utility
EMRCRP	Emergency Multisector Rohingya Crisis Response Project
ESP	Energy Storage Partnership
ESR	Energy Subsidy Reform
ESRAF	Energy Subsidy Reform Assessment Framework
ESRF	Energy Subsidy Reform Facility (ESMAP initiative)
FCDO	Foreign, Commonwealth & Development Office (formerly DfID, UK)
FY	fiscal year
GEP	Global Electrification Platform
GFMG	Global Facility on Mini Grids
GGDP	Global Geothermal Development Plan
GIS	geographic information system
GW	gigawatt
GWh	gigawatt hours
HDF	Hydropower Development Facility
IDA	International Development Association
IEA	International Energy Agency
IFC	International Finance Corporation
km	kilometer
MDFT	multi-donor trust fund
MTF	Multi-tier Framework
NEP	Nigeria Electrification Project
PASA	programmatic advisory services and analytic (support services)
PFI	participating financial institution
PV	photovoltaics (solar)
REMapping	Renewable Energy Mapping (ESMAP initiative)

RISE	Regulatory Indicators for Sustainable Energy
SDG	Sustainable Energy Goals
SEforALL	Sustainable Development for All (ESMAP initiative)
SRMI	Sustainable Renewables Risk Mitigation Initiative
STEM	Science, Technology, Engineering, and Mathematics
TW	terawatt
UN	United Nations
UNHCR	United Nations Refugee Agency
VRE	variable renewable energy
WBG	World Bank Group
WePOWER	Women in Power Sector Network in South Asia
WHO	World Health Organization
YEEAP	Yemen Emergency Electricity Access Project

All currency in United States dollars (US\$, USD), unless otherwise indicated.

WORLD BANK REGIONS

AFR	Sub-Saharan Africa
EAP	East Asia and Pacific
ECA	Europe and Central Asia
LCR	Latin American and the Caribbean
MNA	Middle East and North Africa
SAR	South Asia

SECTION I

1 ESMAP AND THE WORLD BANK IN A PIVOTAL YEAR



ESMAP AT A GLANCE

WHAT

The Energy Sector Management Assistance Program (ESMAP) is a global knowledge and technical assistance program administered by the World Bank. It provides analytical and advisory services to low- and middle-income countries to increase their know-how and institutional capacity to achieve environmentally sustainable energy solutions for poverty reduction and economic growth. ESMAP is funded by Austria, Canada, ClimateWorks, Denmark, the European Union, Finland, France, Germany, Iceland, Italy, Japan, Luxembourg, Netherlands, Norway, Rockefeller Foundation, Sweden, Switzerland, United Kingdom, and the World Bank.

HOW

- Provides grants and technical support to countries through WBG operational units
- Maintains an active portfolio of about \$180 million, with FY2018–20 average annual disbursements about \$38 million
- Delivers key global knowledge products deployed for country engagements
- Develops external partnerships with international organizations, research & development institutions, and industry associations
- Collaborates across WBG regional Energy units and sectors, such as Transport, Urban, Water, Health, and Gender
- Mobilized \$330 million in FY2017–20 for Bank-executed activities and Recipient-Executed Activities (co-financing IBRD/IDA operations)

KEY PERFORMANCE INDICATORS

- WBG finance informed and external financing mobilized
- People provided with energy access through WBG operations informed by ESMAP
- Metric tons of CO₂ emissions reduced through WBG operations informed by ESMAP
- GW of renewable energy installed through WBG operations informed by ESMAP

With 189 member countries, the World Bank Group (WBG) is one of the world's largest sources of funding and knowledge for developing countries, with a mission to reduce poverty, increase shared prosperity, and promote sustainable development.

Energy is at the heart of development. It makes possible the investments, innovations, human capital development, and new industries that are the engines of jobs, inclusive growth, and shared prosperity for entire economies.

At the same time, the world faces the existential challenge of global climate change. Sustainable growth and mitigating climate change are collective ambitions reflected in the UN Sustainable Development Goals (SDGs) and the landmark climate change agreement signed in Paris during the 21st Conference of the Parties (COP21). Energy sector transition is a prerequisite for achieving the SDGs, and it is supported by technological developments that have seen dramatic declines in the cost of renewable energy, energy storage, and digitalization.

The World Bank's ability to respond to energy challenges and client demand has been supported by the Energy Sector Management Assistance Program (ESMAP). A long-standing partnership between the World Bank, bilateral donors, and philanthropies, ESMAP finances or undertakes much of the analytical work that informs the Bank's energy sector policy dialogue and advisory services that in turn strengthen

the design and implementation of its investment and development policy projects. Knowledge generated by the program leverages WBG lending, shapes country policies, increases client capacity, and promotes innovation. The broader 'public good' aspect of ESMAP's work has made the program a knowledge broker, not only for World Bank clients and practitioners, but for development partners more generally.

This year, an additional global crisis arrived in the form of the COVID-19 pandemic. As the World Bank pivoted to provide an emergency response, the challenge for its energy sector activity has been to support the delivery of critical energy services while laying the groundwork for an environmentally and socially sustainable economic recovery and long-term growth trajectory. **The following section describes ESMAP's pandemic response.**

For FY2017–20, ESMAP organized its work around Energy Access, Renewable Energy, Energy Efficiency, Energy Subsidy Reform, and Annual Block Grants for Governance, Markets & Planning while incorporating Gender considerations across all activities. **Section II follows the same structure, reporting on ESMAP activities within each workstream during FY2020 and summarizes the cumulative achievements during the FY2017–20 Business Plan.**

Section III contains a Financial Review, including a breakdown of lending activities by region and thematic area.

RESPONDING TO COVID-19 AND LAYING THE GROUNDWORK FOR A SUSTAINABLE RECOVERY

The onset of the COVID-19 pandemic was rapid and unexpected, requiring governments and the World Bank to respond immediately to this public health emergency and ensure that critical services continued to function with reliable energy deliveries.

Reliable energy services lie at the core of preventing and fighting COVID-19 by powering healthcare facilities, supplying clean water for essential hygiene, and providing sufficient refrigeration for the maintenance of food and medicines. They are also critical for the digital infrastructure needed to fight the spread of the pandemic, cope with social distancing measures, and ensure service continuity of government, essential services, and businesses.

While many have been able to connect virtually and continue working, such access and options are not available for the 789 million people who live without access to electricity, mostly in Africa and South Asia. The interconnected nature of any effective health response underscores our common interest in a functioning energy sector and reliable access in even the most remote corners of the world.

The effects of COVID-19 on the energy economy in developing countries has been dramatic. In April 2020, the International Energy Agency (IEA) estimated that countries in full lockdown experienced an average 25 percent decline in energy demand, with electricity consumption patterns making every day look like Sunday.¹ Activity slowed substantially in transport, trade, and commerce, and the deep reductions in energy consumption caused knock-on payment crises from customers, to service providers, to utilities, to generators, to governments. The slowdown also impacted both supply and demand in

global commodity markets, and the effects are likely to persist for months to come. New investments in energy and extractives projects were delayed, suspended, or cancelled, while existing operations have been confronted with new challenges to logistics, supply chains, and personnel management.

The World Bank's approach has been to address urgency, resilience, and sustainability. That has meant, first, **prioritizing energy solutions to power health clinics and first responders**. In Sub-Saharan Africa, for example, [only 28 percent of healthcare facilities benefit from access to reliable electricity supply](#).

ESMAP expertise informed World Bank emergency lending for renewable energy solutions that could be deployed quickly to provide power to public health facilities and for critical government and communication services.

ESMAP expertise has informed World Bank emergency lending for renewable energy solutions that could be deployed quickly, to provide power to public health facilities and for critical government and communications services. It developed a [COVID-19 Emergency Power Supply Response Strategy Note](#) that is helping World Bank teams in structuring lending projects on ensuring urgent, adequate, and reliable clean energy for critical health facilities. For example, ESMAP experts helped World Bank teams in Nigeria and Haiti to restructure and repurpose mini grids and off-grid solar solutions from existing projects to meet urgent COVID-19 actions. With the cooperation of numerous development partners, ESMAP also explored and successfully established a co-financing facility for low-income and fragile IDA countries that are constrained in their resources for

1 [IEA Global Energy Review 2020](#)

urgently electrifying health facilities in the face of the pandemic.

Experts from ESMAP's Global Facility on Mini Grids and the Global Electrification Platform developed an accompanying assessment of energy needs in health facilities. Expertise in electrification planning has supported projects with identification, assessment, and prioritization of health facilities for electrification based on articulation of catchment areas served and the public health impact.

The second critical element of the World Bank's COVID-19 response was **keeping vulnerable consumers and critical services connected** by

providing support to governments, utilities, and off-grid companies. Economic conditions made it even more difficult for low-income customers to pay their electricity bills, threatening them with disconnection. Utilities under financial strain, in turn, struggled to cover costs from commercial and industrial customers and to fulfill purchasing contracts with private sector generators. Innovative companies operating mini grids or providing off-grid solar services to an increasing share of the rural poor (e.g., in Africa) faced hardship and potential collapse. Some of the most vulnerable people and businesses risked plunging into darkness at a moment when electricity access was vital.

World Bank funding for contracts with local private sector producers (particularly smaller mini grid and off-grid solar companies)

to deliver quality and reliable electricity has helped to keep those companies solvent. Ongoing mini grid projects, such as those in Haiti, Nigeria, and Ethiopia, are providing contracts that give companies the ability to plan for future growth despite the current pandemic. The World Bank also provided expertise to help utilities monitor and support cash reserves, and to finance operations and maintenance. For example, in Afghanistan, it assisted the national electricity utility

(DABS) to rapidly assess its financial situation and supported the preparation of an emergency project to help redress DABS' financials and continue to keep the lights on.

Even in the midst of this global emergency response, ESMAP and the World Bank continue to look forward. Maintaining the power sector's viability has been critical in the immediate crisis, but it is also vital for the economic recovery, building resilience against

If sector viability issues are not addressed, they can pare back sustainability gains and reverse critical reforms. This would undermine a decade of progress and threaten the energy sector's future trajectory.

future shocks, and, eventually, achieving universal access. If liquidity and viability issues are not properly and swiftly addressed, they can pare back sustainability gains in the domestic energy sector and reverse critical economic reforms. The energy sector's future trajectory would be threatened, as planned investments are affected both by falling demand and the difficulty of raising equity.

So, while the onset of the pandemic was a reminder of the vital crisis response role that public financing institutions must play, exceptional measures and

The pandemic, and the increasingly apparent effects of climate change, also highlight the need for adaptive and resilient energy systems.

stimulus spending to limit the immediate fallout should also **create a foundation for a sustainable economic recovery, the acceleration of energy access, decarbonized infrastructure, and socio-economic resiliency.** COVID-19 generated a worldwide debate about how to undertake pandemic recovery stimulus packages in ways that support ongoing momentum on climate change.

Despite the enormous damage it inflicted, COVID-19 has also provided a unique opportunity to reset the world onto a more sustainable growth pathway. The ESMAP Business Plan for FY2021–24 is well positioned to support client countries in addressing these challenges and “building back better” by responding to the livelihood challenges aggravated by the crisis and boosting domestic economic activity; ensuring

continuity in provision of affordable, reliable, and clean energy, including for productive uses and facilities providing public services; and alleviating fiscal pressures by reducing the burden of energy costs on the economy. The pandemic, and the increasingly apparent effects of climate change, also highlight the need for adaptive and resilient energy systems.

MOBILIZING THE PRIVATE SECTOR POST-CRISIS

While the need for recovery investment is pressing and the opportunity unique, public financing will be constrained for years following the spate of emergency spending and the fiscal burden of responding to COVID-19, underscoring the critical role of the private sector. Across the World Bank, that will mean emphasizing the [Maximizing Finance for Development](#) strategy to leverage all sources of financing.

ESMAP initiatives are increasingly looking toward private sector incentives to shift the financing burden away from public sources.

Across ESMAP’s portfolio, there is a strong emphasis on financing mechanisms that leverage the private sector and alleviate fiscal pressure on governments.

For example, efforts to scale up solar and wind energy use will seek to mobilize more private capital by promoting public-private partnership models that reduce investment risk and uncertainty. ESMAP’s **Sustainable Renewables Risk Mitigation Initiative (SRMI)**, which leverages development and climate financing to help attract private investment to renewable projects, is timely.

In clean cooking, ESMAP’s **Efficient Clean Cooking and Heating (ECCH)** initiative has supported a market-based approach that incentivizes the private sector through results-based funding to deliver clean cooking solutions that households are willing to adopt. Therefore, private enterprises that are involved in the clean cooking value chain are also beneficiaries of the ESMAP initiative.

Across ESMAP’s portfolio, from energy efficiency, to scaling up renewable energy, to energy storage and power sector reform, there is a strong emphasis on approaches that leverage the private sector and alleviate fiscal pressure on governments. Over FY2017–20, ESMAP-informed lending operations mobilized \$8.2 billion in private capital co-financing for ESMAP-informed lending operations.



SECTION II

OUR IMPACT IN FY2020

THROUGHOUT THIS SECTION, ACCOMPLISHMENTS HAVE BEEN INCLUDED ALONG 7 THEMES



With an active portfolio of \$184 million (as of the end of June 2020) encompassing more than 250 activities across 70+ countries, ESMAP is helping to shape global energy policies while underpinning significant World Bank development financing. Concrete program results are illustrated throughout the report.

BY THE NUMBERS

FY2017-20 BUSINESS PLAN² RESULTS

● **159.6 MILLION** beneficiaries (households, communities, public facilities, utilities, industrial enterprises, etc.) expected to be reached by ESMAP-informed World Bank development financing

● **85.4 MILLION** people expected to gain access to electricity

● **\$34.9 BILLION** in World Bank development financing informed

● **\$17.8 BILLION** external financing mobilized, including private sector

● **37.3 GW** of renewable energy expected to be installed

● **1,202 MILLION MT** of CO₂ emissions expected to be reduced

● **6.33 E⁸ MWh** projected lifetime energy and fuel savings to be achieved

● **\$162 MILLION** disbursed in regional, country and global grants

● **402 ACTIVITIES** approved since FY2017 to June 30, 2020*

* The current active portfolio includes 286 grants, 236 of which were approved during the FY2017-20 Business Plan. 166 grants approved during the Business Plan period have closed.

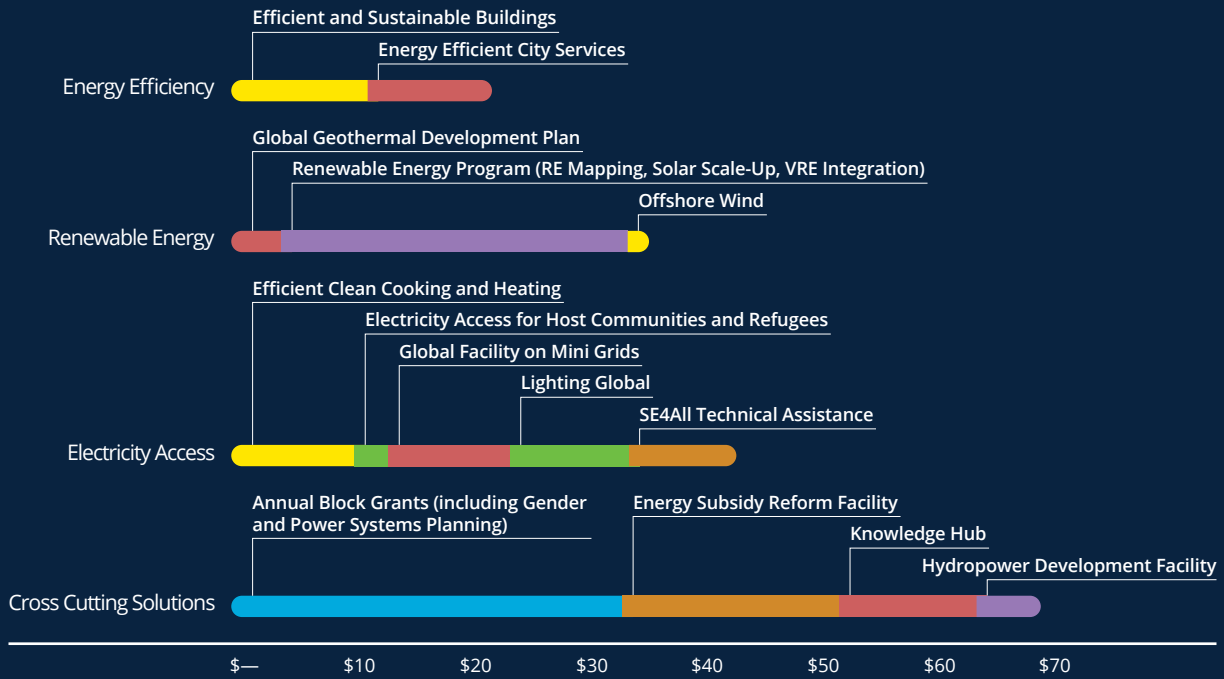
FY2020 PORTFOLIO

● **254 ACTIVITIES** supported by ESMAP's active \$184 million portfolio as June 30, 2020

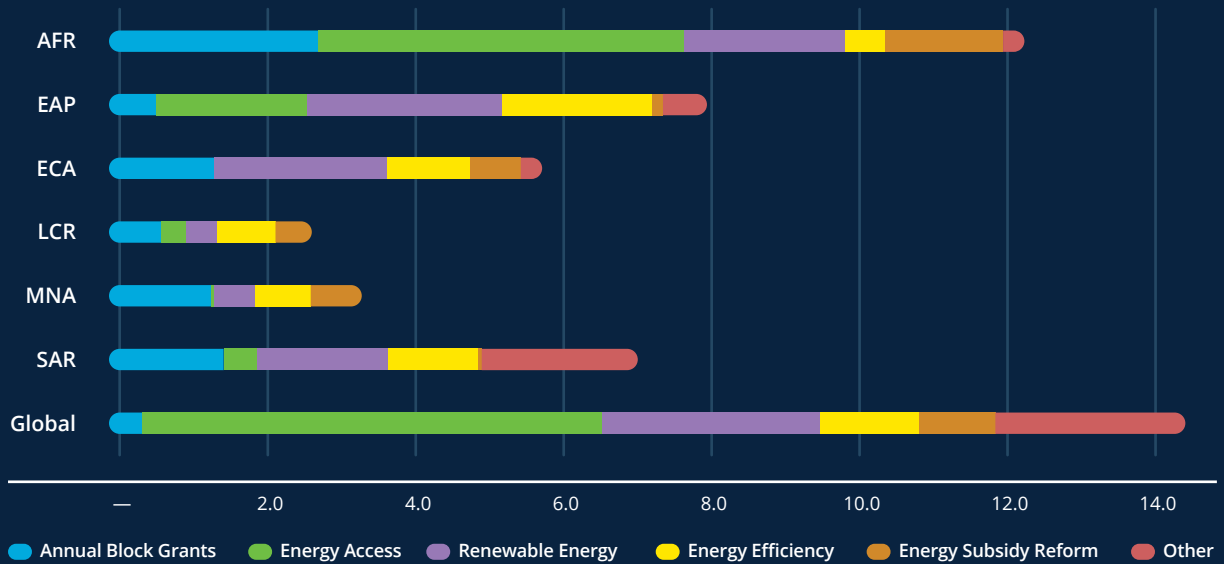
● **\$51 MILLION** was allocated for new activities
99 activities in 42 countries
19 activities with a global focus

² Impact indicators illustrate ESMAP's contributions to the development objectives by informing WBG lending operations. ESMAP will source the data for impact indicators from the project appraisal or other official documents of the lending operations. These indicators are cross-cutting and capture both direct and additional (indirect) contributions from multiple ESMAP initiatives (e.g., energy access directly contributes to the number of people with access and may additionally contribute to metric tons of CO₂ emissions expected to be reduced). Since the additional contributions of the initiatives will be determined by the appraisal documents of the lending operations, ESMAP will not set targets for the impact indicators, but will report the annual achievements.

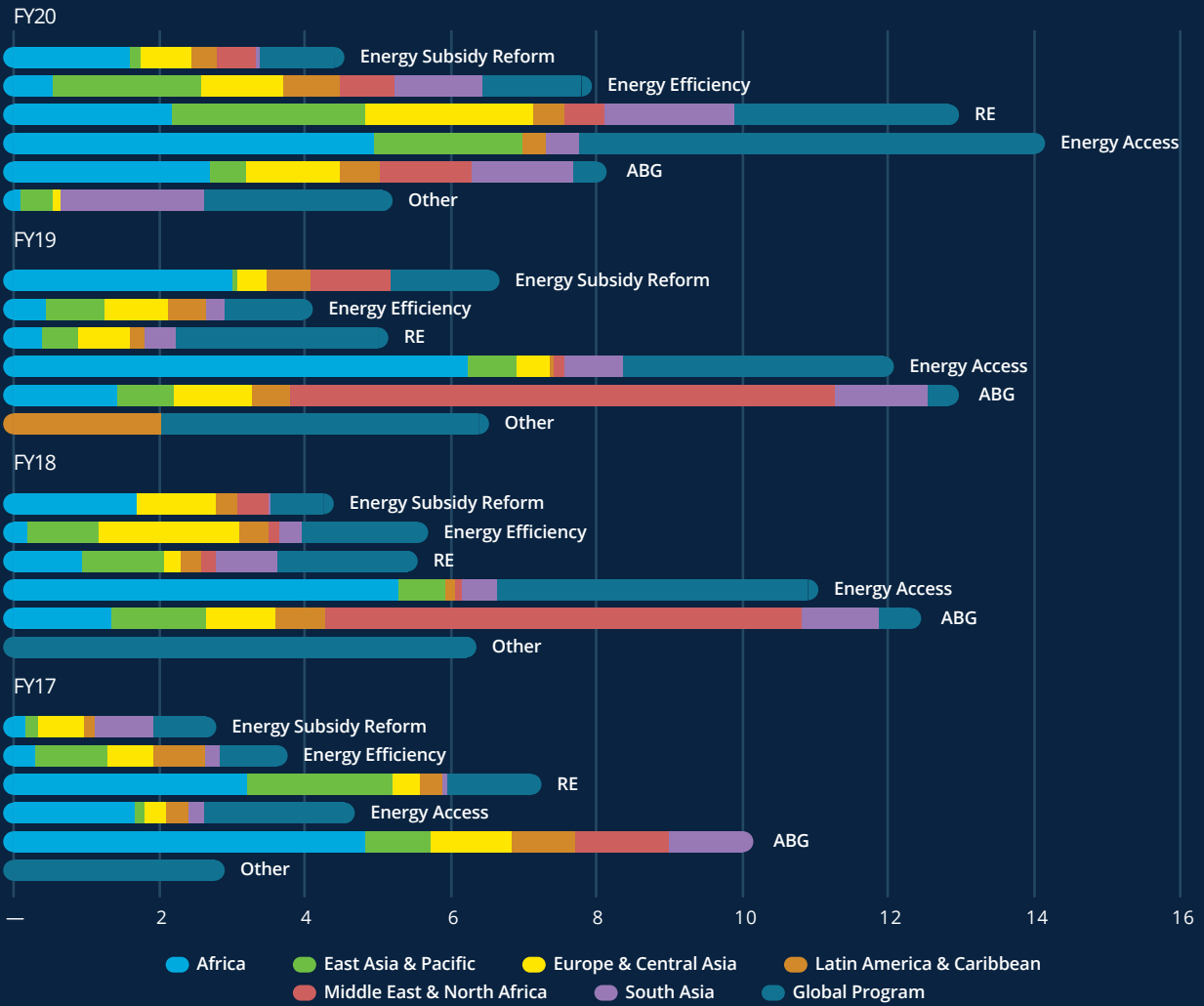
ESMAP GRANT ALLOCATIONS, FY2017-20 (IN US\$ MILLIONS)



ESMAP GRANT ALLOCATIONS BY THEMATIC AREA, FY2020

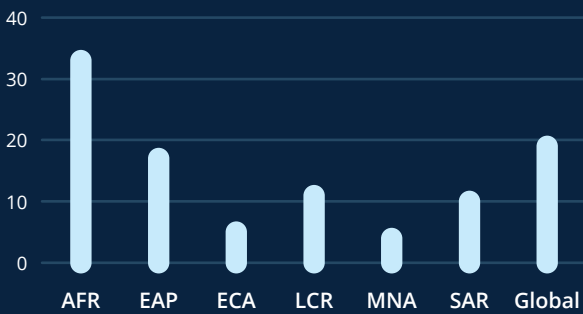


FY2017-20 GRANT AMOUNT BY THEMATIC AREA (\$ MILLIONS)

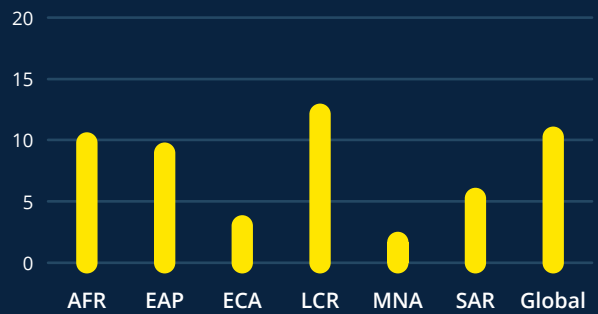


PORTFOLIO PROFILE FOR FY2020 APPROVALS

ESMAP Activities Approved by Region, FY2020



ESMAP Grant Amount by Region, FY2020
(US\$ Millions)



Note: "Global" includes activities supporting multiple regions through own-managed activities.

Annual Block Grants (ABG) includes the cross-cutting Gender and Power Systems Planning initiatives. For detailed financial information about ESMAP activities in FY2020, please refer to Section III (Financial Review). For more details on progress against the

FY2017–20 Business Plan results targets by program, please refer to Annex B. For additional information, refer to the ESMAP [activities dashboard](#) and [results dashboard](#).

ESMAP DISBURSEMENTS BY INITIATIVE, US\$ MILLION

Thematic Area	Initiative	FY2020 Regional Grants	FY2020 Global Own-Managed Activities	FY2017–20 Regional Grants	FY2017–20 Global Own-Managed Activities	Total by Program
Cross-Cutting Solutions	Annual Block Grants (incl. Gender and Power Systems Planning)	\$7.23	\$0.30	\$31.78	\$1.10	\$40.41
	Energy Subsidy Reform Facility	\$3.38	\$1.03	\$15.07	\$3.64	\$23.12
	Knowledge Hub	N/A	\$2.23	N/A	\$11.86	\$14.09
	Hydropower Development Facility	\$2.77	\$0.18	\$4.38	\$0.18	\$7.51
Electricity Access	Efficient Clean Cooking and Heating	\$2.46	\$1.68	\$6.60	\$3.08	\$13.82
	Electricity Access for Host Communities and Refugees	\$1.16	\$0.19	\$2.10	\$0.86	\$4.31
	Global Facility on Mini Grids	\$0.84	\$1.81	\$2.94	\$7.55	\$13.14
	Lighting Global	\$3.84	\$1.25	\$8.07	\$2.19	\$15.35
	SE4All Technical Assistance	\$0.49	\$0.47	\$7.09	\$1.33	\$9.38
Renewable Energy	Global Geothermal Development Plan	\$0.60	\$0.12	\$1.91	\$1.55	\$4.18
	Renewable Energy Program (RE Mapping, Solar Scale-Up, VRE Integration)	\$7.85	\$2.00	\$23.03	\$6.02	\$38.90
	Offshore Wind	\$0.77	\$0.51	\$0.77	\$0.76	\$2.81
Energy Efficiency	Efficient and Sustainable Buildings	\$3.48	\$0.84	\$8.54	\$2.29	\$15.15
	Energy Efficient City Services	\$3.00	\$0.38	\$8.46	\$1.37	\$13.21
Total by Regional Grants and Global Activities		\$37.87	\$12.99	\$120.74	\$43.78	



1 GUIDED BY SDG7 AND ROBUST DATA

As in previous years, [UN Sustainable Development Goal \(SDG\) 7](#), which focuses on ensuring access to affordable, reliable, sustainable, and modern energy for all, continues to provide a guiding objective for the World Bank's energy sector work, including for ESMAP.

The world is not on track to meet the 2030 universal energy targets, despite the overall progress made.

That is the message from the [Tracking SDG7: The Energy Progress Report](#) released in June 2020 by the World Bank together with the International Energy Agency (IEA), the International Renewable Energy Agency (IRENA), the United Nations Statistics Division (UNSD), and the World Health Organization (WHO). The number of people without access to electricity declined from 1.2 billion in 2010 to 789 million in 2018. However, under policies that were either in place or planned before the start of the COVID-19 crisis, an estimated 620 million people would still lack access in 2030, 85 percent of them in Sub-Saharan Africa.

ESMAP's **Knowledge Hub** includes three synergetic products to track Sustainable Development Goal 7, as well as a data and analytics platform, as follows:

1. **Tracking SDG7: Energy Progress Report** (formerly the *Global Tracking Framework Report*) is a comprehensive tool to track the energy pillars on access, renewables, and efficiency. As custodian agency for SDG7.1.1, the World Bank is responsible for electrification data and ESMAP prepares the chapter on access to electricity; ESMAP also acts as the Secretariat for the preparation of the report. SDG7 is the only SDG that has such a unified tracking report.
2. The **Multi-Tier Framework (MTF)** is a tool that captures details of other dimensions of energy access to provide more accurate data on the actual services households receive. Implementation of the framework through household surveys has been critical in developing a more granular and policy-relevant understanding of the energy access status in 16 countries; establishing the baseline for national electrification programs in 5 countries; and providing the data and analytics for several energy sector reports, including the WBG's [2020 Off-Grid Solar Market Trends Report](#). MTF has also collected data on enterprises in four countries and on health and education facilities in six countries, a timely assessment given the COVID-19 pandemic. Results of the MTF surveys have contributed to improving government strategies and World Bank operations, for example in Rwanda to design a Renewable Energy Fund, and in Ethiopia, Nepal, and Uganda to support electrification planning.
3. **Regulatory Indicators for Sustainable Energy (RISE)** is a scorecard that captures the policies and regulations that are in place to facilitate progress on SDG7, and serves as a valuable tool for private sector due diligence, as well as

GLOBAL ELECTRIFICATION PLATFORM

ESMAP's **SE4ALL Technical Assistance** initiative developed a center of expertise on geospatial least-cost planning, and in FY2020 developed a web-based electrification planning tool that is freely available and provides high-level least-cost electrification plans for multiple scenarios to reach universal access. The [Global Electrification Platform](#) (GEP) is an open access, interactive, online platform that simulates electrification investment scenarios for a selection of countries. The scenarios present pathways for achieving universal electricity access, split into an intermediate strategy for 2025 and full electrification by 2030. The GEP was formally launched in November 2019 and presented at the Power Africa Summit in February 2020.

In **Burkina Faso, Eritrea, and Uganda**, the GEP is regenerating results with updated country-specific data, as well as providing a more detailed investment breakdown (and update to the code). In Eritrea, GEP data was also used as a proxy for the estimation of electrified/unelectrified health care facilities.

In the **Horn of Africa (Djibouti, Eritrea, Ethiopia, Kenya, Somalia)**, the GEP is used by governments and World Bank project teams to provide insights on unelectrified populations across the region, with a specific focus on bilateral border regions, as well as the electrification status of health care facilities and schools. GEP electrification data is also used as a proxy for the estimation of electrification status of refugee camps and internally displaced populations.

In **Sudan**, GEP data provided insights on the distribution of unelectrified populations across the country and their relative distance to current infrastructure.

World Bank operations. In FY2020, the [Rethinking Power Sector Reform in the Developing World](#) project made use of RISE data to develop the regulatory benchmarking index. The index complements RISE with de jure and de facto data on the structure and functioning of regulatory agencies and utilities. RISE data has been used as a critical component in IBRD projects (e.g., Western Balkans Promotion of Renewables); regularly used to inform ESMAP programs' data requests (e.g., MTF reports, Global Facility on Mini Grids, Energy Subsidy Reform); and used by private sector and civil society organizations to better understand the energy sector in countries where they are active.

Launched in 2017, the [Energydata.info](#) platform brings together ESMAP's data and analytics tools in an online platform providing access to datasets and data analytics that are relevant to the energy sector. The platform has been developed as a public good available to anyone interested in sharing data and analytics tools. In FY2020, the number of datasets increased by 110 to total 698. Of those, 549 are publicly available, covering 193 countries. In addition to the existing 13 apps, 6 new apps were added to the platform in FY2020, including the Energy Access Explorer, Systematic Review Map, Global Electrification Platform, Mexico Urban Performance, Global Energy Statistical Yearbook, and the Renewable Energy Explorer.

2 ADDRESSING SYSTEMIC ISSUES: GOVERNANCE, MARKETS, PLANNING, AND SUBSIDIES

Getting sector fundamentals right can help mobilize private sector financing and decarbonize energy systems. Good governance and fiscal management, sound planning, and well-designed market mechanisms can help countries improve the financial health of their utilities and attract the investment capital needed to sustainably develop their energy sectors. Accommodating large shares of renewable energy also depends on **power sector reform**, robust **system planning**, and **regional integration** of infrastructure and markets. In a sense, the work of this initiative represents the original mission of ESMAP, particularly in terms of market regulation and sector reform. In FY2017–20, the **Governance, Markets, and Planning** program informed 49 WBG operations in 24 countries using the results of ESMAP-supported energy sector assessments in policy decisions.

BY THE NUMBERS

GOVERNANCE, MARKETS, AND PLANNING

- In FY2020, ESMAP informed **\$2.8 billion** in WB lending for energy sector governance, markets and planning
- In FY2020, ESMAP helped countries achieve **13 regulatory changes**
- Over FY2017–20, World Bank committed **\$13.6 billion** in lending informed by ESMAP support

ENERGY SECTOR REFORM IN UZBEKISTAN



In Uzbekistan, ESMAP has funded Programmatic Advisory Services and Analytic (PASA) support for the preparation of the national energy sector strategy. ESMAP assistance through this PASA has been central to support the country's energy sector transformation. Since the start of the new development wave in Uzbekistan almost four years ago, the WBG has been playing a leading role in supporting the government in the design, prioritization, and implementation of energy reforms and priority investments. ESMAP is supporting the following reform objectives of the government: addressing inadequate financial and operational performance; modernizing infrastructure and improving energy service delivery; strengthening the institutional and market structure; commercialization of the energy utilities; and development of an enabling policy and regulatory framework in the energy sector. In August 2019, the government adopted the Electricity Sector Reform Implementation Plan (ESRIP), which is currently being executed by the ministries and sector utilities. ESMAP's PASA support has also encouraged the development of renewable energy in Uzbekistan and provided support in sustainable financing to scale up demand-side energy efficiency.

WEST AFRICAN POWER POOL

Over the past decade, member countries of the Economic Commission of West African States (ECOWAS) have been working through the West Africa Power Pool (WAPP) towards a fully integrated power market. The WAPP has done the fundamental work of interconnecting national grids, and about \$5 billion have been invested by various development partners in cross-border transmission lines, including \$1.8 billion from the International Development Agency (IDA). There are currently 4,000 kilometers of transmission lines under development, and their imminent completion will allow electricity to flow all the way from Nigeria to Senegal.

However, policy coordination is necessary to realize the full potential of the regional power market. Coordinated policies paired with effective institutions and regulatory frameworks will help improve trust in electricity trade and usher in a new era of affordable and reliable energy in West Africa. The goal is to facilitate trade of cleaner, low-cost electricity across borders, and to replace more expensive electricity generated from inefficient, small-scale, oil-fired and diesel generation, and to improve the reliability of electricity services.

ESMAP's analytical work on policy reform underpinned a directive adopted by the Heads of State of ECOWAS to implement coordinated reform programs in Burkina Faso, Côte d'Ivoire, Guinea, Liberia, Mali, and Sierra Leone. In July 2020, World Bank approved a total of \$300 million in credits and grants to support reforms that will help promote electricity trade in West Africa. The West Africa Regional Energy Trade Development Policy Financing Program seeks to remove barriers to electricity trade, which will lower electricity costs for consumers, support the competitiveness of firms, and improve resilience and reliability of supply.

ENERGY SUBSIDY REFORM

BY THE NUMBERS

ENERGY SUBSIDY REFORM

- In FY2020, ESMAP informed **\$3.7 billion** in WB lending for energy subsidy reform operations
- In FY2020, ESMAP helped **15 countries** on subsidy reform
- Over FY2017–20, the World Bank committed **\$13.1 billion** for energy subsidy reforms informed by ESMAP

ESMAP has developed a multi-sectoral approach to assessing energy subsidies and designing reform measures, including the development of a standardized framework (the Energy Subsidy Reform Assessment Framework, or [ESRAF](#)) to assess energy subsidies. Over FY2017–20, **ESMAP's Energy Subsidy Reform Facility** (ESRF) informed 46 World Bank

operations, and 34 client countries applied policy or regulatory reforms on energy subsidies. In FY2020, ESRF has about 20 grants under implementation, with highlighted efforts in Africa (Ethiopia) and Latin America (Ecuador), with other notable achievements in Angola, Guinea, Mali, Nepal, Rwanda, Togo, Tunisia, and Uzbekistan.

In FY2020, ERSF took stock of lessons from its activities with the aim of improving the effectiveness of the ESRF and World Bank efforts at subsidy reform, including at least seven commissioned topical reports on issues such as political economy analysis of subsidy reforms, long-term impacts of energy prices on expenditure shares, and the link between social safety nets and subsidy reforms. ESRF also started developing an extensive database of Energy Subsidy Reforms Episodes. The objective of the database is to improve understanding of the history of energy subsidy reforms in selected 77 countries between 2010 and 2019, by summarizing the history of fossil fuel subsidy and power sector reforms that could have an impact on energy subsidies in selected low-, middle-, and high-income countries.

SUBSIDY REFORM

Policies and regulatory changes recommended by the ESMAP **Energy Subsidy Reform Facility** in FY2020 contributed to significant achievements in energy subsidy reforms globally:

Angola. The government issued a decision to initiate electricity tariff revision, as part of the utilities pricing and subsidies reform.

Ecuador. The government appointed a commission to establish fuel prices and increase transparency in price setting, aiming to reduce fuel subsidies as a share of gross domestic product (GDP).

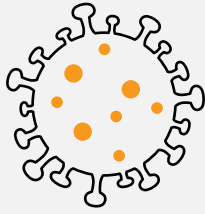
Ethiopia. The government announced the implementation of a second electricity tariff increase under the multi-year electricity tariff increase framework.

Mali. The government increased medium voltage and public lighting tariffs to align them with the consumer price index and removed connection cost subsidies for medium voltage users.

Togo. To strengthen the financial viability of the power sector, the government issued an inter-ministerial arrêté authorizing the Regulation Authority to determine the periodic adjustment of the revenue requirement for the national utility (CEET) to reach financial equilibrium.

Tunisia. The government issued a circular to establish a mechanism for the payment of bills to state-owned enterprises in core public services to reduce receivables and cash-flow challenges and ensure quality services particularly during COVID-19 recovery.

Uzbekistan. The government adopted a tariff methodology consistent with principles of full cost-recovery for the provision of electricity.



/ RESPONDING TO CRISIS

A GOOD TIME FOR SUBSIDY REFORM?

- One of the tangential impacts of the COVID-19 pandemic was a major collapse in fossil fuel prices in early 2020. Typically, periods of low fossil fuel prices create political opportunities for removing subsidies. However, the price collapse also coincided with an economic crisis that already reduced the ability of rate-payers to meet obligations, and removing state support in such a crisis is difficult. Subsidy removal, which disproportionately impacts the poor, also requires simultaneous compensation and mitigating support. For governments facing multiple crises and also hit by macroeconomic shocks (particularly among fossil fuel exporters), the fiscal space and implementation capacity may be insufficient to provide the necessary mitigating support.
- However, governments today can start introducing measures that prepare the country for future subsidy removal, like working on social safety nets. ESMAP and the World Bank have focused support on building more resilient and sensitive social safety nets to protect those hit by crisis now, while also creating a more conducive environment to subsidy removal in the future.



3 GENDER, CUTTING ACROSS ALL PROGRAMS

Closing the gender gap in the energy sector was a particular priority for ESMAP over FY2017–20. **Gender and Energy Regional Programs** (for Africa, East Asia and the Pacific, Europe/Central Asia, Latin America/Caribbean, Middle East and North Africa, and South Asia) have delivered substantial results through an approach that combines global and regional knowledge work with data and a country-level operational focus.

BY THE NUMBERS

GENDER

- In FY2020, **19 lending operations** in WB Energy and Extractives Global Practice across all six regions achieved the WB Gender Tag
- In FY2020, **78% of all WB Energy and Extractive operations** achieved the WB Gender Tag

ESMAP support has been particularly instrumental in World Bank lending operations to close gaps between men and women through interventions that meet the World Bank criterion to be “tagged” as a corporate Gender-related activity or project, which requires an embedded results chain that is focused on one or more specific gender gaps. Achievement of this corporate priority has increased from 44 percent in FY2018, to 68 percent in FY2019, to 78 percent in FY2020.





STEPPING UP WOMEN'S STEM CAREERS IN INFRASTRUCTURE

In June 2020, ESMAP published [Stepping Up Women's STEM Careers in Infrastructure: An Overview of Promising Approaches](#). The report, accompanied by five case studies, describes ways to level the pathway for women entering and progressing in science, technology, engineering, and mathematics (STEM) employment within the infrastructure sectors—energy and extractives; water; transport; and digital development.

/ RESULTS

CLOSING GAPS IN WOMEN'S EMPLOYMENT IN ETHIOPIA AND KENYA

A program dedicated to Closing Gaps in Women's Employment in the Energy Sector, was established for South Asia and Africa, and is focused on establishing baseline data and stakeholder engagement and providing knowledge and advisory support to World Bank operational teams and clients.

In **Ethiopia**, supported by the WBG, the ESMAP Africa Gender and Energy Program, and the [State and Peacebuilding Fund](#) Gender-Based Violence grant, the Ethiopia Electric Utility (EEU) allocated \$4.5 million to closing gender gaps and improving citizen engagement. EEU's approach started with developing a pipeline of future workers. It signed a unique partnership agreement with the Ministry of Science and Higher Education and 12 Ethiopian universities to provide courses in science, technology, engineering, and mathematics (STEM). Improved STEM instruction is essential to upskill the existing female staff so that they match male employees in education attainments and can advance their careers in the energy sector.

In **Kenya**, support was focused on designing a women's scholarship component of the proposed Kenya Electricity Sector Improvement Project with Kenya Power and Lighting Company, Ltd. The program conducted interviews with faculty and administration of the Institute for Energy Studies and Research (the utility's training center), as well as focus groups with current female students. Key issues to be resolved were identified and recommendations were developed for the scholarships. A virtual briefing was conducted with the utility's Manager of Learning and Development to review the findings and best practices for scholarship programs.





/ PARTNERSHIPS

WEPOWER IN SOUTH ASIA

In **India**, the South Asia Gender and Energy Facility (SAGE) supported Energy Efficiency Services Limited (EESL) to improve their human resources practices and policies to target, attract, and recruit more women in the sector. These improvements were carried out in alignment with the methodology of the Women in Power Sector Network in South Asia (WePOWER).

WePOWER has been expanding its local chapters in the region thanks to the support of stakeholders, including the Asian Development Bank (ADB). The WePOWER methodology is now being implemented in Bangladesh, Bhutan, Sri Lanka, and possibly Nepal. These local chapters will partially assume the interim-secretariat's responsibilities and help in engagement with WePOWER partners. During 2020, the Regional Conference was attended by the United States Agency for International Development (USAID), Japan International Cooperation Agency, and the French Development Agency, contributing to knowledge exchange among the participants. During this regional conference, EESL presented their gender assessment under the WePOWER methodology.

Thanks to this partnership, other World Bank projects in India and Pakistan are interested in implementing similar actions for in-depth support that integrate the WePOWER pillars to foster female labor force participation.

/ CONVENING EVENT

GENDER CAPACITY BUILDING IN THE MIDDLE EAST

In January 2020, the regional gender program for the Middle East and North Africa organized a workshop on Achieving Sustainable, Low-Carbon Energy Transitions through Citizen Engagement and Gender in Amman, Jordan. The workshop included 42 participants from across the region and provided an opportunity to deepen the dialogue on energy transitions, low-carbon growth, and the role gender can play in the sector to ensure success.



4 CLOSING THE ENERGY ACCESS GAP

In FY2020, ESMAP's efforts to support increased energy access focused on data, planning, grid extensions, mini grids, and off-grid solar systems, reaching marginalized communities such as refugees and the urban poor, and ramping up access to clean cooking.

BY THE NUMBERS

ENERGY ACCESS

In FY2020, ESMAP informed **\$677 million** in WB lending for energy access operations

In FY2020, ESMAP helped countries provide new electricity connections to over **9 million** people including over 7 million people with access to renewable energy

Over FY2017–20, ESMAP helped countries provide new electricity connections to over **85 million** people including over 46.5 million people with access to renewable energy

Over FY2017–20, World Bank committed **\$4.1 billion** to energy access lending operations informed by ESMAP

MINI GRIDS

Mini grids rose to prominence over the course of the FY2017–20 Business Plan period and are poised to play a significant role in World Bank energy access programs in the coming years. ESMAP's **Global Facility on Mini Grids (GFMG)** was launched in 2016 to increase the deployment of portfolios of mini grids in World Bank operations and client country electrification programs. At that time, only a few countries

were including significant numbers of mini grids in their national electrification plans. The GFMG has helped to take mini grids from a niche to a mainstream solution, with an emphasis on robust national and international markets and policies driving the sector's growth at scale in order to provide large numbers of people with access to high-quality affordable electricity.

BY THE NUMBERS

MINI GRIDS, FY2017–20

- In FY2020, ESMAP mobilized **\$57 million** of concessional funds for mini grids
- In FY2020, ESMAP supported **8 countries** for project identification and preparation and **10 countries** for project implementation
- Over FY2017–2020, ESMAP mobilized **\$317.7 million** of concessional funds

GFMG had a busy year in FY2020, building on the end-FY2019 launch of [Mini Grids for Half a Billion People](#), a comprehensive study providing policymakers, investors, and developers with insights on how mini grids can be scaled up. Since its publication, the report's findings have been used to inform the design of the mini grid component in several World Bank projects, including Burundi, the Democratic Republic of Congo, Ethiopia, and the G5 Sahel.

In FY2020 *Mini Grids for Half a Billion People* was downloaded more than 20,000 times and is part of a comprehensive knowledge package that will launch

in FY2021. The package will include an eponymous handbook cobranded with IFC; two companion volumes presenting additional analysis; ancillary materials, including databases and infographics; and a roster of experts. This package will inform and support the implementation of the World Bank's growing investments in mini grids, including both Board-approved and pipeline projects.

These investments represent the largest mini grid portfolio of a single global financier (at about 25% of global investment in the mini grid sector is in World Bank client countries), and leverage an additional \$1.2 billion in co-financing from governments, private sector, and development partners. The portfolio covers 43 countries, representing \$750 million in Board-approved investment with \$550 million in the pipeline.

New technologies now make it possible for countries and developers to deploy mini grids at unprecedented scale, including remote monitoring, smart meters, and robust, inexpensive battery storage. Geospatial analysis software can provide market intelligence, and an online platform, [Odyssey](#), supports the implementation of large-scale results-based financing programs at the national level. The GFMG is working to mainstream these and other game-changing technologies in the mini grid sector, and to apply them toward achieving the 10 building blocks it has identified for countries to realize the full potential of mini grids.

BUILDING BLOCKS TO SUPPORT THE DEVELOPMENT OF MINI GRIDS AT SCALE



The GFMG is collaborating with the IFC, MIGA, and IDA operations teams to accelerate private sector investment in mini grids over the next five years in nine high-impact opportunity countries: Democratic Republic of Congo, Ethiopia, Myanmar, Nigeria,

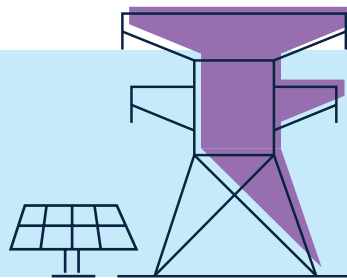
and the G5 Sahel Alliance countries (Burkina Faso, Chad, Mali, Mauritania, and Niger). These collaborations were solidified in FY2020 during the first-ever, cross-institution, high-level dialogue for senior management on mini grids, cohosted by IFC and ESMAP.



/ CONVENING EVENT

ETHIOPIA OFF-GRID ELECTRIFICATION FORUM

ESMAP's GFMG holds annual Action Learning Events to discuss issues such as geospatial-based planning, workable regulations, access to finance, and better integration of demand-side aspects. In February 2020, the government of Ethiopia, with the support of ESMAP and the UK Department for International Development (DFID, now the FCDO), welcomed over 150 participants at the [Ethiopia National Off-Grid Electrification Forum](#).



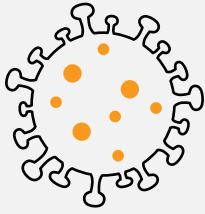
/ RESULTS

NIGERIA MINI GRIDS

In December 2019, the Federal Government of **Nigeria's** Rural Electrification Agency (REA) supported the commissioning of a solar hybrid mini grid power plant in Rokota Community, Edati Local Government Area, Niger State. It will provide clean, safe, and reliable electricity to an expected 3,000 people in the community, including for the local clinic. The mini grid was operational within six weeks of receiving the necessary approvals. The project is the first to be commissioned under the World Bank-supported Nigeria Electrification Project (NEP) Mini Grids component, which represents a World Bank investment commitment of \$150 million for 850 mini grids by 2024, with ESMAP providing comprehensive support to Nigeria to help scale up mini grids. To date, more than 120 mini grids are under preparation and the project is expected to provide more than 1.5 million people with access to electricity.



By the end of June 2020, a key milestone of the overall NEP project was achieved by providing electricity to 250,000 people through solar mini grids and standalone solar systems. The milestone represents a confirmation of the interest by the private sector to develop mini grid projects and to sell high-quality, Lighting Global-certified, standalone solar systems on a commercial basis under NEP.



/ RESPONDING TO CRISIS

ADAPTING THE NIGERIA MINI GRIDS PROGRAM

With the onset of the pandemic in **Nigeria**, the mini grids component of the National Electrification Project (NEP) was expanded to include emergency response to provide reliable power to 500 COVID-19 related health facilities (including 100 isolation centers and 400 primary healthcare centers) with an expected 300 sites turning to solar mini grids. The proposed direct procurement of solar hybrid power solutions, with an estimated budget of \$71.4 million, focuses on modular systems for fast mobilization that can provide instant basic services for emergency operations and adequate power for equipment used for testing and treating COVID-19 related cases, as well as steady clean water supply where needed.

/ PARTNERSHIPS

GIZ & MINI GRIDS



ESMAP and GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit), the German international development agency, have engaged in successful cooperation to enhance the mini grid sector in Nigeria and Myanmar. GIZ provides technical assistance to link the private and public sector in these countries, where ESMAP and the World Bank are financing activities to scale-up the sector. In Nigeria, the GIZ Nigerian Energy Support Program provided technical assistance to the Nigerian government in implementing the framework for an open mini grid market. Based on this framework, the World Bank provided a loan to the government that it, in turn, distributes via grants to private mini grid developers. The GFMD collaborates with numerous stakeholders, including mini grid developers, government officials, financiers, technology providers, researchers, project implementation partners, development partners, and recognized experts. Beyond GIZ, exceptionally productive collaborations have taken place with AMDA, Castalia, HOMER, IEEE, INENSUS, NREL, Odyssey, RMI, Rockefeller Foundation, TTA, and Village Infrastructure Angels.

OFF-GRID SOLAR

BY THE NUMBERS

OFF-GRID SOLAR

- In FY2020, ESMAP informed **\$525 million** in WB lending for off-grid solar operations
- In FY2020, ESMAP helped countries provide new off-grid solar connections to over **4.5 million people***
* Through both Lighting Global and Global Facility on Mini Grids.
- Over FY2017–20, the World Bank committed **\$2.2 billion** to lending operations informed by Lighting Global

Originally piloted in 2009 as Lighting Africa, [Lighting Global](#) is managed by the IFC and the World Bank with support from ESMAP, and works with manufacturers, distributors, governments, and other development partners to build and grow the modern off-grid solar energy market in Africa, Asia, and the Americas. Between 2010 and 2018, the adoption of renewable off-grid energy sources tripled worldwide, with sales of off-grid solar devices increasing at a compound annual rate of about 60 percent to comprise more than 130 million units over the period. They helped to provide below-Tier 1 electricity services to 136 million people around the world, up from about 1 million people in 2010. Geospatial modeling suggests that 54 percent of Africans currently lacking electricity access could best be served by off-grid solutions, primarily solar.³ To date, nearly 180 million people have benefited from using Lighting Global quality verified solar products, and more than 52 million people are currently meeting their basic (Tier 1) electricity needs with these products.

/ RESULTS

LIGHTING GLOBAL IN MYANMAR

In Myanmar, Lighting Global has been instrumental in developing sustainable public- and private-led off-grid business models as part of the National Electrification Project. ESMAP helped to develop and implement a “management of information system” to provide the government with an efficient way to track household system-size choices and installation progress through the provision of several layers of data—household surveys, installation, verification, and payment. This system is a first of its kind, ensuring timely reporting and decision making, and can be replicated in other electrification programs. Solar home system installations for clinics, schools, religious facilities, and streetlights have further extended the benefits to entire communities, **reaching almost 7,400 off-grid villages** in Myanmar, to date.



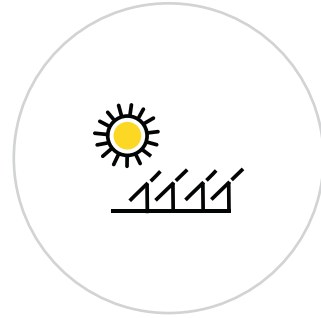
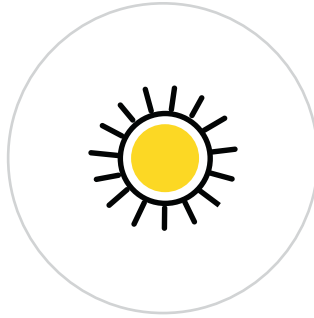
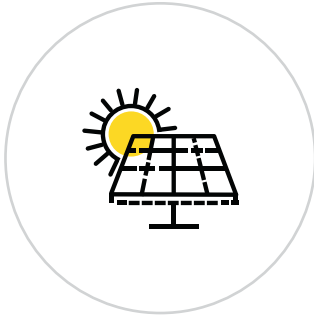
3 [IEA Energy Access Outlook 2017](#)

/ RESULTS

LIGHTING AFRICA IN ETHIOPIA

In Ethiopia, the ESMAP-supported Lighting Africa program designed the Market Development for Renewable Energy and Energy Efficient Product Credit Line, which in FY2020 stood at \$40 million. It is a revolving fund providing loans to private sector enterprises and microfinance institutions to expand the local renewable energy market under the Electricity Network Reinforcement and Expansion Project (ENREP). Twenty-six private sector businesses are currently using the credit line, importing and selling solar products that meet Lighting Global Quality Standards, and 14 microfinance institutions are currently providing energy financing options to households using funds accessed through the credit line. The credit facility has a remarkable zero percent rate of default. The first of its kind to provide such financing for household solar and energy efficient products, the credit facility is now being replicated in almost 20 countries across Africa. To date, the credit line has successfully supported the purchase of **1.2 million solar products** and provided loans through microfinance institutions to more than **211,000 rural households**, 60 percent of which are female headed.





/ KNOWLEDGE PRODUCTS

PRODUCTIVE USES LEVERAGING SOLAR ENERGY

Having already contributed to hundreds of millions of people benefitting from off-grid solar products ranging from lanterns to solar home systems, these products are now developing along the sector's newest frontier—productive uses leveraging solar energy (PULSE). These can provide livelihoods for off-grid households and microenterprises across the agricultural, industrial, commercial, and public sectors. In September 2019, Lighting Global released [The Market Opportunity for Productive Use Leveraging Solar Energy in Sub-Saharan Africa](#) that explored the market for these new applications, and later a [blog](#) that highlighted the importance of such applications (including electrical irrigation systems and refrigeration) for empowering African farmers.

FUNDING THE SUN

In February 2020, ESMAP released [Funding the Sun](#), a report which elucidates the role of financial innovation in the off-grid solar sector. It provides a roadmap for practitioners, financiers, and entrepreneurs navigating capital raises for companies active in the sector. It examines a full range of established and frontier financing options, and it illustrates that some technology-enabled financial innovations, such as peer-to-peer business lending, are already playing an important role in the sector.

OFF-GRID SOLAR MARKET TRENDS

In March 2020, ESMAP released the [Off-Grid Solar Market Trends Report 2020](#), which was prepared jointly with the IFC and the Global Off-Grid Lighting Association (GOGLA). It found that the sector would need an additional boost of up to \$11 billion in financing to meet SDG7. Specifically, the off-grid sector would need to grow at an accelerated rate of 13 percent, with up to \$7.7 billion in external investment to companies and up to \$3.4 billion of public funding to bridge the affordability gap.

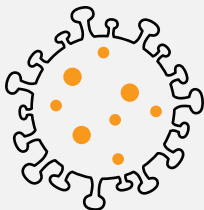


/ PARTNERSHIPS

LIGHTING GLOBAL PARTNERSHIPS FOR OFF-GRID SOLAR

Lighting Global has developed strong partnerships with governments, the private sector, development agencies, and other stakeholders to build thriving off-grid markets. Lighting Global works closely with and through organizations supporting universal electrification, such as Global Off-Grid Lighting Association (GOGLA), Shell Foundation, USAID/Power Africa, DFID (now FCDO), ACE, and SEforALL as part of the Community of Champions group. Lighting Global regularly collaborates with other sectors to ensure the appropriateness and sustainability of electrification efforts for schools (Education), farmers (Agriculture), and medical centers (Health). Existing partnerships with health professionals are proving particularly valuable in rapidly scaling up energy access efforts for health clinics given the COVID-19 crisis.

In addition, Lighting Global has helped to establish new entities to provide core functions in the sector. In FY2020, this includes [VeraSol](#) (2020) which was established to carry out quality assurance activities previously led by Lighting Global in collaboration with the [Schatz Energy Research Center](#) and [CLASP](#).



/ RESPONDING TO CRISIS

KEEPING OFF-GRID SOLAR VIABLE

- The COVID-19 pandemic has highlighted the importance of reliable energy services for powering healthcare facilities, supplying clean water for essential hygiene, and providing cold-chains for the distribution of medicines and an eventual vaccine. The mini grid and off-grid sectors, which played such an important role in narrowing the access gap in the past decade, have also become increasingly responsible for electrifying rural health centers, schools and other public institutions with major impacts on human capital, as highlighted in a [May 2020 issue of LiveWire](#).
- COVID-19 hit off-grid companies particularly hard. Often start-ups, these vulnerable companies were unable to subscribe new customers due to lockdown; they faced defaults from existing customers; and supply chain disruptions affected importation, inventory, and in-country logistics. An April 2020 SEforALL questionnaire found that solar home system companies expected a 27 percent decline in revenues due to the crisis, mini grid companies expected a 40 percent decline, and most had less than two months of operating expenditure available. Without sufficient liquidity to bridge the crisis, this nascent industry of start-ups and small and medium enterprises was struggling to survive.

- ESMAP supported the World Bank's emergency response by identifying projects where rapid deployment of off-grid systems could provide immediate energy services to critical services, and also provide liquidity to off-grid companies in need of bridge financing. It developed a [COVID-19 Strategy Note](#) and sample terms of reference to guide energy professionals (internal and external) designing projects to electrify health centers at the forefront of the fight against COVID-19; a catalog ([Powering Health Care](#)) of diverse private sector solar solutions to electrify health centers in response to COVID-19 (jointly with SEforALL); and technical guidance for sustaining cold chains that are essential for testing and vaccine delivery ([Energy Requirements for COVID-19 Testing](#)). Together with GOGLA and other partners, ESMAP produced [Off-grid Solar: An Essential Service in the Fight against COVID-19](#), providing information to Governments and other stakeholders on how the off-grid solar sector could be leveraged to address COVID-19. ESMAP also contributed to the design and implementation of the COVID-19 Energy Access Industry Barometer survey (led by [EnDev](#)), assessing the impact of COVID-19 on mini grid, off-grid solar, and clean cooking companies.
- ESMAP also rallied its convening power in the pandemic response to energy access. Together with GOGLA and other partners, it co-organized the COVID-19 Energy Access Summit, which brought together energy access practitioners to discuss the impacts of COVID-19 on mini grid and off-grid companies and design strategies for their mitigation and inclusive recovery. It also co-organized, with SEforALL and Ashden, a COVID-19 Energy Access Donor Roundtable to discuss impacts of COVID-19 on energy access and how donors can support the sector.
- Lighting Global has banded together with partners and industry stakeholders to address the most pressing issues, including working to designate off-grid energy services as an essential service in energy-deficit countries and to develop important early interventions to support the industry through the economic impacts of the global pandemic. Supporting the delivery of off-grid energy services to health centers and testing sites has also taken center-stage in the fight against COVID-19, and will likely shape Lighting Global's activities for months, and perhaps years, to come.

HOMER

- As electricity access for critical health services became a major priority, in June 2020, ESMAP launched a tool to help address electricity shortages for health care facilities responding to COVID-19 in an affordable, resilient manner. Powering Health is an online tool, based on the HOMER microgrid optimization software, for the design of least-cost hybrid renewable energy systems to meet the electrical requirements of essential medical equipment. ESMAP supported an update of the tool that will enable health facilities to plan for and respond more effectively to meet the increased demands for caring for patients with COVID-19. The HOMER Powering Health Tool is intended for project managers, engineers, and financiers working with hospitals and clinics in developing countries where grid electricity is unavailable or unreliable.

ENERGY ACCESS FOR HOST COMMUNITIES & REFUGEES

BY THE NUMBERS

ENERGY ACCESS FOR HOST COMMUNITIES & REFUGEES

- In FY2020, ESMAP informed **\$100 million in WB** lending for host community and refugee operations
- In FY2020, ESMAP helped countries provide access to over **248,000 people** among host communities and refugees
- Over FY2017–20, the World Bank committed **\$950 million to 5 lending operations** supporting access for the urban poor in Argentina and host communities and refugees Bangladesh, and Yemen

The mission of ESMAP's **Energy Access for Host-Communities and Refugees** initiative was notably restructured during FY2017–20. The initiative was originally designed as the [Energy Access for the Urban Poor](#), and supported country engagements in Argentina, the Democratic Republic of Congo, Dominican Republic, Tanzania, and Yemen. Following the sharp increase in the number of forcibly displaced people (FDPs) and their impact on host-communities' electricity infrastructure, the initiative was reoriented in December 2018 to acknowledge these previously unaddressed development challenges. A [LiveWire issue](#) highlighted the remote and disconnected nature of many refugee settlements, and the need for cleaner off-grid electricity, as well as greater energy efficient, clean cooking options, and the data and financing to deliver them. Since its implementation, the initiative has experienced a strong demand from World Bank operations and approved funding proposals from Bangladesh, the Horn of Africa, the Lake Chad and Sahel Region, and the West Bank & Gaza.



/ RESULTS

ROHINGYA REFUGEE SOLAR

In FY2020, ESMAP supported the preparation of a \$5 million energy subcomponent of the World Bank Emergency Multisector Rohingya Crisis Response Project (EMRCRP) and an assessment of energy service needs for Rohingya communities in refugee camps in the Cox Bazaar region of Bangladesh. The EMRCRP subcomponent will finance approximately **100 solar nano grids** in the camp area to increase access to clean and sustainable electricity to energy-poor households and shared facilities like health centers and learning centers. The ESMAP funds so far have been used for an energy needs assessment, camp survey for potential sites for the nano grids, consultations with stakeholders, rapid assessment of energy needs in medical facilities for refugee and host communities, and ongoing work for detailed site identification and design for the first set of nano grids to be installed on the rooftops of multipurpose service centers, also funded by the EMRCRP.



/ PARTNERSHIPS

ACCESS FOR HOST COMMUNITIES & REFUGEES



Notable collaboration has taken place with the [Sahel Alliance](#) working in areas impacted by violence and Boko Haram activity, as well as with the UN Refugee Agency (UNHCR). In December 2019, ESMAP was represented at the [Global Refugee Forum](#) to raise awareness of energy access issues in those contexts.

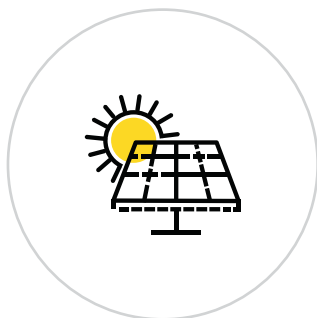


The Host-Communities and Refugees initiative will continue to actively engage with other international organizations, like Practical Action and the Global Plan for Action, and expand its existing collaborations with, for example, UNHCR's data and energy units.

/ KNOWLEDGE PRODUCT

REPLICATING SLUM ELECTRIFICATION

In December 2019, the program released a [LiveWire](#) issue on how to bring utilities, governments, and local stakeholders together to reverse the downward spiral of poor service, lack of investment, and electricity theft, and to extend regularized electrification within slums.



REHABILITATING THE ENERGY SECTOR IN YEMEN



Most of the local energy infrastructure in Yemen was damaged or destroyed during the ongoing armed conflict, leaving electricity access as a major development challenge for the country. ESMAP is supporting local authorities with the aim to improve access to electricity in rural and peri-urban areas. An ESMAP-financed activity laid the analytical foundation to develop solutions for restoring reliable supply and delivering affordable electricity access, and provided vital input for the Yemen Emergency Electricity Access project's (YEEAP) approach to engaging the private sector. It has supported the project to achieve substantial results in FY2020 with an assessment of electricity access expansion, opportunities and solutions, and an assessment of institutional arrangements and market conditions. The outputs from this exercise informed both YEEAP and the Integrated Urban Services Emergency Project, with a total commitment amount of \$200 million.

As of mid-July 2020, **132,000 people had benefited from new or improved electricity access** from the purchase of subsidized solar kits from the participating multilateral financial institutions, 18 percent of which were female buyers/borrowers.

BARRIO 31 SETTLEMENT IN BUENOS AIRES



In Buenos Aires, Argentina, ESMAP helped to promote social and urban integration of the Barrio 31 settlement, under the \$170 million World Bank Metropolitan Buenos Aires Urban Transformation project. The project included the **installation of a new electricity grid and improved street lighting**. LED lights were installed throughout the Barrio 31 neighborhood and recommendations on the design of sustainable sidewalks were incorporated into planning. In Barrio 31, new housing has been designed incorporating energy and water efficiency measures, such as insulation of roofs and external walls, double-glazed windows, solar thermal water heaters, solar panels, and low-flow showerheads. ESMAP technical assistance supported greater energy efficiency of public buildings (e.g., with a green building certification system), and the government staff capacity in solar thermal and photovoltaic was increased through dedicated training.

CLEAN COOKING AND HEATING

BY THE NUMBERS

CLEAN COOKING

- In FY2020, ESMAP informed **\$112 million** in WB lending for clean cooking operations
- Over FY2017–20, ESMAP mobilized more than **\$574 million** in financing operational activities in 24 countries
- Over FY2017–20, **4.5 million households** and **20 million people** served with improved access to more efficient, cleaner cooking and heating solutions through WB operations informed by ESMAP

ESMAP's Efficient, Clean Cooking and Heating ([ECCH](#)) initiative is tackling the clean cooking issue on multiple fronts. These include dedicated grant resources to support the integration of clean cooking into the World Bank's investment lending portfolio, strengthening the enabling environment for investment, collaborating with partners to leverage resources and expertise, and generating knowledge and innovative products. ESMAP's ECCH initiative made great strides toward supporting the global agenda on improving access to efficient, clean cooking and heating in FY2017–20, assisting in the development of eight World Bank financing operations in Bangladesh (2), Burundi, Ghana, Kenya, Kyrgyzstan, Lao PDR, and Mongolia.

In FY2020, the launch of the Clean Cooking Fund ([CCF](#)) marked a defining moment in ESMAP's impact on clean cooking outcomes. ESMAP's Clean Cooking Fund and Energy Storage initiatives were featured at the [UN Climate Action Summit](#) in September 2019.



/ NEW INITIATIVE

CLEAN COOKING FUND

The World Bank launched the **Clean Cooking Fund (CCF)** at the [Climate Action Summit](#), with Denmark, the Netherlands, and Norway announcing initial contributions or support to the Fund. The \$500 million Clean Cooking Fund seeks to scale up public and private investment and accelerate progress toward universal access to clean cooking by 2030. It provides financial and technical support, primarily through results-based grants, to help countries incentivize the private sector to deliver modern energy cooking services. The Clean Cooking Fund proposes to leverage at least one-to-one World Bank financing; catalyze technology and business innovations by generating additional revenue sources across clean-cooking value chains; support development partners to mobilize high-level political commitment at both global and country levels; build capacity of various stakeholders; generate and disseminate knowledge; and promote continued innovation in technology, business, and policies. More than \$100 million in International Development Association (IDA) financing has already been developed (either approved or in the pipeline) for co-financing by the Clean Cooking Fund, including projects in Burundi, Ghana, Nepal, Myanmar, Rwanda, Uganda, and Zambia.

/ PARTNERSHIPS

HEALTH AND ENERGY PLATFORM OF ACTION

In September 2019, the World Health Organization (WHO), the UN Department for Economic and Social Affairs (DESA), the UN Development Programme (UNDP), and the World Bank launched the [Health and Energy Platform of Action](#) (HEPA), which aims to help countries strengthen policy and technical cooperation between the health and energy sectors. A priority action of HEPA, which is hosted by WHO, is to convene the High-Level Coalition of Leaders for Clean Cooking, Energy and Health. ESMAP also collaborated closely with the WHO on the *SDG7 Tracking Energy Progress Report* and a [Multi-Tier Framework database](#) for cooking and data collection methods.



/ RESULTS

CLEAN COOKING IN UGANDA

About 95 percent of Ugandans still use solid biomass fuels for cooking their meals. According to the [Tracking SDG7 2020](#) report, Uganda ranked in the top 10 largest clean cooking access-deficit countries (by proportion of people without access).



Since 2016, ESMAP has provided funding for a \$2.2 million pilot project in Uganda, which applied a results-based financing grant mechanism and set up market incentives to help establish eight new manufacturer-distributor partnerships and introduce five new high-efficiency, quality-assured biomass stoves to the market. As of June 2020, there have been **64,097 stove sales** supported by this program, used on average twice a day. This project contributed to **53,754 tons of CO₂ reduction each year** from the stoves currently in operation (a 30% emission reduction compared to the baseline); a **savings of 20,740 tons of charcoal per year** (about a 36% average monthly fuel consumption reduction at the household level and associated financial savings); and **30 to 90 minutes per day time savings for women**.

Drawing on this pilot, the World Bank Uganda Energy Access Scale-Up Project, which was approved in FY2020, will also include clean cooking objectives in its \$30 to \$50 million access-to-finance facility to provide credit guarantees for on-lending by participating financing institutions to clean cooking fuel and technology companies (as well as off-grid solar companies).



/ KNOWLEDGE PRODUCT

UGANDA CLEAN COOKING BEHAVIORAL DIAGNOSTIC

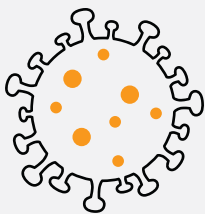
In November 2019, ESMAP released the [Uganda Clean Cooking Behavioral Diagnostic](#), integrating primary and secondary research with a decision-making theoretical framework for understanding and affecting behavioral change and consumer decisions around the use of efficient biomass stoves. The study's recommendations informed interventions implemented by the ESMAP-funded Uganda Clean Cooking Supply Chain Expansion project, including the use of market activations, radio announcements, digital marketing, and social media outreach. These interventions became crucial in raising awareness of the products supported by the program and providing a medium through which users could explore different models before purchasing. The project contributed to 64,097 stoves being sold by June 2020.



/ CONVENING EVENTS

CLEAN COOKING EVENTS

In November 2019, ESMAP co-hosted a panel discussion with the UK Modern Energy Cooking Services Program (MECS) at the ESMAP co-sponsored [Clean Cooking Forum in Nairobi](#) with almost 200 attendees. In April and May 2020, ESMAP hosted two workshops during the World Bank Africa Energy Retreat and the Clean Cooking Deep Dive at its annual Consultative Group Meetings.



/ RESPONDING TO CRISIS

RESPONDING TO CRISIS: CLEAN COOKING

Cooking is an essential daily activity, and the COVID-19 pandemic underscores the interlinkages between traditional cooking, gender, health, and environment. People who lack access to clean cooking and are exposed to household air pollution are more vulnerable to contracting the virus. Furthermore, due to the global economic disruption of the pandemic, the risks of slowing down the uptake of clean cooking solutions or regressing the progress of clean cooking is high. It is possible that more people will go back to traditional biomass (firewood and charcoal) for cooking with significant health, social, and environment impacts. ESMAP has been working with governments and development partners to highlight those linkages and advocate for clean cooking fuels to protect lives and livelihoods as part of pandemic emergency response and recovery plans.

5 SCALING UP RENEWABLE ENERGY

ESMAP's energy access work in off-grid and mini grid solutions is complemented by its activities around grid-connected **renewable energy**, including work to integrate variable renewable energy (VRE) into power systems, and around the modern role of hydropower and geothermal resources. ESMAP's international recognition in these areas is growing as a result of cutting-edge knowledge products and high-profile partnerships. ESMAP's relevance lies in its capacity to address resource data gaps through mapping and technical challenges related to grid integration, as well as in its critical prefeasibility and transaction support for World Bank Group lending.⁴

BY THE NUMBERS

REMAPPING, INTEGRATING VARIABLE RENEWABLE ENERGY, AND SOLAR SCALE-UP

● In FY2020, ESMAP informed **\$402 million** of World Bank development financing, expected to contribute to **10.6 GW** of renewable energy installed and **1.8 million MT** of GHG emissions reduced

● In FY2020, ESMAP helped countries achieve **9 regulatory changes**

● Over FY2017–20, the World Bank committed over **\$3.2 billion** in lending to renewable energy projects informed by ESMAP support

● Over FY2017–20, over **37 GW** of renewable energy expected to be installed due to ESMAP support

⁴ These conclusions were reported by the ICF External Evaluation, described at the end of Section II.

RENEWABLE ENERGY RESOURCE MAPPING

The ESMAP Renewable Energy Resource Mapping initiative (REMapping) wrapped up in FY2020. Launched in 2012, the initiative organized extensive assessments on a country basis, looking at solar, wind, biomass, and small hydropower potential. Solar resource and solar photovoltaics (PV) power potential maps, and geographic information system (GIS) data for 145 non-OECD countries and selected regions, comprise the [Global Solar Atlas \(GSA\)](#). The [Global Wind Atlas \(GWA\)](#), updated in FY2020, includes power density and wind speed potential maps together with GIS data for selected countries. Based on this data, it is possible to make high-level comparisons between countries and regions on their theoretical, practical, and economic solar and wind potential.

The development of GSA and GWA has been a major success for ESMAP, helping to provide critical information on solar and wind resource potential to WBG task teams, clients, and development partners while also raising the institution's profile on renewable energy and as a provider of critical "global public goods." In June 2020, monthly usage of the GSA

and GWA stood at 23,000 and 15,000 unique users, respectively. Data from the GSA has supported a mapping of rooftop solar potential in over 12 client country cities (ongoing), and May 2020 data from the GWA was used to estimate offshore wind potential of over 15.6 terawatts (TW) in 48 client countries.

In addition to the GSA and GWA, the program supported 9 country-level activities, including detailed resource assessment and mapping, ground-based measurement campaigns, and geospatial planning, as well as 23 other engagements with World Bank client countries. It supported scale-up of power generation from renewable energy sources through resource assessment and mapping activities globally and at the country level in Indonesia, Lao PDR Madagascar, Malawi, Maldives, Pakistan, Papua New Guinea, Tanzania, Vietnam, and Zambia. Over FY2017–20, the overall program informed four WBG operations in Bangladesh, Pakistan, and Zambia, and saw seven wind or solar projects adopt ESMAP-developed standards and guidelines.

/ RESULTS

RESOURCE MAPPING IN PAKISTAN

The World Bank's engagement in Pakistan on renewable energy started with resource mapping activities. This was the first comprehensive country-wide effort to identify the energy generation potential from biomass, solar, and wind resources. The solar mapping was completed at a point when private developer interest in solar generation is growing and the dataset has become one of the most downloaded datasets from [Energydata.info](#). The **wind mapping has identified new, previously unknown, corridors of high wind power potential**, for example, in Balochistan. This activity has paved the way for much stronger engagement by the WBG in this growing subsector. Subsequent ESMAP-funded grant supported the government in its energy sector reform agenda by strengthening the capacity of key agencies to plan for the cost-effective deployment of renewable energy and its integration into the national grid. Results of the [Variable Renewable Energy Integration and Planning Study](#) have already informed the targets of Pakistan's Alternative & Renewable Energy Policy 2020, and also improved the capacity of the National Transmission & Despatch Company to develop a least-cost generation plan using modern tools and equipment to facilitate increased penetration of renewable energy.



INTEGRATING VARIABLE RENEWABLE ENERGY

The ESMAP **VRE Grid Integration Support** initiative in FY2017–20 focused on addressing key barriers to scaling up solar and wind power into grid systems, providing support on issues such as VRE grid-integration analyses, grid code development, operational improvements and dispatch practices, and long-term roadmaps to scale up renewable energy. It has also improved global knowledge on VRE grid integration with technical guides, reports, and analyses of innovative technologies. Over the FY2017–20 period, it informed 19 new WBG operations and 16 country planning strategies.

This included support to the development of **battery storage** projects in the Central African Republic, China, Gambia, Haiti, and India, through grid integration studies and just-in-time technical support on VRE integration. Indeed, support for energy storage was an important theme over the FY2017–20 period, due

to falling costs and the critical enabling role storage plays in the deployment of VRE. The launch of the **Energy Storage Partnership (ESP)**, with over 30 international organizations in 2019, was a milestone achievement. The Partnership contributes knowledge and technical assistance towards the achievement of the World Bank's pledge at the One Planet Summit in September 2018 to mobilize \$1 billion for battery storage investments. ESMAP also helped to develop the Climate Investment Funds' Global Energy Storage Program, which mobilized \$250 million in FY2020.

ESMAP's VRE program also incubated programs on **green hydrogen** and reducing private sector risk (termed "Energizing Renewables"⁵). Each of these workstreams gained increasing relevance over the course of the business plan and matured to become standalone initiatives in the new FY2021–24 Business Plan.



⁵ "Energizing Renewables" is the updated term for this initiative in the FY2021–24 Business Plan. It refers to the Sustainable Renewables Risk Mitigation Initiative (SRMI), which was originally the Solar Risk Mitigation Initiative.

NNERGIX SOLAR FORECAST DATA FLOW



Based on successful technical assistance in Central America that recognized the importance of forecasting renewable resources to optimize dispatch center operations, ESMAP commissioned the development of an on-line solar PV forecasting tool that will be hosted on the energydata.info portal. This tool will provide free daily energy forecasts of individual and aggregated solar farms with a time scope of two weeks. It is expected that the tool will contribute to more reliable and efficient system operation in countries with solar PV plants that do not have a dedicated forecasting service.

/ RESULTS

SOLAR + STORAGE IN MALDIVES

ESMAP has supported Maldives' path to decarbonization on several fronts, including solar and wind mapping of the country under ESMAP's own-managed REMapping initiative. The mapping was key in formulating the country's renewable energy strategy and informed the implementation of 6.5 MW of rooftop solar system through the World Bank-supported Accelerating Sustainable Private Investment in Renewable Energy (ASPIRE) project.

For further scale-up of solar PV, a robust grid-integration strategy required a techno-economic analysis of battery storage. Developed with ESMAP support, [Energy Storage Roadmap for the Maldives](#) was released by the Minister of Environment of the Maldives at the United Nations Climate Summit in September 2019. This analysis provides a clear methodology for guiding the nation's energy transition towards solar PV and energy storage by identifying the requirements of battery storage for different levels of solar PV and proving the financial feasibility of these sources as a means to replace diesel generation. It is directly influencing the design of the Accelerating Renewable Energy Integration and Sustainable Energy (ARISE) program to implement 21 MW of utility scale solar PV (including 10 MW of floating solar), battery deployment, and grid modernization.

ESMAP's work cuts across the energy sector in the Maldives and will serve as best practice for other small island developing states (SIDS) to replicate. In a September 2020 interview with Bloomberg, Environment Minister Hussain Rasheed Hassan highlighted the impact of ASPIRE and ARISE in expanding investment in grids and renewable generation, including by increasing the confidence of renewable energy investors through the provision of payment guarantees.

MALDIVES



/ NEW INITIATIVE

ENERGY STORAGE PARTNERSHIP

Launched in May 2019, FY2020 marks the first full year of the **Energy Storage Partnership (ESP)**. Hosted by ESMAP, this partnership with 34 other international organizations seeks to expand energy storage for renewable energy deployment in developing countries.

By connecting stakeholders and sharing experiences in deploying energy storage, ESP will help bring new technological and regulatory solutions to developing countries, as well as help develop new business models that leverage the full range of services that energy storage can provide. ESP will take a holistic, technology-neutral approach by looking at all forms of energy storage, including but not limited to batteries.

In September 2019, ESP was initially presented at the UN Climate Action Summit, where the United Kingdom pledged GBP 200 million to the [Climate Investment Funds \(CIF\)](#) for energy storage. In January 2020, ESMAP held a Second Stakeholder Consultation for ESP in Pretoria, South Africa, with over 100 stakeholders.





ENERGY STORAGE PARTNERSHIP REPORTS

Over the course of the Energy Storage Program's (ESP) first year of operation in FY2020, ESMAP published, in cooperation with other members of the Energy Storage Systems in Developing Countries Partnership, a series of seminal reports on battery storage in developing countries exploring: [Warranties for Battery Energy Storage Systems in Developing Countries](#), [Deploying Storage for Power Systems in Developing Countries](#), and [Reuse and Recycling: Environmental Sustainability of Lithium-Ion Battery Energy Storage Systems](#). It also completed a journal paper on [Scaling Up Sustainable Energy Storage in Developing Countries](#) and [guidelines for cost-benefit analysis](#).

SOLAR SCALE-UP

The Solar Technologies Technical Assistance initiative (or **Solar Scale-Up**) was a new global effort in the FY2017–20 Business Plan. Country planning strategies supported renewable energy laws in Mongolia and Uzbekistan, and the adoption of solar auctions in Egypt, Niger, and Vietnam. Over FY2017–20, the program informed 11 WBG operations and 11 country planning strategies. It also assessed the

opportunities for floating solar photovoltaics (FPV) to be deployed in emerging markets and supported the World Bank's first projects for such innovative solar solutions in India and Bangladesh. In the new FY2021–24 Business Plan, activities involving technologies such as floating and distributed solar will be conducted under the Innovative Solar program.



SUSTAINABLE RENEWABLES RISK MITIGATION

In FY2020, together with the Agence Française de Développement (AFD), International Renewable Energy Agency (IRENA), and International Solar Alliance (ISA), ESMAP developed the Solar Risk Mitigation Initiative (SRMI) to help scale up solar energy use by de-risking and reducing the cost of financing for solar projects. The SRMI's unique approach mobilizes development and climate financing for an integrated package of support for: (i) technical assistance to help countries develop evidence-based solar targets, implement a sustainable solar program, and maintain robust procurement processes with transaction advisors; (ii) critical public investments to support integration of variable renewable energy (VRE), finance solar park infrastructure, and increase access to electricity ; and (iii) risk mitigation instruments to cover residual risks perceived by private investors. In September 2019, ESMAP released [guidelines](#) for countries to develop a pipeline of viable solar projects.

In 2020, SRMI was expanded beyond solar power, and renamed the “Sustainable Renewables Risk Mitigation Initiative.”

In the short-term, SRMI is leveraging \$255 million in financing from the Climate Investment Fund's (CIF) Clean Technology Fund to support \$1 billion of public investments in solar projects with battery storage and standalone solar home systems in Burkina Faso, Maldives, Uganda, Tanzania, and a regional off-grid electrification project in West Africa. Together, the projects are expected to unlock around 900 MW of privately financed solar generation and 600 MWh of storage, mobilize \$1.3 billion of private investment, and provide access to affordable and clean electricity to around 5 million people. At the UN Climate Action Summit in September 2019, France and the Netherlands [committed an additional \\$100 million](#) to SRMI projects.



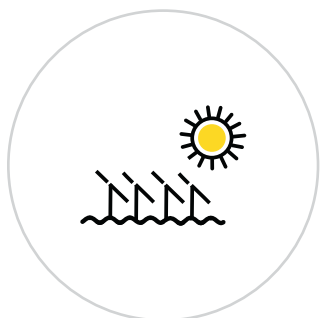
/ RESULTS

SOLAR IRRIGATION IN INDIA

ESMAP's support to scaling up solar often cuts across sectors, such as the energy-water-agriculture nexus in India. Following the dissemination in December 2019 of a key report on this topic prepared by the World Bank's Water Global Practice with contribution from the Energy and Agriculture Global Practices, ESMAP-funded technical assistance supported the preparation of a **pilot for grid-connected solar irrigation systems on two electricity feeders** in Rajasthan. The project yielded a standard package of documents for solar irrigation systems, including farmer due diligence documents, financial analysis reports, standard procurement documents, and customized power purchase agreements between farmers and the utility.



The impact of this ESMAP funded activity will go beyond Rajasthan. The Ministry of New and Renewable Energy (MNRE) intends to use these documents in its national scheme to provide support to Indian states in implementing solar irrigation systems.



/ KNOWLEDGE PRODUCT

FLOATING SOLAR

In June 2019 ESMAP released [Floating Solar Market Report](#), from the *Where Sun Meets Water* series. Floating solar photovoltaic (FPV) installations open new opportunities for scaling up solar generating capacity, especially in countries with high population density and competing uses for available land. Advantages of floating solar over land-based systems include higher energy yield, reduced evaporation, and improved water quality, among others. In FY2020, it followed up that work with a [Floating Solar Handbook for Practitioners](#) focusing on technical aspects relating to developing and operating FPV projects, with considerations on environmental and social aspects of FPV projects. The findings of *Where Sun Meets Water* series informed the development of several ESMAP grants in Bangladesh, Myanmar, and West Africa, as well as World Bank operations in India and Maldives.



OFFSHORE WIND

The Offshore Wind Development initiative was started in April 2019 as a partnership between ESMAP and the IFC. The objective is to support the inclusion of offshore wind into the energy sector policies and strategies of WBG client countries and support the work needed to build a pipeline of viable projects, with country roadmap studies and technical assistance.

In FY2020, several countries requested technical assistance from the WBG for offshore wind. In Vietnam, a roadmap study is nearing completion and a draft report is with the Ministry of Industry and Trade for consultation across government. Similar roadmap studies are being commissioned in Sri Lanka and Turkey. A virtual event with stakeholders and governments was held in Brazil, and early engagement is progressing with Azerbaijan, Colombia, India, Nicaragua, Philippines, South Africa, and others.



/ KNOWLEDGE PRODUCTS

EXPANDING OFFSHORE WIND TO EMERGING MARKETS

In October 2019, ESMAP released [Going Global: Expanding Offshore Wind to Emerging Markets](#). This report is the first in a series of planned knowledge products to be published by ESMAP, in cooperation with the IFC, to increase awareness of the enormous technical potential that exists in key emerging markets. The report presents eight case studies on the technical potential for offshore wind in Brazil, India, Morocco, Philippines, South Africa, Sri Lanka, Turkey, and Vietnam. Considering offshore areas within 200 kilometers of the coast, it found that these eight countries have a total technical potential of approximately 3.1 TW, including about 1 TW of fixed capacity and about 2 TW of floating capacity. The conclusion is that the resource is massive and developing countries are well placed to benefit from the offshore wind sector.

GIS MAPPING OF OFFSHORE WIND RESOURCES

ESMAP has used geospatial data to produce GIS mapping of offshore wind resources across 48 WBG countries and regions, which have offshore wind resources, and has identified 15.6 TW of total technical fixed and floating offshore resource potential across these markets. The [Global Wind Atlas](#) is a free, web-based application developed to help policymakers, planners, and investors identify high-wind areas for wind power generation virtually anywhere in the world, and then perform preliminary calculations.



GEOTHERMAL

BY THE NUMBERS

GEOTHERMAL

- In FY2020, ESMAP informed **\$150 million** in WB lending for geothermal operations
- Over FY2017–20, ESMAP helped mobilize **\$175 million** in concessional funding

In FY2020, ESMAP successfully completed the **Global Geothermal Development Plan (GGDP)**, launched in 2013 to shift multilateral development lending support upstream. The GGDP differed from previous efforts in that it focused on the primary obstacle to geothermal expansion: the cost and risk of exploratory drilling. Validating the presence of commercially viable geothermal resources through drilling requires around 15 percent of the total investment costs to be spent upfront, with low certainty of return. Commercial debt is often not available to finance this step, and it usually takes over two years for exploratory drilling to provide investors with confidence to proceed with development of a geothermal field

(i.e., through capacity drilling) and construction of the power plant.

Over FY2017–20, 11 countries have benefited from technical assistance deployed by ESMAP over the course of the GGDP. The GGDP informed 5 new World Bank programs in Chile, Dominica, Indonesia, and Turkey, including climate finance from the Green Climate Fund and the Climate Investment Funds, which resulted in 241 MW of geothermal power capacity in Turkey online in June 2020, and a further 600 MW in the pipeline in Indonesia.

A recent reassessment of the global geothermal pipeline revealed that there is still significant geothermal power generation at various stages of development. The GGDP engaged with most countries where this pipeline is active. Since then, many of these countries have built the capacity and experience to further develop their geothermal resources for themselves.

Following on the successful conclusion of the GGDP, two new ESMAP initiatives are included in the FY2021–24 Business Plan — the Geothermal Electricity Development Program (under SRMI) and Geothermal Direct Use Development Program. These will continue to support geothermal energy as a clean alternative to conventional fuels and on the same footing as other renewables in these countries.

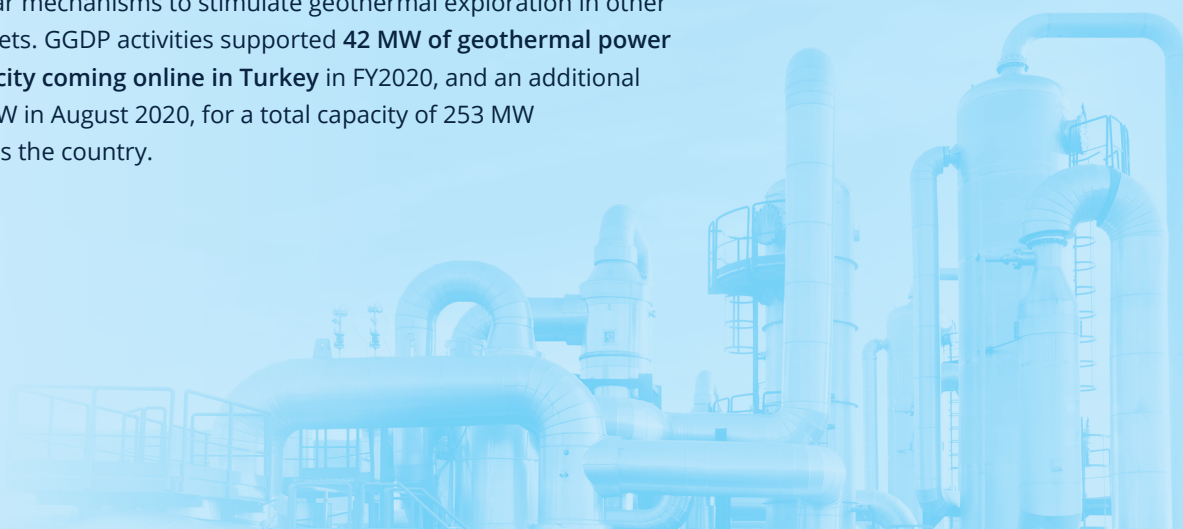
GEOHERMAL DIRECT USE AND GENDER

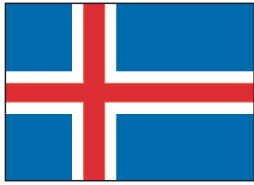
Under the Global Geothermal Development Plan (GGDP), ESMAP continued to support gender equality by following up on the suggestions identified in the report *Gender Equality in the Geothermal Sector—Road to Sustainability* published in April 2019. During FY2020, ESMAP worked with the World Bank team preparing the **geothermal project in El Salvador to address gender biases in corporate culture**. This activity was based on a pilot implemented by WING (New Zealand), referred to as [WINGmen Special Taskforce: Train the Trainee](#), designed to engage men in the conversation around gender equality. A workshop was organized and held in December 2020 in El Salvador in partnership with the German Corporation for International Cooperation (GIZ), WING, and LaGEO. The workshop participants came from Chile, Costa Rica, El Salvador, and Nicaragua.



GEOHERMAL IN TURKEY

To support Turkey's shift towards renewable energy, ESMAP's Global Geothermal Development Plan (GGDP) helped leverage a \$350 million World Bank project with co-financing from the Climate Investment Funds to scale up private sector investment for geothermal development by reducing the risks taken on by investors during early-stage drilling. This has been done through a Risk Sharing Mechanism (RSM) and by providing access to long-term financing. Turkish citizens benefit from new economic and employment opportunities created, and the global community benefits from the lessons learned through the use of the risk-sharing facility in designing similar mechanisms to stimulate geothermal exploration in other markets. GGDP activities supported **42 MW of geothermal power capacity coming online in Turkey** in FY2020, and an additional 12 MW in August 2020, for a total capacity of 253 MW across the country.





ICELANDIC SUPPORT FOR GEOTHERMAL

ESMAP **Global Geothermal Development Plan** (GGDP) benefitted greatly from in-kind services provided by experts hired and provided by the Ministry of Foreign Affairs of Iceland. In addition to the in-kind services, the Icelandic Ministry of Foreign Affairs funded two full scholarships for women from the Caribbean at the six-month [United Nations University Geothermal Training Program](#), which has the mandate to assist low- and middle-income countries to establish local specialists in geothermal exploration and development.

HYDROPOWER

Hydropower may represent the oldest form of electricity generation, but its role is changing rapidly. The increasing need for flexibility in fast-evolving power markets require technological innovation and increased digitization. Modernization of existing capacity is critical to ensuring the continued operation and safety of those assets, as well as adapting their operating regimes to provide more grid services that will be required to integrate significant volumes of variable wind and solar energy. The key is to add capacity and functionality at low cost with minimal environmental impact.

ESMAP's **Hydropower Development Facility** (HDF) became effective in FY2020 with support from Austria, Iceland, Norway, and Switzerland, and has provided expertise to projects, as well as knowledge and development tools, to address economic and sustainability concerns around hydropower development. The focus is on supporting the integration of variable renewables and creating synergies at a regional level among complementary projects and resources for the benefit of local communities.

The HDF has funded international experts for project teams working in the Balkans, Burundi, Indonesia, Mongolia, Nepal, Rwanda, and Tanzania. It has provided economic and financial analyses, supported implementation of environmental and social safeguards, and enhanced procurement, contracts management, and communications. The HDF has also

helped to increase knowledge and develop tools on extending the life of reservoirs and manage sediments in hydropower projects, funded climate risk assessments of hydropower projects, and developed disaster risk management plans—for example, on the Upper Arun in Nepal.

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/ CONVENING EVENT

BUILDING BACK BETTER WITH HYDROPOWER

The expertise and convening power of ESMAP are key assets in developing sustainable hydropower projects. On 24–25 June 2020, ESMAP convened a seminar on [Building Back Better and Greener with Sustainable Hydropower](#), which underlined the vital role that hydropower will continue to play in meeting climate change targets through the clean energy transition, as well as in achieving key Sustainable Development Goals, including the provision of universal electricity access by 2030.

SMALL ISLAND DEVELOPING STATES

BY THE NUMBERS

SMALL ISLAND DEVELOPING STATES

- In FY2020, ESMAP leveraged **\$40 million** in WB financing in small island developing states
- Over FY2017–20, ESMAP leveraged **\$90 million** of World Bank financing for small island developing states, with **16 MW** of renewable energy expected to be installed

Small island developing states (SIDS) are particularly vulnerable to climate change, and often highly dependent on imported fuel to meet their energy needs. Many SIDS are now looking to transition to more sustainable energy systems, where improved energy efficiency and renewable energy play an increasingly important role. To help meet this transition challenge,

the SIDS DOCK Support Program was launched by ESMAP in 2011 with funding from the governments of Denmark and Japan to improve the enabling environment for renewable energy and energy efficiency, and to support their scale up through climate finance and other funding.

FY2020 was a strong delivery year for the SIDS DOCK Support Program, with substantial progress in grant activities that co-financed several World Bank projects, including the completion of the Tuvalu grant. The funds for the SIDS DOCK Support Program have been fully allocated, and the extension of the program by 5 years provides sufficient time for the delivery of investment projects approved in FY2019–20. In FY2020, three grant activities (Tuvalu, OECS Countries, Caribbean) were completed, leaving four currently active grant activities (Pacific Islands, Solomon Islands, Dominica, Comoros) as co-financing investment projects.

/ RESULTS

ENERGY SECURITY IN TUVALU

A \$2.1 million grant through [ESMAP's Small Island Developing States \(SIDS\) DOCK Support Program](#) is playing a key role in helping Tuvalu achieve energy security by reducing its dependence on imported fuel to generate power, and by improving the efficiency and sustainability of its electricity system by providing the support for a solar PV facility (750 kW solar PV and 2 MWh battery energy storage system, BESS). The project will more than double Tuvalu's use of solar from 8 percent to 20 percent and marks the first commercial-scale and largest installation of solar PV and the first BESS system in Micronesia. On the regional scale, the comprehensive support from ESMAP and the SIDS DOCK Support Program funded a VRE grid integration study for all the Pacific Island country utilities, including a \$3.5 million grant funding a regional activity focusing on capacity building and the development of the technical and institutional capacity of the Pacific Island Utilities. This collective effort has helped the region's utilities gain familiarity with solar PV and battery storage, and has supported the successful PV procurement in Tuvalu, as well as the successful procurement of 4 MW of solar and a 1 MWh BESS in the Marshall Islands.

TUVALU



6 ENERGY EFFICIENCY AND DECARBONIZING END USES

ESMAP's work during the FY2017–20 period helped to raise the profile of energy efficiency. The **Efficient and Sustainable Buildings** initiative was established in 2016 with the objective of helping client countries harness their efficiency potential in a sector that consumes 35 percent of global energy. Over FY2017–20, the initiative informed 21 WBG operations and 9 buildings-related policies and strategies of World Bank clients. The **Energy Efficient City Services** initiative addresses challenges such as capacity development, enabling frameworks, implementation models, and financing modalities to support aggregation and scale-up of energy efficiency in city services (such as street lighting). In FY2017–20, it developed and disseminated 8 case studies on urban energy efficiency, informed 24 WBG operations, and provided support in 58 cities, countries, and regions.

BY THE NUMBERS ENERGY EFFICIENCY

In FY2020 World Bank committed **\$760 million** to energy efficiency lending operations informed by ESMAP, expected to achieve 26 million MWh of projected lifetime energy and fuel savings

In FY2020, ESMAP helped 3 countries achieve **4 regulatory changes**

Over FY17–20, World Bank committed **\$6.6 billion** to energy efficiency lending operations informed by ESMAP

Over FY2017–20, ESMAP informed World Bank lending operations are expected to achieve **1202 million** metric tons of CO₂ emissions reduction and 6.33 E⁸ MWh projected lifetime energy and fuel savings

The World Bank has recognized energy efficiency as “the first fuel”. Its 2016 Climate Change Action Plan ([CCAP](#)) states that at least 50 percent of infrastructure operations in urban space shall integrate energy efficiency, and that the WBG would achieve at least \$1 billion in energy efficiency investments by 2020,

a target that was achieved. The External Evaluation recognizes that much of the World Bank's success in energy efficiency is due to ESMAP's efforts, particularly its focus on integrating energy efficiency into other practice areas, such as Transport, Urban, and Water.

In collaboration with the Bank's Climate Change Group (Montreal Protocol Unit), ESMAP established a new initiative on **Efficient and Clean Cooling** in FY2019. This was made possible by a \$3 million grant from the Kigali Cooling Efficiency Program (K-CEP), a philanthropic program established to help countries increase the energy efficiency of cooling. The Efficient Clean Cooling Program helps countries develop the necessary market infrastructure, financing mechanisms, and policies and regulations to deploy sustainable cooling at scale, focusing on space cooling and air conditioning, refrigeration and cold chain, cool surfaces (e.g., reflective roofs, walls, pavements), and mitigation of urban heat island effects. Another area of focus is working with public and private

sector partners to raise awareness around efficient, clean cooling opportunities in emerging markets. The initiative completed its first full financial year just as the need for medical refrigeration and cold chains became acutely apparent with the onset of the COVID-19 pandemic.

ESMAP grants are supporting activities in the energy sector, as well as in other sectors where cooling is essential (e.g., agriculture, fisheries, health, industry, transport, urban planning), spanning multiple World Bank Global Practices and the IFC, and building on the Bank's policy dialogues and country engagements across different sectors in different countries.

EFFICIENT AND SUSTAINABLE BUILDINGS

BY THE NUMBERS

EFFICIENT AND SUSTAINABLE BUILDINGS

- In FY2020, ESMAP informed **\$719 million** in WB lending to energy efficient building operations
- In FY2020, ESMAP helped 3 countries achieve **4 regulatory changes**
- Over FY2017–20, the World Bank committed **\$3.6 billion** to lending operations informed by ESMAP support



/ RESULTS

DESIGNING SUSTAINABLE FINANCING MECHANISMS

In the Western Balkans, ESMAP supported the identification of options for energy efficiency investments in the public sector, including the structuring of revolving financing mechanisms. As a result of these activities, the Government of Kosovo established the Kosovo Energy Efficiency Fund as an independent, autonomous, and sustainable entity. With funding and cooperation from the European Commission, the World Bank supported the capitalization and operationalization of the Fund, which identifies, finances, and implements municipal energy efficiency projects through energy service agreements (ESAs). Energy service agreements allow the Fund to finance the energy efficiency investments in municipal buildings or facilities, such as energy efficient building renovations or street lighting retrofits, and to recover the investment and the Fund's operation costs from the municipalities based on the energy cost savings achieved by the investments. Generally, leveraging funds with partners (such as the European Union) and strengthening institutions proved to be a particularly effective approach. Building local capacity to implement projects introduces a more sustainable financing structure to efficiency programs and facilitates replication in other sectors, such as public buildings or the water sector.



ENERGY EFFICIENT CITY SERVICES

BY THE NUMBERS

ENERGY EFFICIENT CITY SERVICES

In FY2020, ESMAP informed **\$241 million** in WB lending for energy efficient city service operations

Over FY2017–20, the World Bank committed **\$4.3 billion** to lending operations informed by ESMAP support

/ PARTNERSHIPS

WORKING ACROSS THE WORLD BANK GROUP FOR THE ELECTRIFICATION OF TRANSPORTATION



ESMAP's Energy Efficient City Services initiative launched a joint call for proposals in FY2020, together with the **Mobility and Logistics (MOLO) Trust Fund** under the World Bank Transport Global Practice and the IFC Global Infrastructure Upstream Unit, to fund technical assistance on electrification of transport. This joint action helped the program identify and allocate ESMAP funding for six activities in the Middle East and North Africa (MNA) region (incl. Egypt, Jordan, and Morocco), as well as in India, Indonesia, Maldives, Nigeria, and Rwanda. In addition, ESMAP's Energy Efficient City Services is further supporting the World Bank Transport Global Practice in the development of a global report on the economics of electric mobility.

/ KNOWLEDGE PRODUCT

GOOD PRACTICE NOTE ON EFFICIENT WATER OPERATIONS

ESMAP worked with the World Bank's Water Global Practice to produce a good practice note [Mainstreaming Energy Efficiency Investments in Urban Water and Wastewater Utilities](#), a website, a screening mechanism to notify upcoming water operations for their energy efficiency potential while they are still in early design phases, dissemination events, and dissemination material. The new screening process helped identify World Bank water operations with potential to include energy efficiency measures in Afghanistan, Bangladesh, Bolivia, Eswatini, Indonesia, Kiribati, Mexico, Pakistan, Sri Lanka, Timor-Leste, Turkey, Uruguay, and Yemen.



ENERGY EFFICIENCY IN UZBEKISTAN'S WATER UTILITIES



In Uzbekistan, a World Bank grant supported the design of an **energy efficiency financing facility for cost-effective investments in the Suvokovas** (water utilities). This work included the analysis of incentives and constraints of the credit facility for water utilities and participating financial institutions (PFIs); gaps in the legal and regulatory framework; and the definition of key on-lending terms, conditions, and rules for the credit facility between the Ministry of Finance and PFIs and between PFIs and the borrowing water utilities. These terms and conditions included the eligibility criteria for water utilities, credit line thresholds, currency of the loan and currency of repayment, a method to calculate the interest charged on the principal amount, among other things, as well as potential eligible investments. Finally, it included the determination of capacity building and training requirements for the PFIs to support a successful implementation of the financing facility and an action plan to support the transition towards increasing commercial finance within the water supply and sanitation sector.

ESMAP also supported this wider project with energy efficiency audits and a prefeasibility study for the Namangan water utility as a pilot demonstration project, and the preparation of a sector reform roadmap, including energy efficiency actions; policy advice for mid-term planning and tariff setting, which details specific provisions for incentivizing and capturing energy efficiency gains; and a series of training and capacity building activities for utility staff at the Ministry of Housing and Communal Services.



EFFICIENT AND CLEAN COOLING

/ PARTNERSHIPS

KIGALI COOLING EFFICIENCY PROGRAM

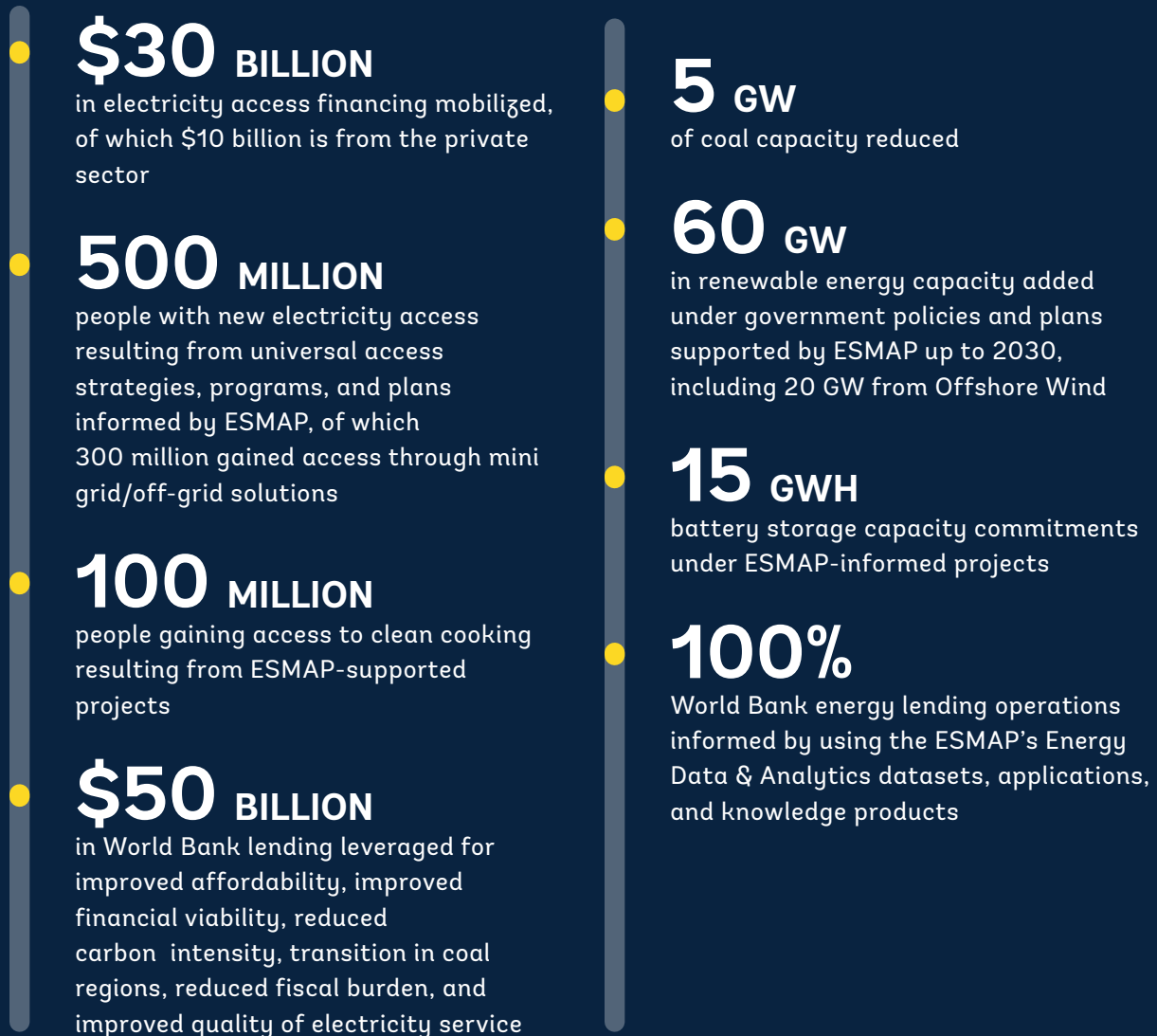
The collaboration between ESMAP and **Kigali Cooling Efficiency Program (K-CEP)** goes beyond the seed funding to establish the Efficient Clean Cooling initiative. The funding has indeed been critical to support important technical assistance activities across the WBG to develop a new sustainable cooling business line at the Bank with the aim of scaling and mainstreaming “cooling-informed” operations. It also facilitated linking ESMAP’s Efficient, Clean Cooling initiative to the broader cooling community and helped leverage knowledge and expertise to better inform ESMAP-supported cooling activities. The support was key to help ESMAP raise the profile and awareness around cooling within the WBG. In fact, ESMAP’s contribution to greater “institutionalization” of cooling within ESMAP and at the Bank was recognized at the K-CEP Annual Meeting in February 2020.



7 LOOKING TO FY2021 AND A NEW BUSINESS PLAN

BY THE NUMBERS

SELECTED TARGETS FOR FY2021-24 BUSINESS PLAN



As ESMAP moves into FY2021, it continues to be guided by SDG7 and the Paris Climate Agreement, but also by an altered energy lending landscape in the wake of economic crisis, an accelerating revolution in renewable energy and off-grid technologies, and by the recommendations of the External Evaluation.

In September 2019, ESMAP convened a **Technical Advisory Group** of leading energy sector thinkers for a two-day brainstorming and consultation workshop with ESMAP staff to inform the preparation of the [FY2021–24 Business Plan](#).

The recommendations of the Technical Advisory Group reinforced the need for a cross-cutting approach across both ESMAP themes and World Bank Global Practices, integrated sector planning, a workstream on utilities, support for research and innovation, and prioritizing universal access by 2030.

Ensuring affordable, reliable, sustainable, and modern energy for all by 2030 remains possible but will require more aggressive efforts, particularly to reach some of the world's poorest populations (leaving no one behind) and to significantly improve energy systems' sustainability in the context of climate change. The COVID-19 pandemic implies additional challenges and risks for the achievement of the SDG7 targets. At the same time, technology development will continue its rapid progress and the landscape of new innovations will be marked, for example, by continued falling costs for solar-plus-storage; advances in two-way metering and grid monitoring; improved financial inclusion for underserved populations through mobile payments; satellite imaging; high-voltage, direct-current transmission; and distributed energy through off-grid solar and mini grid solutions.

The ESMAP FY2021–24 Business Plan will focus on twin objectives: achieving universal access by 2030 and advancing decarbonization across the energy sector in support of international commitments on climate change. The business plan builds upon the work of the past, dedicating initiatives to **Electricity Access**

and **Renewable Energy** while elevating the **Clean Cooking Fund** and organizing a fourth pillar around **Accelerating Decarbonization**. Those four program areas will be underpinned by two cross-cutting initiatives on **Foundations for the Energy Transition** and **Energy Data and Analytics**. ESMAP's initiatives will support the achievement of the World Bank's corporate priorities, such as climate change action; gender equality; support to fragile and conflict-affected

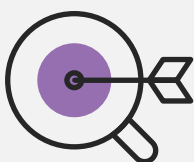
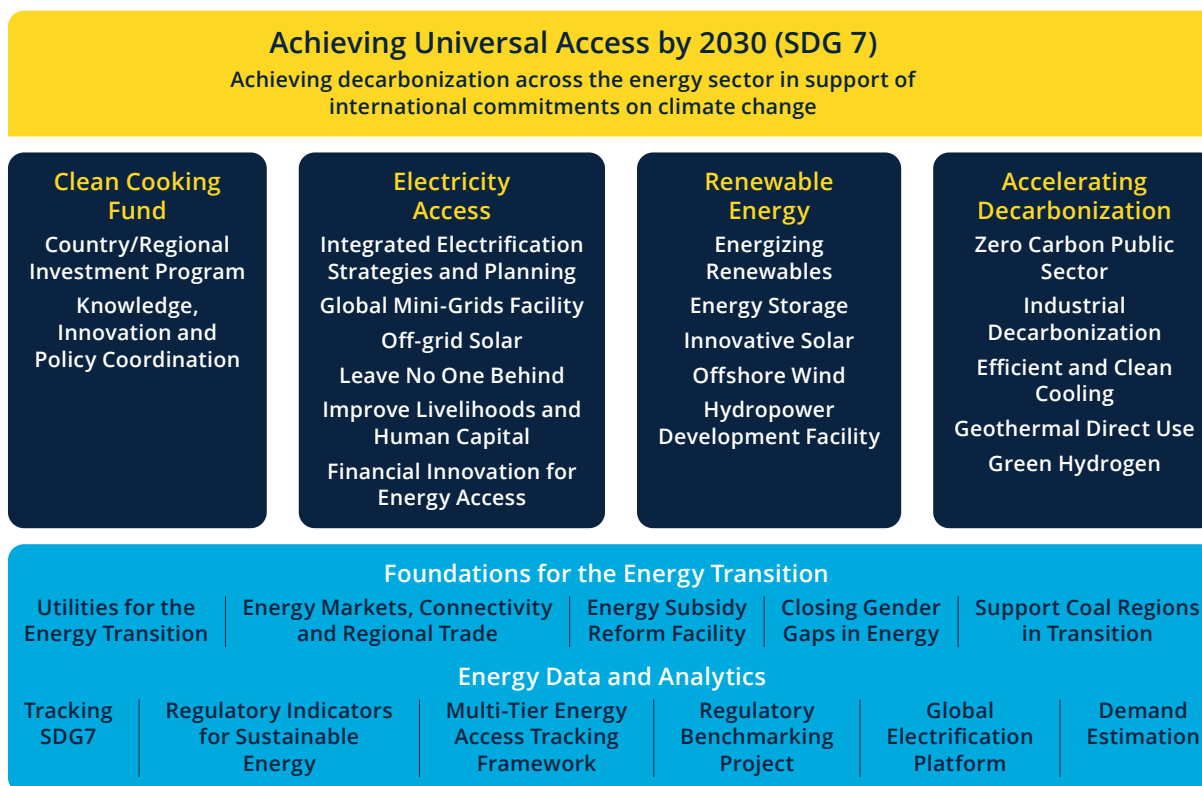
Ensuring affordable, reliable, sustainable, and modern energy for all by 2030 remains possible but will require more aggressive efforts.

states; and maximizing financing for development.

A key priority for the Renewable Energy and Accelerating Decarbonization programs will be to support countries and communities most affected by the phasing out of coal as they transition to cleaner energy sources. ESMAP will also support coal mine closure and coal plant repurposing, particularly through partnerships like the Platform in Support of Coal Regions in Transition in the Western Balkans and Ukraine.



FIGURE 7.1: ESMAP Business Plan FY21–24 Program Areas



EXTERNAL EVALUATION OF ESMAP

Part of the transition to a new Business Plan for FY2021–24 included the completion of an [External Evaluation](#) of ESMAP by ICF Incorporated, an independent consultancy. The External Evaluation sought to draw lessons learned from the implementation of the FY2017–20 Business Plan, and to offer reflections, lessons, and adjustments for the next business plan cycle. Its findings reaffirmed the relevance of ESMAP’s interventions in the context of the ever-evolving global energy landscape, and the fact that they are well-harmonized with emerging and existing global initiatives and institutions. It also affirmed ESMAP’s cost effectiveness in contributing to energy sector development with agility and flexibility. The External Evaluation made six key recommendations: (i) to strengthen relevance and sharpen focus on the poor; (ii) embrace programmatic activities with consideration to priority countries and their political economy; (iii) focus on a strategic approach to gender; (iv) rationalize ESMAP’s [Theory of Change](#); (v) maintain flexibility and cost efficiency; and (vi) define a stronger role for ESMAP’s Technical Advisory Group. These recommendations were [fully incorporated](#) into the new FY2021–24 Business Plan.





SECTION III

8 FINANCIAL REVIEW

This chapter outlines the FY2020 financial information for the two multi-donor trust funds (MDTFs) that are under ESMAP's management and administration, namely, ESMAP and SIDS DOCK.⁶

CONTRIBUTIONS

In FY2020, ESMAP received about \$83 million from 12 donors, including a new donor, the United Kingdom's Foreign and Commonwealth Office (FCO).⁷ SIDS DOCK did not receive any contributions in FY2020. Table 8.1 presents actual receipts in FY2020 from individual donors for both MDTFs, as well as cumulative receipts for the FY2017–20 ESMAP Business Plan period. At the end of FY2020, ESMAP had signed contributions of over \$310 million for its FY2017–20 Business Plan, compared to the target of \$215 million.



⁶ As set out in the Administration Agreement with ESMAP donors, the current financial information relating to multi-donor and associated trust funds under ESMAP management can be accessed via the Bank's [Trust Funds Donor Center secure website](#). The Bank's Financial Statements, as well as the Single Audit Report on Trust Funds can be accessed via the [Bank's public website for Financial Reports](#). The ESMAP MDTF consists of TF071398 and its Parallel/Successor TF072490 and associated trust fund TF073420.

⁷ As of October 2020, Foreign and Commonwealth Office (FCO) has merged with the Department for International Development (DfID) to create the Foreign, Commonwealth & Development Office (FCDO).

TABLE 8.1: Donor Contributions to ESMAP and SIDS DOCK MDTFs, FY2017–20 (\$ thousand)

Country	FY2020 Paid-in Contribution/Receipts		ESMAP FY2017–20		SIDS DOCK FY2012–20
	ESMAP	SIDS DOCK	Cumulative Pledges	Cumulative Receipts	
Austria			1,709	1,709	
Canada			2,298	2,298	
ClimateWorks	1,500		3,000	2,250	
Denmark			9,036	21,364	7,093
EU			14,750	7,298	
Finland			144	144	
France					
Germany					
- BMU	1,121		8,465	8,465	
- BMZ	2,803		3,995	5,043	
Iceland	300		2,733	2,733	
Italy			6,054	6,054	
Japan					15,000
Luxembourg			1,124	1,124	
Netherlands	24,152		79,378	51,378	
Norway					
- MFA			4,773	4,773	
- Norad	23,805		30,337	30,337	
Rockefeller Foundation	1,100		1,650	1,350	
Sweden	5,669		24,286	24,286	
Switzerland	2,000		14,050	14,050	
United Kingdom					
- BEIS*	11,460		55,946	35,595	
- DFID	6,934		44,389	41,243	
- FCO	1,807		2,491	1,807	
World Bank					
Grand Total	82,650		310,608	263,301	22,093

*U.K. Department for Business, Energy & Industrial Strategy (BEIS) provides contribution in Promissory Notes. Paid-in amount denotes encashed amount.

DISBURSEMENTS

ESMAP disbursed over \$42.7 million in FY2020, an amount similar to FY2019. Disbursement for SIDS DOCK totaled about \$3.2 million, an increase of about 50 percent from the prior fiscal year. Figures 8.1 to 8.3 present disbursements for both MDTFs for FY2017–20. Costs are separated into: (i) project disbursements by region and for global program areas; and (ii) disbursements for program management and administration, portfolio management, communications, and knowledge management.

Regional and global program activities accounted for about 93 percent of disbursements, while 7 percent was for program management, knowledge management, and communications. It should be noted that the Global Programs include technical support by the central ESMAP unit to World Bank country/regional activities.

The increase in program management costs from 4 percent in FY2017 to 7 percent in FY2018–20 was primarily due to enhanced monitoring and evaluation (M&E) activities. This included the addition of annual Progress Reports for 13 priority/program windows and 6 regional Annual Block Grant (ABG) reports, based upon Implementation Progress Reports of all active ESMAP activities and Completion Reports of those activities which closed during the respective fiscal year. ESMAP has also introduced program-specific consultations with interested donors. In addition, an activities dashboard and results dashboard, as well as an online proposal management system, were developed and launched during the business plan period.

FIGURE 8.1: ESMAP and SIDS DOCK Disbursements by Region, FY2017–20 (in US\$ thousands)

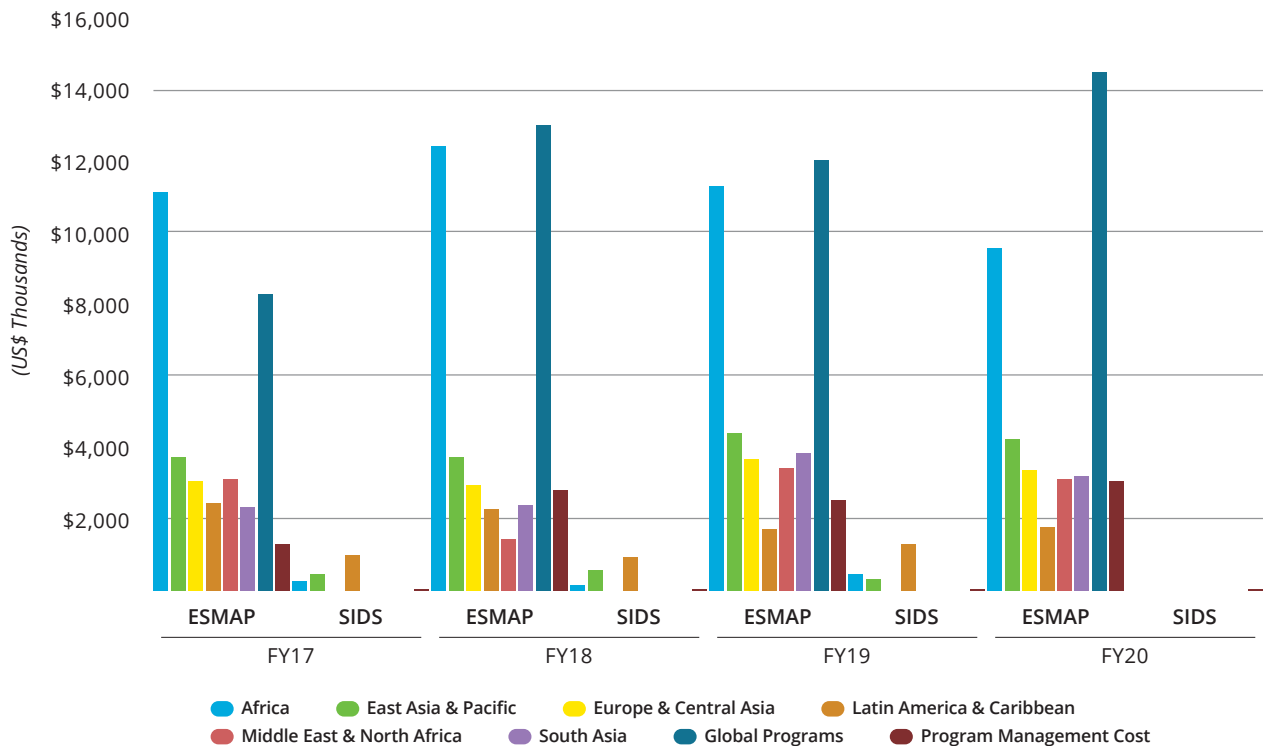


FIGURE 8.2: ESMAP and SIDS DOCK Disbursement Percentage, FY2017–20

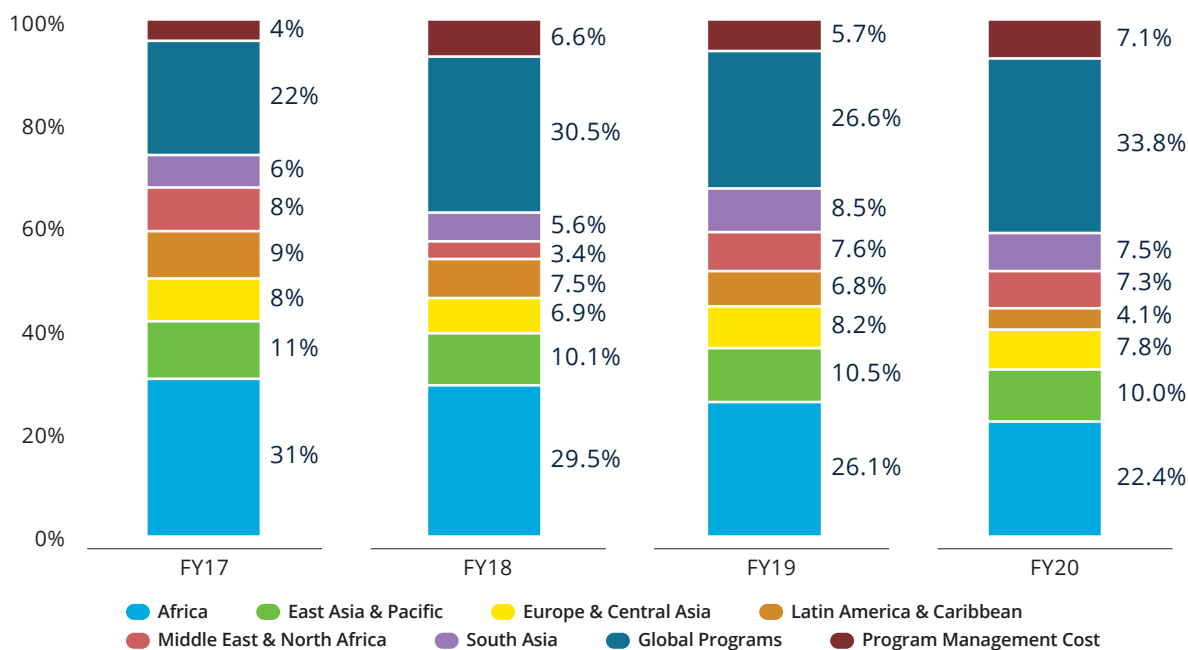
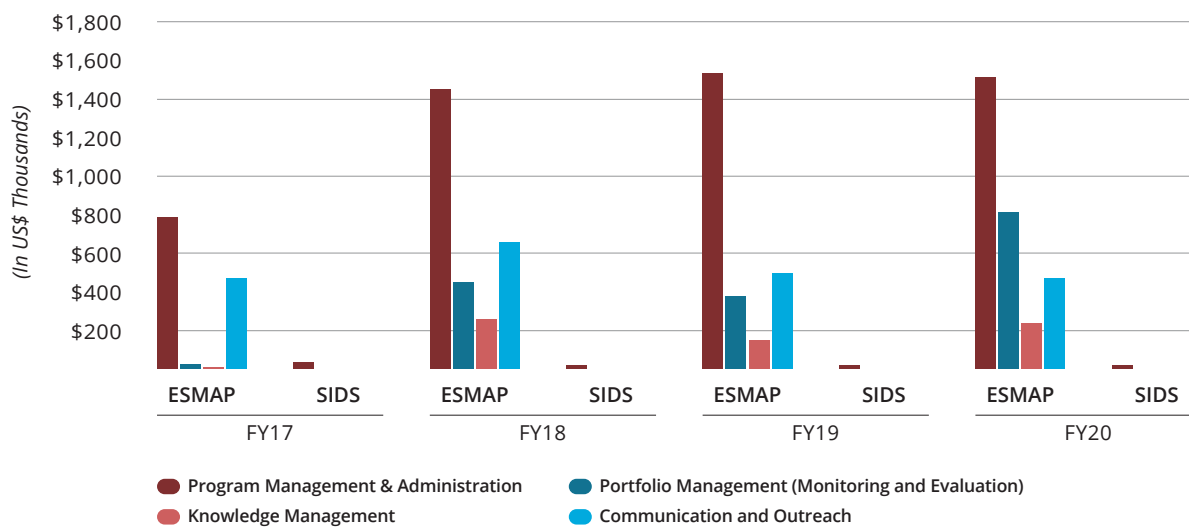


FIGURE 8.3: ESMAP Disbursements for Program Management, FY2017–20 (in US\$ thousands)



BREAKDOWN, BY REGION AND THEMATIC/CROSS-CUTTING AREAS

Figure 8.4 presents the disbursements by region and ESMAP's Thematic and Cross-Cutting Areas. The table excludes the total disbursements of \$3,032,000 for ESMAP Program Management, Monitoring and Evaluation (M&E), Knowledge Management (KM), and Communication, which represents 7 percent of

the total ESMAP disbursement in FY2020. Annual Block Grants (ABGs) represent the largest portion of ESMAP's portfolio at nearly 20 percent, followed by Renewable Energy (RE) with 17 percent of total disbursements for ESMAP in FY2020.

FIGURE 8.4: ESMAP and SIDS DOCK Disbursements by Program Area, FY2020 (in US\$ thousands)

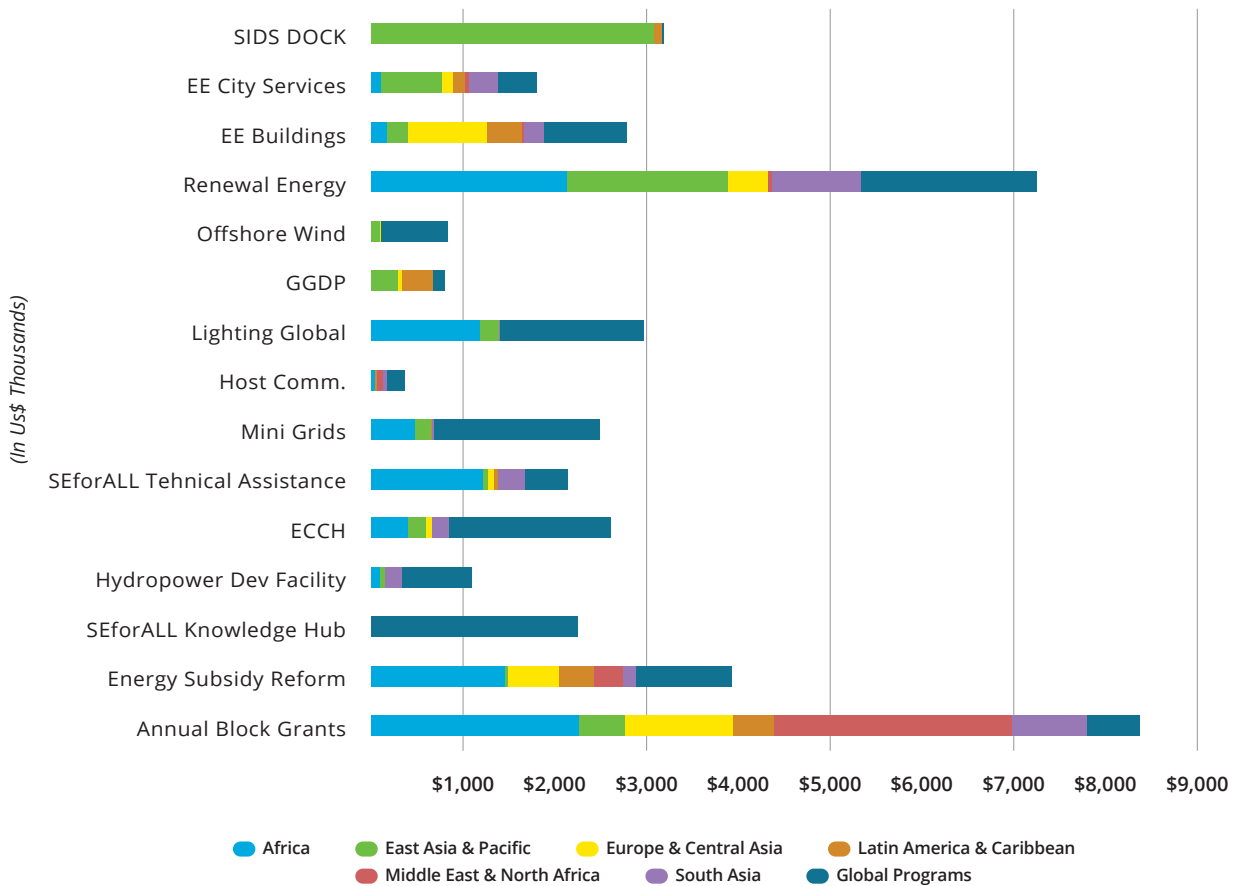


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