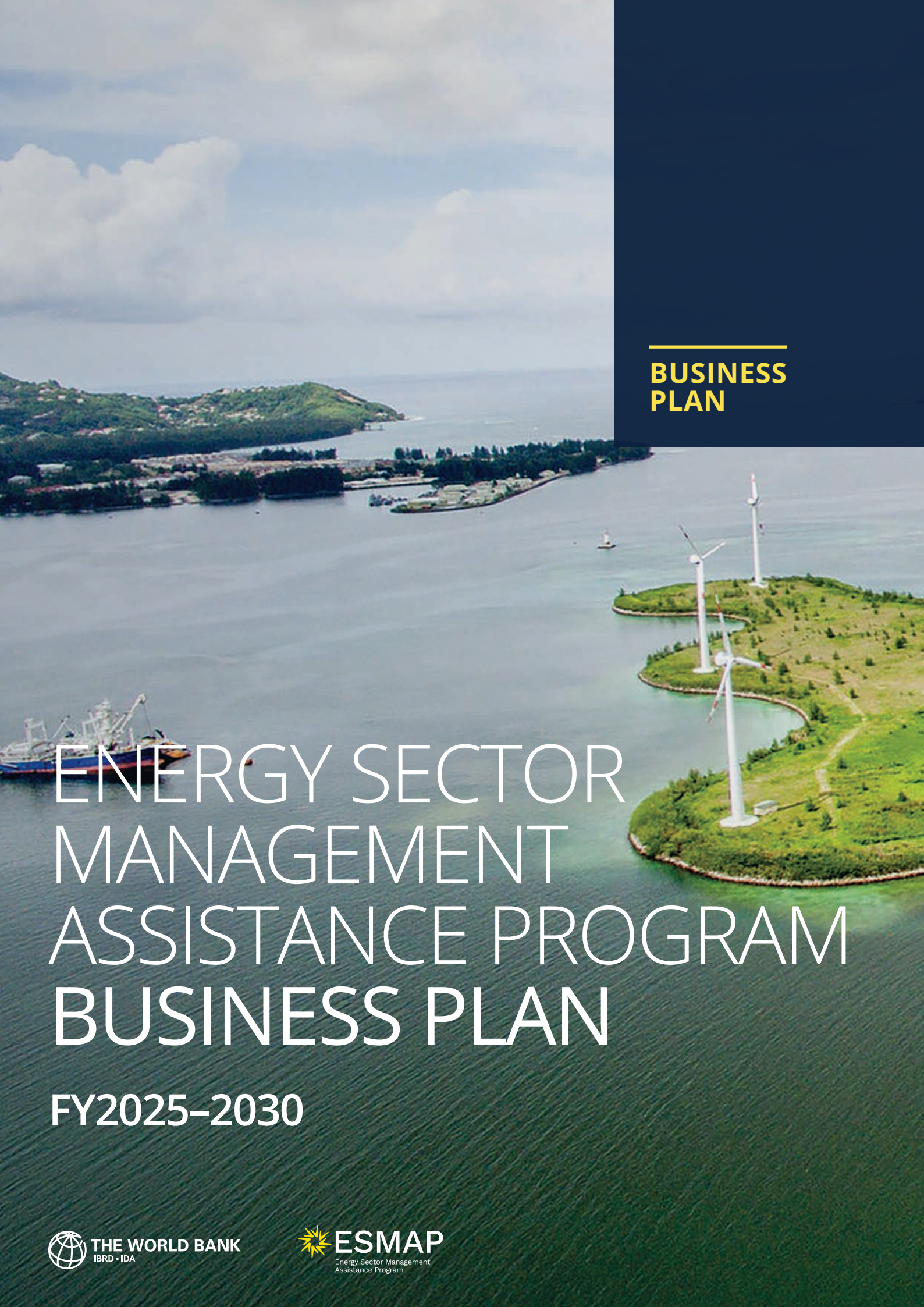

BUSINESS PLAN

ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAM BUSINESS PLAN

FY2025–2030

THE WORLD BANK
IBRD • IDA

ESMAP
Energy Sector Management Assistance Program

BUSINESS PLAN

ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAM BUSINESS PLAN

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ESMAP
Energy Sector Management Assistance Program

ABOUT ESMAP

The Energy Sector Management Assistance Program (ESMAP) is a partnership between the World Bank and over 20 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, ESMAP works to accelerate the energy transition required to achieve Sustainable Development Goal 7 (SDG7), which ensures access to affordable, reliable, sustainable, and modern energy for all. It helps shape World Bank strategies and programs to achieve the World Bank Climate Change Action Plan targets. Learn more at: https://www.esmap.org.

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Contents

List of Figures, Tables, and Boxes

Figures

Table

Boxes

Abbreviations

€	Euro (currency)
ACT	Accelerating Coal Transition
ADM	accountability and decision making
AfDB	African Development Bank
AREP	Advancing Regional Energy Projects
ASA	Advisory Services and Analytics
ASCENT	Accelerating Sustainable and Clean Energy Access Transformation
BETF	Bank-executed trust funds
BP	business plan
CAPEX	capital expenditure
CC	creative commons
CCF	Clean Cooking Fund
CEN	Country Engagement Note
CG	Consultative Group
CIF	Climate Investment Funds
COP	Conference of the Parties (to the United Nations Framework Convention on Climate Change)
DERS	distributed energy resources
DFI	development finance institution
DRE	distributed renewable energy
EAF	Electricity Access Fund
EE	energy efficiency
ESMAP	Energy Sector Management Assistance Program
ESP	Energy Storage Partnership
FCV	fragility, conflict, and violence
FID	Financial Investment Decision
FY	fiscal year
GCF	Green Climate Fund
GCP	global challenge programs
GCP-E	Global Challenge Program for Energy
GEAPP	Global Energy Alliance for People and Planet
GEF	Green Energy Fund
GERI	Global Electricity Regulatory Index
GHG	greenhouse gas
GOGLA	Global Off-Grid Lighting Association
GW	gigawatt
GWh	gigawatt hour
H4D	Hydrogen for Development

HEPA	Health and Energy Platform of Action
HFO	heavy fuel oil
HVDC	High Voltage Direct Current
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IDP	internally displaced persons
IEA	International Energy Agency
IFC	International Finance Corporation
IFI	International Finance Institution
IGO	intergovernmental organization
IMF	International Monetary Fund
IRENA	International Renewable Energy Agency
KEMS	Kyrgyz Electricity Sector Modernization and Sustainability
LDC	least-developed country
LIC	low-income country
M&E	monitoring and evaluation
MARCOT	Energy Markets, Connectivity, and Regional Trade
MDB	multilateral development bank
MDTF	Multi-Donor Trust Fund
MIC	middle-income country
MIGA	Multilateral Investment Guarantee Agency
MSME	micro-, small-, and medium-sized enterprise
MTF	Multi-Tier Framework
MW	megawatt
MWh	megawatt hours
NOx	nitrogen oxides
PM	particulate matter
PM&A	Program Management and Administration
PRG	partial risk guarantee
PV	photovoltaic (solar)
RE	renewable energy
REI	Renewable Energy Integration
RETF	recipient-executed trust fund
RF	Results Framework
RISE	Regulatory Indicators for Sustainable Energy
ROGEAP	Regional Off-Grid Electricity Access Project
SDG	Sustainable Development Goal
SEforALL	Sustainable Energy for All
SIDS	Small Island Developing States
SLCP	short-lived climate pollutant
SME	small and medium enterprise
SOx	Sulfur Oxides
SREP	Scaling Up Renewable Energy Program
SRMI	Sustainable Renewables Risk Mitigation Initiative

T&D	transmission and distribution
TAG	Technical Advisory Group
TF	trust fund
TTL	Task Team Leader
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNSD	United Nations Statistics Division
WFP	World Food Program
WHO	World Health Organization

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

ONE
THE EVOLVING GLOBAL CONTEXT

The world has not fully recovered from the global shock of the pandemic and the consequent erosion of poverty reduction, economic growth, and human development. Efforts to eradicate poverty and achieve most Sustainable Development Goals (SDGs) are off-track to reach 2030 targets.

Several global challenges are making meeting these targets more difficult—from multiple conflicts that have caused the displacement of millions of people, to widespread hunger, water scarcity, and growing climate change-related shocks (World Bank 2023a, b). These intertwined crises are shrinking life prospects, job opportunities, and quality of life, particularly for the youth, people with disabilities, and women. These multiple shocks impact the most vulnerable the hardest. The statistics are sobering: people in one out of every four developing economies are poorer than before the COVID-19 pandemic (World Bank 2024). According to the International Monetary Fund (IMF), the share of low-income countries and emerging markets in, or at high risk for, debt distress remained elevated in 2024, and 11 countries have defaulted since 2020 (IMF 2024).

The United Nations estimates that achieving the SDG 2030 targets costs between $5.4 and $6.4 trillion annually.[1] The World Bank estimates that tackling the global challenges of climate change, conflict, and pandemics will require an additional $2.4 trillion annually. Global and local development finance levels are nowhere near these requirements.

Energy is a crucial part of the solution to these global and local challenges. Yet, in 2022, 685 million people still lacked access to electricity, and the rate of progress slowed during the 2019–22 period. To meet the SDG indicator 7.1.1, which considers the proportion of population with access to electricity to measure progress toward universal energy access by 2030, this rate of growth should increase to 1 percent per year. Otherwise, some 660 million people, mostly in Sub-Saharan Africa, will remain without electricity access in 2030. Also, 2.1 billion people did not have access to clean cooking in 2022, and if current trends continue, 1.7 billion people will still be without access in 2030, 60 percent of them in Sub-Saharan Africa.

Renewable energy sources are critical to fighting climate change and expanding energy access. However, in 2020, the share of renewable energy was about 19 percent of total energy consumption, far from the 33 to 38 percent needed by 2030 to meet targets under the Paris Agreement. The 28th Conference of the Parties to the United Nations Framework

Convention on Climate Change (COP28) commitment to triple renewable energy generation and double improvement in energy efficiency is a step in the right direction. SDG target 7.3 calls for doubling the global rate of improvement in energy intensity. The current annual energy intensity improvement is 1.8 percent. The world needs to achieve 3.8 percent globally every year until 2030 and beyond to achieve the Paris Agreement goals (IEA, IRENA, UNSD, World Bank, WHO 2023).

Finally, the goal of net-zero emissions by 2050 will require the quadrupling of annual investments in the energy sector in developing countries, excluding China, to $1 trillion for the period 2026–30 (IEA 2021). The constrained fiscal space, the insufficient level of private sector financing, and the lack of access to finance for the costly up-front investments are a challenge for the energy sector transformation required.

Endnote

1. For an overview of this issue, see the UNCTAD website at https://unctad.org/sdg-costing.

TWO
EVOLVING WORLD BANK CONTEXT

The World Bank is responding to the crisis and challenges described in section 1 with a new playbook and a comprehensive Evolution Roadmap. It has updated its vision and mission statements to work toward a livable planet for future generations. It has also set several new directions and commitments to unlock more financing and greater impact, including:

- A **One World Bank** approach to better align the offering across the World Bank, International Finance Corporation (IFC), and Multilateral Investment Guarantee Agency (MIGA). The first step was the launch of a new, one-stop guarantee platform on July 1, 2024, to provide better and faster guarantee services through a convenient, integrated marketplace.
- An updated, streamlined **Corporate Scorecard**, which reduces corporate indicators from 150 to 22. These indicators, to be used across the World Bank, IFC, and MIGA, will provide more robust and clearer reporting on results, as well as better accountability for outcomes. The new scorecard clearly underlines an increased focus on the energy sector, as demonstrated in the amplified reporting on energy indicators: the number of people with access to electricity, gigawatts (GW) of renewable energy capacity, people with access to sustainable transport, private capital mobilized and enabled, and annual net greenhouse gas (GHG) emissions cut. The World Bank will now focus on reporting the actual results achieved, in addition to the targets set by approved World Bank interventions.
- A new **Knowledge Compact** to place knowledge on par with financing and to position the Bank as a twenty-first century knowledge bank through better systems, partnerships, and capacity-building efforts.
- A number of **Global Challenge Programs** (GCP) will provide consistent platforms of engagement with clients for faster solutions focused on impact at scale in areas such as energy transition, efficiency, and access; water security and climate adaptation; food nutrition and security; and others. Through the GCPs, the World Bank intends to unlock new levels of concessional financing, co-financing, and private sector financing; tap into growing climate finance and carbon credit markets; and enable a systematic focus on knowledge sharing and capacity building. In energy, for example, the World Bank has recently launched the Accelerating Sustainable and Clean Energy Access Transformation (ASCENT) program, covering 20 countries in Eastern and Southern Africa through a $5 billion International Development Association (IDA) commitment that aims to leverage

another $10 billion from public and private sources. Under its new business plan, the Energy Sector Management Assistance Program (ESMAP) will support energy access and transition with larger and longer-term commitments through technical assistance for preparatory support, institutional strengthening, and implementation support. ESMAP will be aligned to the timing and content of demand from client countries and will focus on its core functions as a knowledge hub, think-tank and catalyst, and development partner.

- The **New World Bank Gender Strategy 2024–30** includes a bigger ambition to accelerate gender equality in alignment with the World Bank Evolution Roadmap. In energy, the strategy translates into gender action through several entry points, from labor force to energy access and policies.

THREE
THE UNIQUE ROLE OF ESMAP IN THE GLOBAL ENERGY LANDSCAPE

3.1. A Brief History of the Energy Sector Management Assistance Program

The Energy Sector Management Assistance Program—better known as ESMAP—was born out of the oil and energy crisis of the 1970s and its fuel shortages and sky-high prices. The program's mandate was to provide hands-on advice to governments facing energy challenges. Over time, ESMAP's work has changed and expanded significantly, but that core mandate is still at the heart of our work today.

During the 1990s, ESMAP focused on increasing the availability of energy services for poverty alleviation and social development. In the 2000s, ESMAP extended its engagement to include the nexus between energy security, energy access, and climate change. Throughout its existence, ESMAP has been at the forefront of energy sector challenges and solutions, including issues such as gender mainstreaming, new approaches to the energy transition, and new technologies and business models for energy access.

Over the last 40 years, the knowledge, policies, practices, and technologies of the energy sector have improved significantly. However, the speed needed to deal with the climate crisis and unfulfilled Sustainable Development Goal commitments; the requirements of new sources of financing, particularly from the private sector; and the need to upgrade energy sector policies of many countries worldwide require ESMAP to raise its game in the next six years.

Going forward, demand for ESMAP's work is set to increase against the backdrop of the significant climate pledges at the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28) late last year and the World Bank's plans to triple energy lending by 2030. ESMAP will only be able to meet rising expectations with a new approach and a longer-term view. Thus, the FY2025–30 business plan reflects our new level of ambition and our stronger focus on partnerships. Substantial grant resources will be needed to support the critical capacity building and knowledge necessary to build a pipeline of ambitious projects and consistently achieve impacts on the ground.

3.2. ESMAP's Achievements, FY2021–24

While a redoubling of efforts is needed, the implementation of the FY2021–24 ESMAP Business Plan has yielded significant progress. ESMAP support has led to:

- **$33 billion** World Bank financing informed, including $19.6 bn in climate co-benefits
- **$19 billion** external financing mobilized, including from the private sector
- **16.5 gigawatt** generation capacity of renewable energy to be installed
- **711 million** metric tons of CO_2 emissions projected to be reduced
- **100 million people** on their way to gain access to electricity

3.3. New ESMAP Objective

The changing global and World Bank landscape, the urgency to achieve transformative results by 2030, and the growing body of knowledge developed by ESMAP and partners on the necessary conditions for the just transformation of the energy sector require an update of the ESMAP objectives.

Under the new proposed ESMAP objectives, we aim to:

✓ ensure universal access to affordable, reliable, and modern energy services by 2030;
✓ accelerate the transition towards a sustainable, just, and decarbonized energy system; and
✓ ensure the resilience and adaptation of the energy sector to the growing impacts of climate change and other shocks.

These objectives build on the goals and scope of the objective for the FY2021–24 Business Plan, which was to achieve universal access to affordable, reliable, sustainable, and modern energy by 2030, in alignment with SDG7, and advance decarbonization across the energy sector in support of international commitments established on climate change.

3.4. ESMAP's Updated Theory of Change and Proposed Areas of Focus

ESMAP updated its Theory of Change to better achieve our new objectives (Figure 3.1). This Theory of Change shows how foundational intermediate outcomes—such as supportive government policies and strategies, public and private investments, data-driven decision-making, and informing the World Bank and other partner institutions in their energy sector interventions—enable higher-level results across programs.

The Theory of Change is accompanied by a comprehensive Results Framework that defines indicators and targets to measure the progress toward achieving the development objectives (Appendix C). Figure 3.2 describes ESMAP's areas of focus. These areas of focus are described in detail in section 4 of this document.

3.5. The Comparative Advantage of ESMAP

For 40 years, ESMAP has worked with developing countries to solve their energy challenges. Backed by over 20 partners, including governments and foundations, ESMAP's staff of over 50 experts works at the forefront of the energy transformation, developing cutting-edge knowledge and delivering grants and hands-on technical and advisory support that ensure the feasibility and sound preparation of projects. ESMAP has demonstrated its unique comparative advantage in five areas.

Knowledge and Expertise: ESMAP is a think tank, connector, data gatherer, analyst, and innovator. It is one of the most authoritative global sources for solutions to achieve universal access to energy and decarbonization of energy systems. ESMAP collects data and produces analytics to inform pioneering advances based on on-the-ground experience. Its data repository includes a wide range of global information, such as wind and solar maps, geospatial data on electricity access and energy infrastructure, energy consumption patterns, policy and regulation, and institutional governance, among others.

Finance Mobilization: ESMAP's expertise in raising funds turns ideas into projects. ESMAP's status as part of the World Bank enables it to leverage concessional financing that incentivizes private investment in challenging sectors and regions. ESMAP offers unique insights on sources for grants and concessional financing from climate funds. It supports the structuring of project pipelines and often arranges blended and layered financing, along with the mobilization of recipient-executed trust funds and philanthropic and private capital.

Catalyst: ESMAP mobilizes its experience and networks to spark change. It connects peers—public and private—across countries to test new approaches and refine them through tailor-made pilot projects, replicating and scaling up those that work.

FIGURE 3.1

New ESMAP Theory of Change

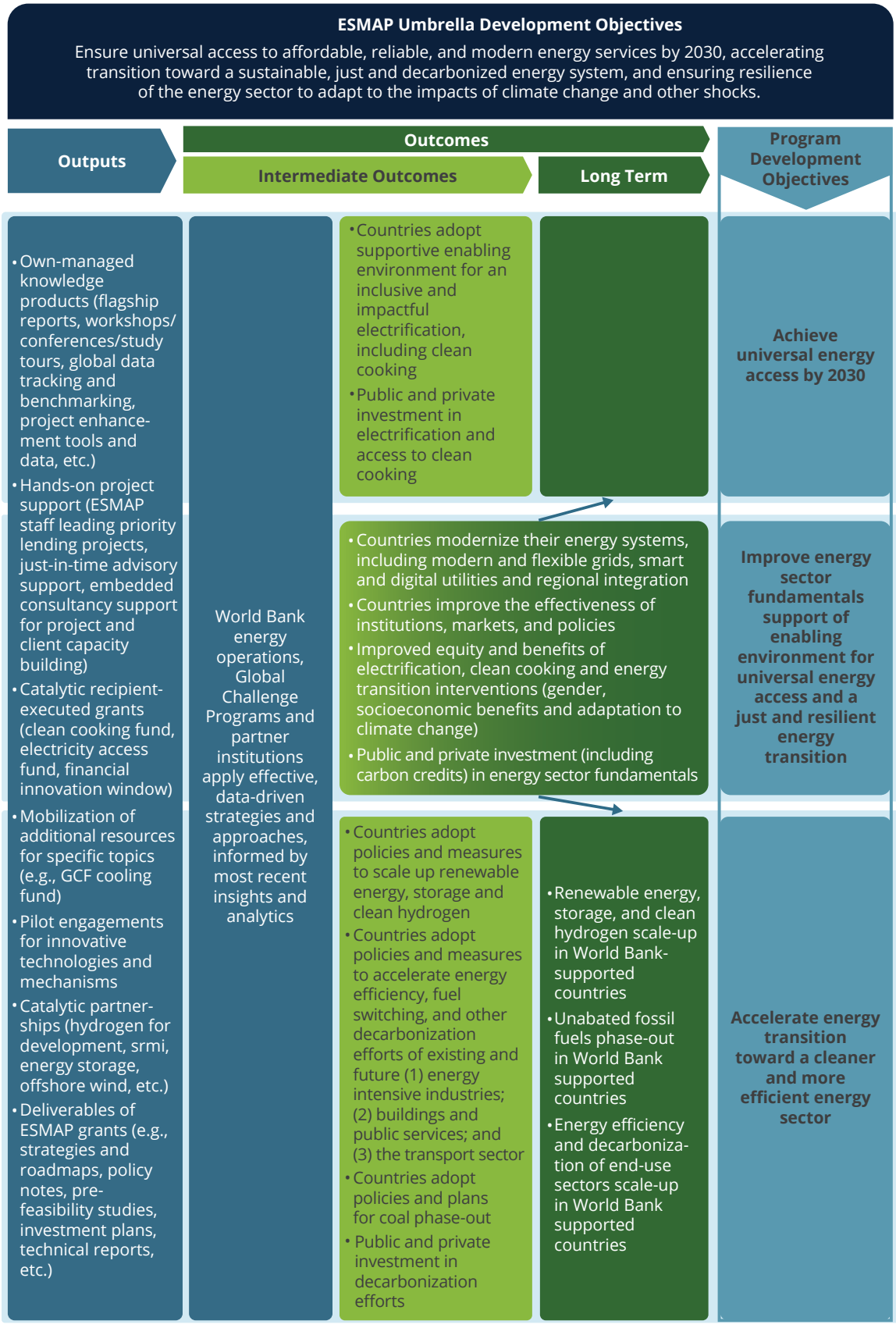
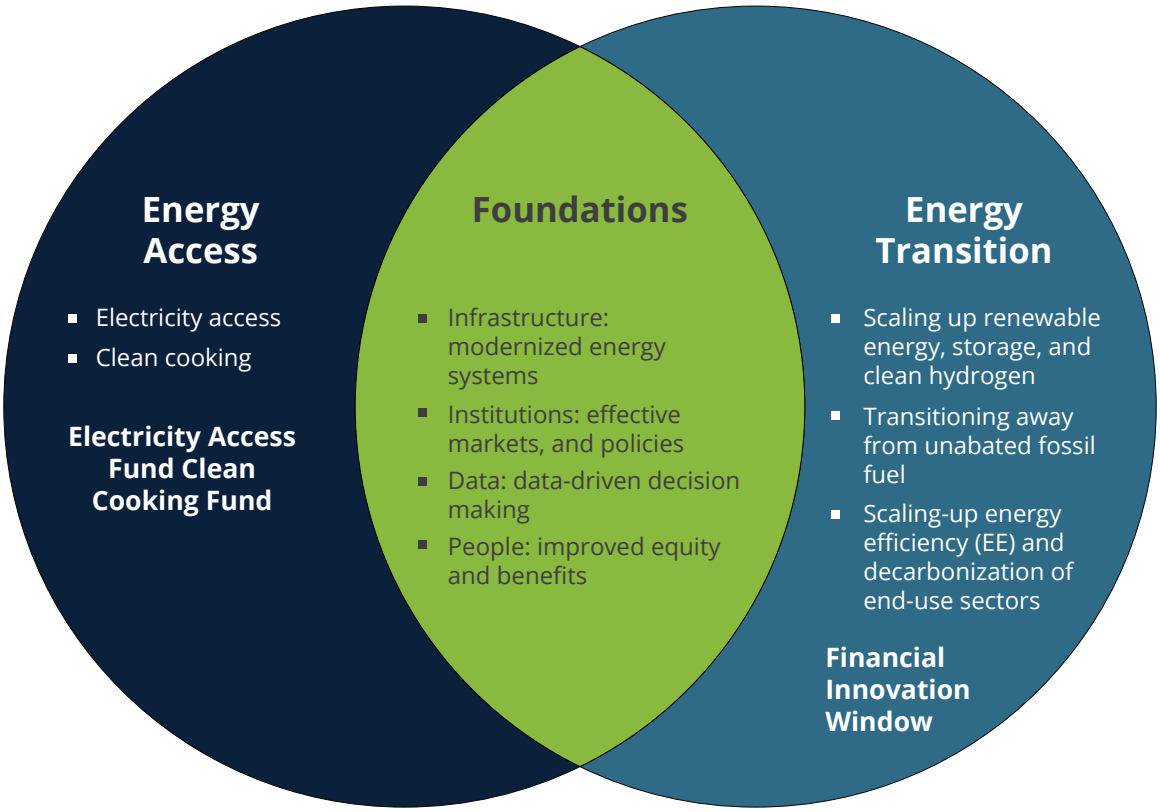


FIGURE 3.2

New ESMAP Areas of Focus



Global Reach, Advocacy, and Partnerships: Through its direct integration with World Bank operations, ESMAP influences energy investments globally. Its convening power with developing country governments, multilateral banks, private capital markets, bilateral donors, foundations, carbon-market finance institutions, national laboratories, experts in energy technology companies, consulting firms, and academia gives it the ability to forge lasting and impactful partnerships.

Policy Laboratory: ESMAP analyzes energy markets, utility performance, policy and regulatory incentives, tariffs, standards, operational protocols, and rules around the world, identifying effective practices to offer countries innovative solutions that often lead to breakthroughs.

3.6. ESMAP's Operating Principles

To help achieve ESMAP's new proposed objectives and theory of change, the operating model will build on the successful factors that have allowed ESMAP to deliver its goals and objectives, as well as adapt to the new internal and external challenges and trends. Specifically:

- ESMAP will continue to be fully integrated into the World Bank's energy practice. This integration will allow ESMAP's technical expertise to inform the World Bank's policy dialogue and lending.

- ESMAP will achieve its objectives through a combination of own-managed global knowledge work, technical support to World Bank operations, and provision of regional and country-based grants to World Bank, International Finance Corporation (IFC), and Multilateral Investment Guarantee Agency (MIGA) operational units.
- ESMAP's programs will support the achievement of the World Bank's corporate priorities, such as climate change action; gender equality, diversity, and inclusion; support for fragile and conflict-affected states; maximizing finance for development; and ensuring energy programs reflect synergies across SDGs.
- ESMAP will support World Bank-implemented Advisory Services and Analytics (ASA) activities, as well as recipient-executed technical assistance and investment activities implemented by developing countries.
- ESMAP will continue to influence the global energy agenda. It will harness the World Bank's convening power to promote international cooperation and foster cutting-edge knowledge exchange, drawn from World Bank operations and development data. It will collaborate with other multilateral and bilateral organizations, initiatives, and programs, as well as partner with non-governmental organizations, think tanks, research institutions, and industry groups.
- ESMAP will support developing countries in mobilizing financial resources from the Green Climate Fund (GCF), Climate Investment Funds (CIF), and direct grants provided to ESMAP to co-finance International Bank for Reconstruction and Development (IBRD) and International Development Association (IDA) lending in the areas described in this Business Plan.
- ESMAP will continue to agree on multiyear country programs with World Bank regional energy units, taking a comprehensive view to achieve balanced progress in all applicable areas of the Business Plan. Funding will also continue to be provided through a mix of Annual Block Grants for flexible, just-in-time assistance to clients, and global programs.
- ESMAP will continue to benefit from economies of scale in managing its growing portfolio. From FY2013 to 2023, ESMAP annual disbursements have increased from about $17 million to over $77 million, a 353 percent increase, while Program Management and Administration (PM&A) costs have modestly increased, with FY2013 PM&A costs totaling about $2.3 million, compared to the FY2023 total of $3.3 million. Such efficiency gains are realized by using a single governance structure and secretariat. ESMAP's secretariat will continue to provide unified operational guidelines and manage the monitoring and evaluation (M&E) function, ensuring that reporting requirements for ESMAP's donor partners and other stakeholders are met.
- ESMAP will approach strategic, stakeholder, operational, and financial risks using its Risk Framework (see Appendix B). ESMAP has adopted the framework to manage these risks effectively and consistently—in particular, with regard to the implementation of the FY2025–30 Business Plan.

FOUR
ESMAP FOCUS AREAS

This section presents the three proposed focus areas of this Business Plan: energy access, as realized through electricity and clean cooking; energy transition; and foundations for decarbonized energy systems.

4.1. Energy Access: Electricity and Clean Cooking

4.1.1. The Challenge

Universal access to electricity and clean cooking solutions is a global policy priority. Over the last decade, major progress has been made toward this goal; the number of people with access to electricity increased from 84 percent in 2010 to 91 percent in 2022, thereby reducing the access deficit from 1.1 billion people to 685 million. The number of people with access to clean cooking increased from 64 percent to 74 percent between 2010 and 2022, with about 2.1 billion people worldwide without access to clean cooking.

However, the pace of progress has declined since 2020, with the global rate of access to electricity remaining at 91 percent, and the number of people without electricity access increasing by 10 million, due to population growth outpacing the delivery of additional access. The vast majority of electricity access deficits is in Sub-Saharan Africa, and at the current pace, it will take 175 years to electrify the region.

At the current pace of access expansion, an estimated 660 million people will be without access to electricity, and 1.7 billion people will be without access to clean cooking solutions by 2030, with disproportionate impacts on women and girls, particularly in Africa.

In response to this concerning trend, the Energy Sector Management Assistance Program (ESMAP) will support the World Bank's renewed commitments to energy access, as the institution is planning to increase its energy lending from the current $7.5 billion to $30 billion

by 2030, with an aim to provide about 300 million people with access to electricity, of which 250 million will be in Sub-Saharan Africa, and 160 million people with clean cooking solutions. Moreover, energy access will be considered beyond household level, including public institutions and productive uses of energy.

To achieve these objectives, particularly in least-developed countries (LDCs), where 50 to 60 percent of these program's beneficiaries live, several implementation challenges must be overcome. Hands-on support by the World Bank and the expertise of ESMAP will be required. Furthermore, 35 to 40 percent of the expected access program beneficiaries will be in countries affected by fragility, conflict, and violence.

In addition, governments are more comfortable to use debt finance for traditional infrastructure investments, such as power plants, transmission lines, and substations. Projects to provide access to energy to hard-to-reach populations, such as clean cooking services and distributed renewable energy (DRE) solutions, are more complex in nature. These programs require partnering with multiple stakeholders, including engaging the private sector to extend service to populations affected by affordability challenges, fragility, conflict, and violence. These programs also require governments to adopt innovative interventions, such as results-based finance, targeted end-user subsidies, working capital finance, and risk mitigation instruments, among others. Subsequently, grant finance is often sought after, in order to design incentives to nudge operations toward a client-centered approach that is focused on the impact on the most vulnerable groups.

The different levels of ESMAP support that would be needed to achieve the energy access target results is illustrated in Figure 4.1. The "normal" level of ESMAP support is based on the historical level of fundraising, which allows ESMAP to provide only technical assistance and capacity-building support to the design of World Bank operations and implementation supervision. The "scaled" level of ESMAP support considers a higher level of fundraising needed to design and fund specific interventions to achieve a higher access rate in remote areas where people are affected with affordability challenges, fragility, conflict, and violence.

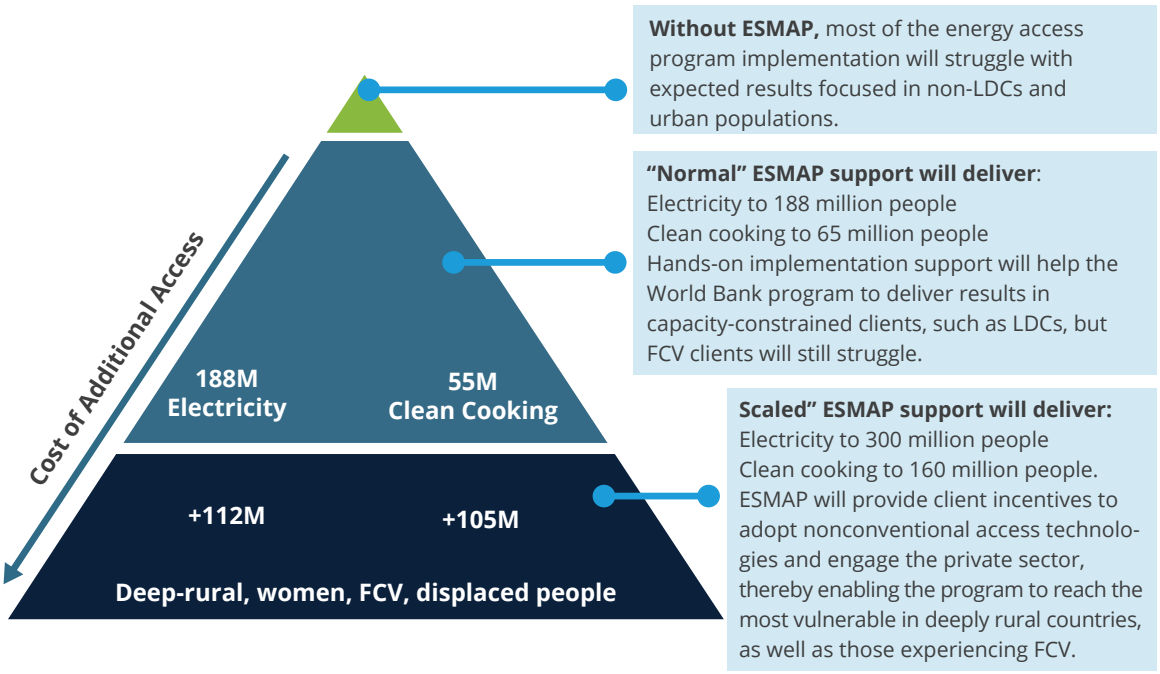
4.1.2. ESMAP Approach

To help World Bank clients achieve results on the ground, the ESMAP Energy Access Focus Area will employ three approaches in this Business Plan: (1) catalytic incentives to facilitate private sector investments and connections; (2) hands-on implementation support; and (3) tailored solutions for all beneficiary groups (see Figure 4.2).

Catalytic incentives for the least-cost combination of sustainable energy solutions. While the range of energy access technologies—including grid, mini-grid, off-grid, and clean cooking—have been incorporated into the World Bank's lending program, the biggest portion of investments still typically flows into conventional grid extension, leading to a focus on access expansion in urban and peri-urban areas. Rural populations in remote locations are left behind. They are the poorest among energy consumers, with the most need for support in accessing

FIGURE 4.1

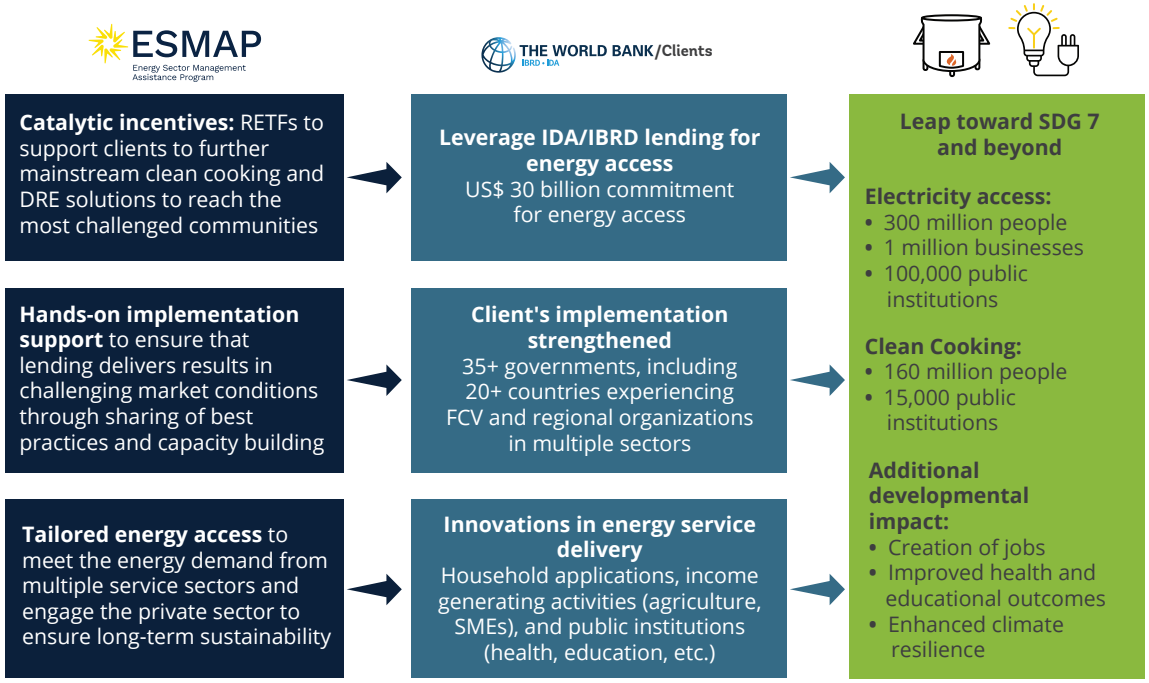
Delivery of Energy Access Results Critically Hinges on the Level of Support Provided to Clients



Note: Calculations are based on the percentage of expected electricity access delivery in Least-Developed Countries (LDCs) and those affected by fragility, conflict, and violence (FCV) through the Bank's energy access lending portfolio, as of December 31, 2023.

FIGURE 4.2

Key ESMAP Approaches to Achieve Energy Access Results



affordable energy. In FCV contexts, energy access programs are further constrained in lending when there is no recognized program, or implementation, due to weak capacity. Without additional grant support, these populations will be left behind, and SDG7 will not be achieved.

To catalyze significant scale-up, ESMAP is proposing to establish two funds—the Clean Cooking Fund 2.0 and the Electricity Access Fund—to incentivize clean cooking solutions and decentralized renewable energy in access deficit countries, especially those affected by FCV. The Funds will be used to provide targeted subsidies for the most challenged communities and beneficiaries, such as those in deep-rural areas, women, displaced people, and host communities. More details of the Clean Cooking Fund 2.0 and Electricity Access Fund are provided in Box 4.1. The financial needs for both Funds are discussed in section 6 of this Business Plan.

This workstream will also include a strategic communication and awareness-raising program to drive a mindset shift to think of energy access as a combination of a wide array of grid, DRE, and clean cooking solutions. This program will also drive the message of energy access as a sustainable continuation of energy service, as opposed to a single-solution physical installation.

Gender, diversity, and inclusion will be fundamental priorities in the catalytic incentives for energy access. ESMAP will support a gender-transformative approach to promoting shifts in social norms and institutional practices.

Hands-on implementation support. In this business plan, ESMAP will intensify its support to operational teams for the implementation of existing energy access programs. This support will benefit, in particular, the expansion of the ongoing Electrifying Africa program and the programs supported by the Clean Cooking Fund (CCF) 1.0 in capacity-constrained countries and FCV settings.

Tailoring energy access solutions for beneficiaries beyond the energy sector. Energy access solutions must serve diverse users, from basic lighting, phone charging, and cooking needs at the household level, to electricity and cooking energy for health facilities and schools, to larger commercial use in irrigation, milling, and cold chains. These tailored energy access solutions are essential to achieving all SDGs, beyond SDG7; therefore, ESMAP will further scale its work across different sector teams of the World Bank.

4.1.3. The Workstreams

ESMAP will implement this Focus Area through three workstreams (see Figure 4.3).

Workstream 1: Energy Access for Households. This workstream will promote clean and sustainable, least-cost technology solutions (across tiers 1–5) to achieve universal access to electricity and clean, modern cooking services aligned with the multi-tier framework (MTF) Tier 4 and up. A least-cost and technology neutral approach will consider (1) the long term socioeconomic and environmental sustainability of clean cooking services and (2) the difference of co-benefits on health, gender, air pollution, and climate impact.

BOX 4.1

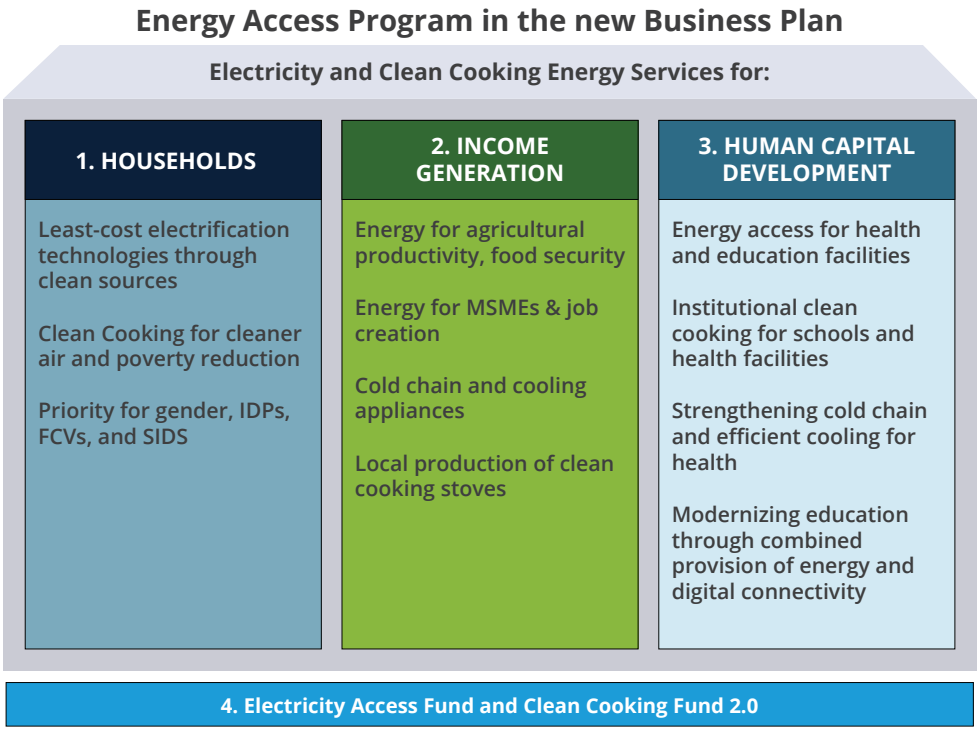
THE CLEAN COOKING FUND 2.0 AND THE ELECTRICITY ACCESS FUND

Based on successful implementation of the first phase of the Clean Cooking Fund (CCF), the Energy Sector Management Assistance Program (ESMAP) is launching the second phase, CCF 2.0, to scale up and expand clean cooking activities. In its first phase, the CCF supported 27 countries and 7 regions through grants and technical assistance, and developed a strong project pipeline, which has grown in scale and diversity. CCF 2.0 will replicate and expand technical support for the timely design and implementation of projects, develop new replicable instruments for hard-to-reach populations with no or low income, and coordinate resources to bridge the gap between the clean-cooking knowledge ecosystem and demand in the field. The CCF 2.0 will support Multi-Tier Framework (MTF) Tier 3 and up solutions that are sustainable in the long term, considering the balance between the least-cost approach and the highest socioeconomic and environmental impact. Clean sources of energy, such as biogas and electrical appliances where feasible, will be prioritized; however, the solutions will be designed to fit the country context. In addition to clean cooking for households, CCF 2.0 will strengthen support for productive uses and institutional cooking services—for example, those used in schools and hospitals. It will support income-generating opportunities associated with small restaurants and beverage businesses, as well as women's empowerment across the clean cooking value chain. The fund will keep promoting results-based finance mechanisms to attract private sector investment, scale leverage from carbon finance, and explore other impact finance instruments. The CCF 2.0 will also encourage operations to reach hard-to-reach groups in remote areas, as well as internally displaced people and refugees that often require a higher level of subsidies and interventions.

The ESMAP Electricity Access Fund (EAF) is designed to co-finance and incentivize electricity access interventions with a focus on integrating distributed renewable energy (DRE) into a least-cost electrification program. It will also establish dedicated facilities and targeted subsidies to incentivize the private sector to serve challenging markets that cannot be reached on commercial terms or through conventional approaches. The support includes targeted demand-side subsidies that will be issued directly to people in remote, conflict-affected areas, as well as women, refugees, and internally displaced people. These subsidies will close the affordability gap to gain access to electricity. Supply-side subsidies may also be needed to reduce the cost for private sector players to enter this segment.

FIGURE 4.3

Tailoring Energy Access Solutions



ESMAP will continue to support scaling up successful innovations by developing countries, the World Bank, bilateral agencies, and foundations. For example, results-based financing for energy access is scaled up through ESMAP-informed operations that have earmarked and/or disbursed more than $1.5 billion to date. Another example is demand-side subsidies, in which the Dutch Foreign Ministry is investing €20 million in four pilots. Lessons from these pilots will be scaled up through ESMAP-informed World Bank lending operations.

In this workstream, ESMAP will pay special attention to energy access for women, vulnerable and underserved groups, such as remote rural communities, refugees, internally displaced persons (IDPs), and people in FCV or Small Island Developing States (SIDS) countries, persons with disabilities, and indigenous communities.

Workstream 2: Energy Access for Income Generation. Lack of access to energy constrains income-generating activities critical for poverty reduction and job creation. Such activities include agriculture, including crop production, livestock, and horticulture; cold chain food storage; the hospitality industry; and various business activities led by micro, small, and medium-scale enterprises (MSMEs). For example, 40 to 50 percent of food is estimated to be wasted in developing countries due to inadequate cold storage, leading to food insecurity.

ESMAP will work closely with World Bank country teams in various sectors to integrate energy access for income generation, particularly in agriculture, water, digital, and private sector development. Gender, diversity, and inclusion will be at the core of this work.

ESMAP will also continue to scale up its facilitation of business-to-business matchmaking and inter-ministerial dialogue to develop local value chains for off-grid solar and clean cooking solutions, as well as associated appliances, to the extent possible.

Workstream 3: Energy Access for Human Capital Development. 50 to 60 percent of health facilities and close to 70 percent of primary schools in Sub-Saharan Africa do not have access to reliable electricity. Schools are the second largest consumers of biomass in the region. The financing gap and sustainable services require the engagement of the private sector; in many countries, past electrification efforts for social service facilities have not had adequate maintenance and therefore collapsed.

ESMAP will work with World Bank health and education country teams to scale energy access investments for public institutions. New solutions will be used. For example, sustainable electrification models, such as a private sector-led Fee for Service Model and associated risk mitigation instruments, are under preparation with the Multilateral Investment Guarantee Agency (MIGA) and International Finance Corporation (IFC). Cooling and cold chain technologies will be used to enhance the climate resilience of public buildings. Joint approaches to jointly provide electricity and digital connectivity access will be explored. Clean cooking will be expanded in school meal programs. The development of technical standards and new delivery models will be part of the solutions. ESMAP and the World Bank will cooperate in this area with external partners such as the World Health Organization (WHO), United Nations Children's Fund (UNICEF), World Food Program (WFP), and Health and Energy Platform of Action (HEPA).

4.2. Energy Transition

4.2.1. The Challenge

Today, unabated fossil fuels account for nearly three quarters of the global energy mix. Coal power generation represents slightly above 30 percent of the global electricity supply. Many low-income countries are reliant on heavy fuel oil and diesel for power generation, facing high costs in carbon-intensive operations. In 2021, more than two-thirds of global greenhouse gas (GHG) emissions from energy and industrial processes were emitted by developing countries.

Global clean energy investments hit an all-time high in 2023, driven largely by growth in solar photovoltaics (PV) and electric vehicles. However, more than 90 percent of the increase in such investment since 2021 has taken place in developed economies and China (IEA 2023a). In low-income countries (LICs) and middle-income countries (MICs), annual investments in clean energy[1] need to increase threefold from $770 billion in 2022 to $2.2 to 2.8 trillion per year in 2030 to achieve global climate goals. If China is excluded, the need is a sevenfold rise in annual investment from $260 billion to between $1.4 to 1.9 trillion (IEA & IFC 2023).

Although many developing countries have demonstrated strong commitments to climate action, numerous obstacles persist in scaling up energy efficiency and clean energy. Common challenges include the absence of coherent and consistent policy frameworks and market structures, a shortage of skilled workforce, financially strained and underperforming utilities, lack of regional electricity markets, high-cost capital, and underdeveloped financial markets.

Some estimates indicate that by 2030, about 60 percent of the capital needed for clean energy will need to come from the private sector. This change will require bankable projects and enhanced regulatory, technical, and market transformations to mitigate risks.

Decarbonizing end-use sectors is even more challenging, as it requires a multifaceted, multisectoral approach. While many governments have formulated overarching strategies for end-use decarbonization, translating these high-level plans into tangible programs and projects is lagging.

Transitioning away from coal and unabated fossil fuels will represent a financial challenge in developing economies, as coal plants and coal-based industrial facilities in many of these countries are much younger than their counterparts in developed economies. This transition also represents a social challenge, as significant employment is tied to the coal industry (IEA 2022). Policy commitments, incentives, and business models to phase down or phase out coal are nascent today in many fossil-fuel-dependent countries and must address decades-long vested economic interests.

4.2.2. ESMAP Approach

Under the new Business Plan, ESMAP's Energy Transition thematic area team will support countries to develop, finance, and implement an affordable and just energy transition by optimally allocating public resources to maximize social impacts, as well as leveraging private investments. Focusing on decarbonization and clean growth of the power and end-use sectors, ESMAP's Energy Transition thematic area's central approach is systemic in nature, enabling innovations from the perspective of technology, policy frameworks, business models, and infrastructure, as well as project de-risking and leveraging partnerships when relevant.

The World Bank has raised its ambitions to respond to the urgency and scale of the energy transition and will place a greater emphasis on programmatic support at the regional level to scale up lending and impact.

4.2.3. The Workstreams

The Energy Transition focus area will be implemented through three complementary workstreams: (1) scaling up renewable energy, storage, and clean hydrogen; (2) scaling up energy efficiency and decarbonization of end-use sectors; and (3) transitioning away from unabated fossil fuel. These workstreams will be supported by the Financial Innovation Window (see Boxes 4.2 and 4.3, as well as Section 6), which is designed to provide last-resort

BOX 4.2

ESMAP SUPPORT FOR RENEWABLE ENERGY TECHNOLOGIES

- For **mature variable renewable technologies,** such as onshore wind and solar photovoltaic, the Energy Sector Management Assistance Program (ESMAP) will help governments build pipelines of bankable projects to sustainably mobilize private capital, through technical assistance focused on improving the enabling environment.
- For **mature renewable technologies,** such as hydropower and geothermal, which require more public financing due to their scale and risk profile, ESMAP will help build a sustainable pipeline of projects, focusing on their role in power system flexibility and reliability and energy storage potential.
- **Energy storage** has a critical role in the transition to renewables. ESMAP will assist countries to develop long-term policies, strategies, and roadmaps for energy storage with an emphasis on unlocking private capital.
- For **innovative technologies**, such as long-term energy storage systems, floating photovoltaic, clean hydrogen, and offshore wind, ESMAP will support piloting technologies, technical regulations, business models, and de-risking. For clean hydrogen, the ambition is to unlock 10 gigawatts (GW) of electrolyzers by 2030 through the Global 10 GW Lighthouse Initiative.

project de-risking and incentives for innovation and resilient investment. All workstreams will support economic and leadership opportunities for women and excluded groups.

Workstream 1: Scaling up Renewable Energy, Storage, and Clean Hydrogen. This workstream will be critical to meet the growing power and clean hydrogen demand of LICs and MICs while displacing unabated fossil fuel power generation. ESMAP's deep technical expertise, thought leadership, strong partnerships, and climate finance fundraising capacity will be critical factors for success. Under the past business plan, ESMAP has successfully mainstreamed mature renewable energy and energy storage deployment while leading the upstream work for offshore wind and clean hydrogen projects. The goal is to leverage this dynamic to accelerate the transition.

ESMAP will support this workstream through upstream roadmap development, strategies to attract private investments, identification of critical infrastructure needs for energy transition, and innovative support to de-risk projects.

BOX 4.3

THE FINANCIAL INNOVATION WINDOW

The Financial Innovation Window was born out of the Energy Sector Management Assistance Program (ESMAP) team's extensive experience in addressing impediments to secure private financing for clean energy projects and the slow adoption of innovation and resilience-enhancing investments. With many clean energy projects stalling before financial closure, the objective of this initiative is to mobilize private investment by addressing residual risks that are not covered by existing instruments and to hasten the adoption of innovative technologies and resilience investments in developing countries.

Under the 2020–24 ESMAP Business Plan, ESMAP teams worked on a case-by-case basis to secure financing and risk mitigation instruments, supporting World Bank clients to access existing instruments, such as partial risk guarantees (PRGs), climate guarantees, and other development finance institution (DFI) guarantees; and developing new instruments by leveraging donor and climate financing. The experience was successful but demonstrated that transaction costs are high, and agility is limited because of dependence on multilateral climate funds. With the large number of new tenders in the pipeline, combined with the need for flexibility to adapt to changes and the climate urgency, increased efficiency is needed to deliver accelerated results. To address this, a flexible programmatic approach is imperative.

The Financial Innovation Window proposes a programmatic approach geared toward delivering results effectively through (1) **risk mitigation instruments for clean energy investments** to address the residual risks perceived by private investors, such as liquidity guarantee for payment risk, tariff buy-down, first loss or Foreign Exchange instruments; and (2) capital expenditure (**CAPEX) buy-down** aimed at mitigating innovation risks and financing resilience-enhancing investments, especially in Small Island Developing States (SIDS).

Regardless of technology, ESMAP will support projects by addressing the country-specific risk, whether it is linked to the grid reliability, the creditworthiness of the off-taker, or foreign exchange risks. The Sustainable Renewables Risk Mitigation Initiative (SRMI) partnership will be leveraged to ensure that this approach is shared with development partners and renewable energy-focused institutions. The Energy Storage Partnership (ESP) and Hydrogen for Development (H4D) will play a crucial role in reducing the technological risks associated with emerging technologies. They will also bring together regulators, suppliers, buyers, and the industry to accelerate market creation and identify viable business models.

Workstream 2: Scaling Up Energy Efficiency (EE) and Decarbonization of End-Use Sectors. Energy efficiency is widely recognized as the "first fuel" in clean energy transitions. It is the most cost-effective mitigation for climate change with multidimensional benefits. An EE-first approach reduces energy supply and increases the affordability of decarbonization efforts.

The importance of public finance in EE and decarbonization cannot be overstated, as it plays a crucial role in opening markets through government example and an enabling environment. However, the mobilization of private sector resources is essential for scaling up EE and decarbonization efforts. Unlike renewable energy deployment, this area does not attract as much interest from private investors, due to the lack of economic incentives, limited institutional and human capacities, scarce financial resources, and market and technology gaps. As these barriers are removed, the need for concessional financing decreases, paving the way for the successful mobilization of private capital. ESMAP is uniquely positioned to support the deployment of innovative business models, drawing from global knowledge and lessons learned from past operations, and fostering strong partnerships.

This workstream of the business plan is structured in four pillars:

1. **Urban areas**, including EE in urban planning and utility services (water supply, sanitation, street lighting, waste removal, district cooling and heating)
2. **EE and decarbonization in buildings**, with a focus on domestic appliances, as well as the construction and renovation of buildings— including commercial, public, and housing.
3. **EE and decarbonization in industry,** with a focus on the demand-side EE measures, electrification, fuel switching, and carbon capture and storage in all sectors—such as agriculture, manufacturing, etc.
4. **EE and decarbonization in transport**, with a specific focus on infrastructure; vehicles, in terms of fuel switching; and an energy perspective in transport planning

In these activities, ESMAP will work with World Bank country teams on Urban, Extractives, Digital, Health, and Agriculture practices. Leveraging the newly established World Bank Group guarantee platform will enhance cooperation with IFC and MIGA.

The ESMAP support in this workstream will include: enhancement of EE data and statistics; formulation of sectoral EE strategies, enhanced institutional, legal and regulatory frameworks; capacity building and labor skill development for emerging clean energy jobs, such as energy auditors, technicians, and workers—including women; development of new business models and financing mechanisms; market assessments; and demonstration projects.

Workstream 3: Transitioning Away from Unabated Fossil Fuel. In addition to scaling up renewable energy (RE) and EE, an orderly and just transition away from unabated fossil fuel value chains is needed, especially in countries heavily dependent on coal power and coal production and in countries reliant on diesel or heavy fuel oil (HFO) generation.

ESMAP will assist governments in their energy transition without compromising power system security or social considerations. This will include supporting coal-dependent economies through the orderly retirement and repurposing of coal mines, plants, and other assets. The program will also protect workers, communities, and local economies. ESMAP will support the development of Just Transition Plans; national strategies; investment plans for retirement; and repurposing of coal, gas, and oil assets, including through pilot incentive mechanisms to accelerate the renegotiation of existing commercial agreements. Climate financing will be mobilized, building on the experience with Climate Investment Fund (CIF) support to South Africa, Indonesia, and other countries.

4.3. Foundations for Decarbonized Energy Systems

4.3.1. The Challenge

While each country has its set of barriers and risks to be tackled, the limited availability of bankable projects and implementation capacity of sector institutions is a key constraint to realizing these ambitions. The ability to scale up in a timely manner will depend not only on scale-up in public and private sector investments, but also on easing constraints posed by weak sector fundamentals, such as inadequate policy and regulatory environment, lack of markets and efficient price signals, weak power grids, poorly performing utilities, and an insufficiently trained workforce. Addressing these foundational aspects of the energy helps to enable the efficient allocation of resources, reduce transaction costs, and improve the sustainability of benefits and distributional equity.

A strong sector foundation also enables countries to harness emerging opportunities through innovation in technologies, tariff and market design, and service delivery models. Substantial shifts in the energy sector are underway, spurred by the rising availability, reliability, and affordability of distributed renewable energy and storage products; the electrification of various end-uses, such as electric mobility; and the widespread adoption of digital technologies and data-driven approaches. The changing landscape is creating new opportunities to address the gender imbalance in the power sector workforce, improve customer engagement, and maximize socioeconomic benefits from the energy transition.

4.3.2. ESMAP Approach

The high-level objective of this focus area is to deliver stronger and more sustainable outcomes on energy access and energy transition targets, as well as the needed financial flows to realize these targets by strengthening energy sector fundamentals in terms of infrastructure, institutions, data, and people.

The ESMAP approach in this focus area will be to strengthen and, to the extent possible, quantify the sector-wide understanding of outcomes from investments in the basic foundations for decarbonized energy systems. This exercise would allow us to report on the headline results of the foundations focus area while also contributing to global knowledge on estimating the effects of foundational work on the energy sector outcomes.

ESMAP support will focus on four intertwined themes: modernized energy systems, effective institutions, data-driven decision-making, and improved equity and benefits. This support will be provided through integrated engagements tailored to the specific needs and context of client countries.

ESMAP will provide technical assistance to inform the design and implementation of World Bank lending projects on energy sector strengthening, modernization, innovation, and inclusion. In addition to addressing global knowledge gaps and advocating for emerging topics, ESMAP will support toolkits, capacity building, and peer-to-peer knowledge exchange to facilitate implementation at speed and scale. Emphasizing pilots for innovative and emerging topics, ESMAP will demonstrate benefits in various operating contexts, and ESMAP will continue to expand partnerships with research institutions, academia, global initiatives, other development finance institutions, and industry to complement efforts, expertise, and resources.

4.3.3. The Workstreams

ESMAP will provide support through four workstreams focused on modernizing energy systems, enhancing the effectiveness of institutions, using data-driven decision-making and digital technologies, and improving equity and benefits.

WORKSTREAM 1: INFRASTRUCTURE—MODERNIZED ENERGY SYSTEMS

Modern, flexible grids will be essential for universal energy access, deployment of variable renewable energy, and a low-carbon future. According to the International Energy Agency (IEA) modelling (IEA 2023b), meeting national and climate targets necessitates adding or refurbishing over 80 million kilometers of lines by 2040. This figure corresponds to doubling the size of the current global grid, and it will require an investment of about $600 billion per year by 2030 to expand and upgrade the existing transmission and distribution (T&D) networks. Better T&D technologies, such as modern High Voltage Direct Current (HVDC) lines, new heat-resistant conductors, and other grid enhancement or smart grid technologies

are needed. Connecting subnational and national grids to form regional power systems can enable the development of low-cost renewable energy resources and enhance energy security. Utilities and system operators require support to harness expanded and smarter grids and leverage advanced data, analytics, as well as artificial intelligence to improve efficiency in business processes, operations, and services.

Smart and resilient utilities need to lead the energy transition and expansion of access to modern energy services. However, many utilities are unviable, locked in a cycle of poor performance and the inability to recover costs. Building on ESMAP experience, this workstream will scale up support for utility strengthening and modernization. This will include digital transformation and advanced data analytics, innovative and strengthened business models, and corporate governance. ESMAP will also support utilities in client countries to better harness distributed energy resources (DERs), such as accelerated penetration of rooftop solar, demand response, and electric vehicles. T&D utilities will need assistance in planning and operating their systems better to integrate new technologies and conform to new business models.

Regional Integration and interconnected power systems enable cost-effective integration of higher shares of renewable energy and other low-carbon resources, as well as enhance energy security. Building on its large portfolio of strategic regional integration engagements, especially in Africa, the Middle East, South Asia, and Central Asia, ESMAP will continue its strategic support to deepen the integration of power systems and development of regional power pools.

Resilient infrastructure, adapted to climate change: ESMAP will help countries to (1) assess the impact of climate change, including both extreme and slow onset events, on power system reliability; (2) clarify the societal impact of climate vulnerability of the power sector; and (3) implement solutions, pilots, and innovative strategies to improve power sector resilience. ESMAP will develop toolkits for adaptation, damage prevention, and stress tests, including those relying on cutting-edge geospatial analytics. It will support the modeling of technical responses to enhance the resilience of the energy system against climate change threats.

WORKSTREAM 2: INSTITUTIONS—EFFECTIVE MARKETS, PRICING, AND POLICIES

Effective institutions, such as markets, pricing, and policies, incentivize the efficient allocation of resources and encourage risk-taking and innovation. ESMAP support under this theme will focus on setting the right price signals and regulatory incentives, as well as creating competitive markets for energy access and decarbonization.

Prices and subsidies: Getting energy prices right and reforming inefficient energy subsidies while protecting the poor are critical for facilitating the clean energy transition and enabling the financial viability and sustainability of energy sectors. ESMAP will ramp up technical support in this area, and provide global knowledge and targeted technical advisory support to multisectoral World Bank operational teams and governments on complicated reform subjects, including through recipient-executed activities focused on communications and social protection.

Energy prices that fully internalize the social value of carbon—and local pollutants—can facilitate fuel switching to low-carbon sources. ESMAP will support client countries in designing a variety of policy instruments, including carbon pricing instruments and exploring direct carbon pricing in the form of carbon taxes; and indirect carbon pricing instruments, such as energy subsidies and taxes.

Creating competitive electricity markets. Competitive electricity markets do not exist in 80 percent of developing countries. Further, existing markets are often ill-suited to enable the scale-up of renewable energy, as well as new service delivery models and service providers. ESMAP will expand its support to countries that are developing competitive markets.

Enabling policies, planning, and regulation have been lagging behind the challenges of decarbonization and universal energy access. ESMAP will ramp up its support in this area.

WORKSTREAM 3: DATA—DATA-DRIVEN DECISION-MAKING AND DIGITAL TECHNOLOGIES

Global tracking and benchmarking. Modernizing the approach to data gathering, processing, and analysis is critical for improving the quality and scope of our advice. A common framework and platform with modern measurement and analysis tools is needed to appropriately track energy access and decarbonization.[2] This framework will facilitate more meaningful engagement with development partners, governments, operational units, and, ultimately, the population. Big Data and AI tools, appropriately developed, will help benchmark progress, measure levels of concessional resources needed for targeted market penetration, and deepen understanding of consumer behavior. ESMAP intends to build an intelligent, open data platform and enhance products, such as the SDG7 tracking report, MTF, Regulatory Indicators for Sustainable Energy (RISE), and Solar and Wind Atlases, making its data sets publicly accessible through the Energy Data Hub.

Digital project enhancement and deployment of data. Technologies such as AI and machine learning, leveraging data from sensors, drones, and digitalization, provide significant potential for countries to increase their rate and pace of adoption of intermittent renewables onto the grid and mechanisms such as day-ahead wholesale markets. By deploying ESMAP's Responsible Data Sharing Framework for mini-grids and off-grid sectors, policymakers and regulators will be empowered with timely data that can inform grid and energy planning. Regulators in developing countries can then enable markets for corporate renewable energy procurement, and planners can optimize grid planning to fully benefit from the digital economy.

Leveraging digital technologies: AI, cybersecurity, and data governance. A sharp increase in electricity demand, from the electrification of transport, industry, and heating, as well as the fast growth of digital services, and widespread dissemination of variable renewable energy, will put greater demand on T&D grids. Smart grids with digital technologies, including hardware—such as sensors, monitors, and meters—and software, would help to better match the supply and demand of electricity in real-time. Furthermore, with the increased digitalization of the energy sector, energy systems are exposed to cyberattacks across the

grid. ESMAP will expand its efforts to bolster cybersecurity preparedness and implementation to meet the escalating demands of client countries.

WORKSTREAM 4: PEOPLE—IMPROVED EQUITY AND BENEFITS

The push for universal access and energy transition will spur new green value chains, local economic opportunities, green jobs, and a changed skill mix in the power sector. Understanding and identifying these opportunities will help maximize socioeconomic benefits and inclusivity in this process. ESMAP will ramp up support in the following areas:

Gender, diversity, and inclusion. Gender equality and improved diversity are important to achieve a better modern energy sector. ESMAP will provide support for gender mainstreaming, including gender-transformative actions and skill development (both soft and technical) in governments and utilities. ESMAP will continue to promote leadership, inclusion, career advancement, and role models, as well as entrepreneurship and other income-generating activities for women and others who belong to excluded and vulnerable groups. This innovative approach will be pursued by the development of new partnerships on piloting and testing interventions for new evidenced-based solutions on what works to close gender equality and diversity gaps in the energy sector, including addressing gender-based violence in the sector. Aligned with the new World Bank Gender Strategy 2024–30, ESMAP will adopt a proactive approach to address the challenges confronting women, girls, men, and boys, as well as vulnerabilities at the intersection of gender with poverty, ethnicity, disability, and other characteristics.

Jobs and socioeconomic benefits of the energy transition. Energy transitions will create jobs and socioeconomic benefits. ESMAP will support client countries to clarify the job and socioeconomic impact of energy transitions and distill broad ambitions, such as those captured in the Just Transition Principles, into concrete energy sector interventions.

Clean energy value chains. The large global demand for clean energy technologies will trigger structural economic transformation through new value chains for clean energy products and resources. ESMAP will work closely with client countries to identify opportunities and design policies for the development of value chains for new clean energy products, industries, and sectors, such as housing, transport, agriculture, digital, and mining for critical minerals.

Endnotes

1. Clean energy investment includes investments in renewable energy, grid reinforcement, storage, energy efficiency, electric mobility, and low-emission fuels.
2. This also extends to wider cross-cutting themes, which track the emissions and impacts of short-lived climate pollutants (SLCPs) such as particulate matter (PM) 2.5, Methane, nitrogen oxides (NOx), and sulfur oxides (SOx), that come largely from energy production and consumption, and have local and global consequences, including the quality of the air we breathe.

FIVE
ESMAP ORGANIZATIONAL EXCELLENCE

This section presents the Energy Sector Management Assistance Program's plans to enhance our organizational excellence in communications; advocacy, convening, and partnerships; and knowledge.

5.1. Communications

ESMAP's FY2025–30 communication and visibility plan is designed to match the scaled-up ambition and scope of the business plan with improved public recognition of ESMAP's work among target audiences, strengthen its global advocacy, and provide donors with tools to communicate their ESMAP contributions to their constituencies. The communication and visibility plan is organized along four main strands:

Strengthen stakeholder understanding of ESMAP's role and impact. Convey ESMAP's operating model, new level of ambition, and unique responses to global energy challenges, resulting in enhanced brand value and ability to advocate, convene, and achieve results.

Leverage ESMAP's comparative advantages. Enhance public recognition of ESMAP's wealth of data and knowledge. Increase the dissemination of strategic data, reports, and flagship publications. Repurpose our knowledge into digestible "takes," such as video, graphic, or social media content; innovative digital media campaigns; and engagements with traditional media.

Strengthen ESMAP's role in global advocacy of Sustainable Development Goal (SDG) 7, energy transition, and climate adaptation. Building on existing communications partnerships with the International Energy Agency (IEA), United Nations Statistics Division (UNSD), World Health Organization (WHO), International Renewable Energy Agency (IRENA), and others, ESMAP will join forces with international and national development and energy

organizations, such as Global Energy Alliance for People and Planet (GEAPP) and Sustainable Energy for All (SEforALL), for public advocacy and awareness campaigns.

Supporting ESMAP donor relations and fundraising. Build on existing donor relations channels, such as a monthly newsletter and event updates, by updating donors in more immediate ways about ESMAP's work and impact and supply them with success stories. Introduce ESMAP's work and impact to potential donors and build out an attractive donor brand.

5.2. Advocacy, Convening, and Partnerships

ESMAP's sustained presence and track record make it a trusted leader. Its guidance is sought by energy sector practitioners and decision-makers at all levels, from those installing wind, solar farms, and mini grids, to government officials.

ESMAP uses this unique position and convening power to form partnerships that extend its impact even further beyond our direct reach. Such alliances range from international energy organizations, such as IEA and IRENA; think tanks and advocacy organizations; implementing agencies, such as GEAPP; global bodies, such as the United Nations and its sub-organizations; to global financing vehicles, such as the Green Climate Fund (GCF), Climate Investment Funds (CIF), or Global Infrastructure Facility (Box 5.1).

The SDG7 Tracking Report is one such successful collaboration that serves as a model for inter-agency cooperation. Its five custodians—UN agencies, IRENA, WHO, IEA, and the World Bank—publish an annual report tracking progress toward achieving SDG7. The report informs development partners on where to focus efforts to close gaps in sustainable energy for all. Most recently, this has led to the World Bank's commitment to achieving access to 300 million people by 2030 in Sub-Saharan Africa in collaboration with the African Development Bank.

ESMAP advises the United Nations Economic and Social Council as a member of the SDG7 Technical Advisory Group. ESMAP contributes to UN-Energy, the coordinating group of all UN agencies with energy portfolios. It works with the Health and Energy Platform of Action, a high-level policy group primarily concerned with clean cooking issues. ESMAP extends its reach through the United Nations High Commissioner for Refugees (UNHCR) to emphasize the growing nexus of development and humanitarian assistance and the UN Department of Operational Support to bring renewable energy to peacekeeping operations.

The Green Climate Fund (GCF) is an example of alliances we form with other multilateral funding initiatives. Joint financing projects with the GCF include a multisector cooling facility and the Sustainable Renewables Risk Mitigation Initiative (SRMI)–Green Climate Fund Program to accelerate renewable energy deployment by financing targeted public investments. In the case of battery storage projects, concessional climate funds are channeled to countries through the GCF, the Climate Investment Funds (CIF) Global Energy Storage Program, and the

Canada–World Bank Clean Energy and Forests Climate Finance Facility. In the context of the CIF, we work in multilateral development bank (MDB) partnerships on country investment plans for Accelerating Coal Transition (ACT), Renewable Energy Integration (REI), and Scaling-up Renewable Energy Program (SREP) in low-income countries.

BOX 5.1

EXAMPLES OF ESMAP PARTNERSHIPS

The Energy Storage Partnership (ESP) enables national laboratories, research institutions, development agencies, and philanthropies to share technology and training to develop new energy storage solutions in developing countries, including low-income countries such as Bangladesh, Burkina Faso, Chad, Liberia, Maldives, Sierra Leone, and Togo. In 2018, the World Bank Group launched the $1 billion Accelerating Battery Storage for Development Program. In addition, ESMAP's advance work prompted the Climate Investment Funds (CIF) to direct $725 million in private and public concessional financing that will deliver a total battery storage capacity of 640 megawatts.

ESMAP launched a Hydrogen for Development (H4D) partnership at the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27), involving 16 government agencies and private companies, to provide tools, knowledge sharing, capacity building, and financing to allow developing countries to gain access to the growing hydrogen economy. The experience gained in developing assessments and roadmaps to produce, utilize, and export green hydrogen in Chile, Costa Rica, Mauritania, Morocco, and Namibia, is guiding ESMAP's action in this emerging field.

ESMAP is a partner in the Global Energy Alliance for People and the Planet (GEAPP), set up by the IKEA Foundation, The Rockefeller Foundation, and the Bezos Earth Fund, to address the transition to renewable energy as one of the defining challenges of our time.

The Global Off-Grid Lighting Association (GOGLA) is an industry trade association that was formed with the help of ESMAP. We cooperate with them in bringing electricity access to the poorest and most remotely located people through off-grid lighting solutions.

5.3. Our Knowledge and Expertise

ESMAP is a think tank whose world-class experts develop global and country-specific data sets, whose comprehensive rigor has gained the confidence of numerous partners, including governments, private investors, utility managers, and policymakers.

ESMAP distills global experience from World Bank operations to clarify critical factors needed to advance best-practice frontiers. For example*, Key Factors for Successful Development of Offshore Wind in Emerging Markets* draws conclusions from ESMAP's experience and study in over 20 countries; it offers guidance to decision-makers and developers on how to marshal some of the 2,000 gigawatts of offshore wind power that will be needed to achieve net zero emissions by 2050. Other examples include Unlocking Clean Cooking Pathways: A Practitioner's Keys to Progress, Mini Grids for Half a Billion People: Market Outlook and Handbook for Decision-Makers, and *Wholesale Electricity Markets Design Options for Developing Countries.*

Regulatory Indicators for Sustainable Energy (RISE) is a free, open-source diagnostic tool for governments, investors, and legal and consulting firms assessing the risks of investing in energy solutions in 140 countries. Updated every two years, RISE provides detailed information via an accessible scorecard format on individual developing countries' policies, regulations, standards, and practices for electricity access, clean cooking, renewable energy, and energy efficiency.

The **Multi-Tier Energy Access Tracking Framework (MTF)** uses country-level data to identify what prevents or limits households' access to and use of electricity. These data are essential to effective planning to expand access. In 2022, ESMAP's MTF team conducted surveys in Bangladesh, Pakistan, Papua New Guinea, Rwanda, and South Sudan.

The **Global Electricity Regulatory Index (GERI)**, a complementary compendium to RISE, developed in collaboration with the African Development Bank (AfDB), collects data from more than 100 developing countries to help identify gaps in their regulatory frameworks and benchmark their performance against their global peers.

5.4. Managing Risks

ESMAP has developed a risk framework focused on designing an approach that promotes informed risk-taking to achieve better solutions, innovations, and transformational impact for our clients. ESMAP's risk framework, adopted for the FY2025–30 Business Plan, will apply to the Bank's operations supported by ESMAP and rests on four risk categories: (1) strategic, (2) stakeholder, (3) operational, and (4) financial. Each risk category is given a single rating, identifying the most important possible event within it and risk mitigation measures. The four ratings are high, substantial, moderate, and low.[1]

The overall residual risk for ESMAP is considered to be moderate.[2] This is mainly due to risks related to its strategy, as in directing resources and leveraging the potential of borrower demands for Bank loans; operations, in terms of implementation of ESMAP-financed activities and projects; and financial aspects, including donor contributions and actions of external parties to the Bank. Risk management and mitigation measures rely on and are strengthened by the professional judgement and experience of the ESMAP team and the Bank's regional task teams.

Endnotes

1. ESMAP's Risk Framework follows and is underpinned by the approach of the World Bank's Framework for Management of Risk in Operations, including its rating guide.
2. The risk assessment is based on residual risk—in other words, it takes the impact of mitigation measures that have already been implemented into account, but does not presume additional mitigation measures in the future.

SIX
FINANCING THE ESMAP BUSINESS PLAN FY2025–30

The Energy Sector Management Assistance Program (ESMAP) primarily finances Advisory Services and Analytics (ASAs)[1] as Bank-executed grants or trust funds (BETFs). In addition, ESMAP finances recipient-executed grants or trust funds (RETFs) linked to the World Bank financing instruments—investment project financing, development policy financing, and a program for results financing.[2] The financial strategy for ESMAP's Business Plan for the period covering FY2025–30, which runs from July 1, 2024 to June 30, 2030, reflects its role as the Umbrella 2.0 program for the World Bank's energy practice. ESMAP provides donors with the option to make preference contributions to recipient-executed country or regional operations either through the core ESMAP Multi-Donor Trust Fund (MDTF) or through "associated" trust funds under the ESMAP umbrella.[3]

Increasingly, ESMAP has a role in supporting World Bank teams to crowd in finance from other sources, such as multilateral and bilateral climate funds, International Finance Institutions (IFIs), other development partners, and private financiers to deliver impact through World Bank-supported operations.

This section presents ESMAP's financial strategy in the development of the Business Plan's target budget for FY2025–30.

6.1. Experience from the FY2021–24 Budget Cycle

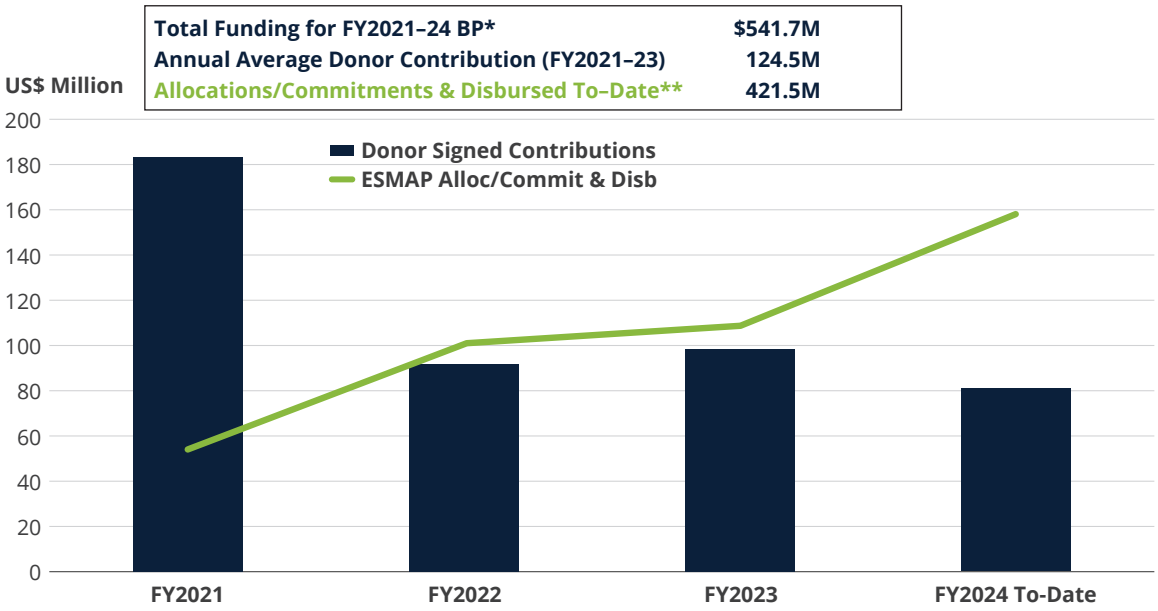
In the ESMAP FY2021–24 Business Plan, the Bank-executed funding target totaled $540 million, reflecting the core ESMAP activities implemented through the ESMAP team and regional Bank teams. The recipient-executed components funding target of $740 million—with about $450 million for the Clean Cooking Fund (CCF) and $100 million for the COVID–19 response facility—was expected to co-finance International Bank for Reconstruction and

Development (IBRD) and International Development Association (IDA) operations in energy and other sectors, such as health, water, agriculture, and transport.

As of the end of March 2024, about $453 million in donor contributions have been signed during the business plan period. With about $87 million carried over or programmed from the prior Business Plan (BP) and the World Bank's contribution, the funding envelope for the FY2021–24 BP totaled about $541 million, of which about $158 million were approved as recipient-executed grants.[4] The total budget for the FY2021–24 BP of $541 million translates into an average donor contribution of about $125 million per year, with about $40 million per year, on average, approved as recipient-executed grants (Figure 6.1).

FIGURE 6.1

Donor Contributions with ESMAP FY2021–24 Allocations, Commitments, & Disbursements



Note: *Based on signed donor contributions, including $87.6 million programmed from previous business plan. Does not indicate cash available.

**As of 31 March 2024, allocations = approved proposals; commitments = approved TF grants; disbursed = ESMAP own-managed

In addition, the ESMAP Energy Climate Finance team supported the mobilization of over $960 million in concessional finance for recipient-executed activities from multilateral climate funds.

Experience in the last few years shows that scaling up our impact in access and energy transition requires both BETFs as well as RETFs. The demand for the latter is growing rapidly. In order to meet the Business Plan goals, ESMAP aims to secure a steady growth in Bank-executed grants, along with a significant increase in recipient-executed grants.

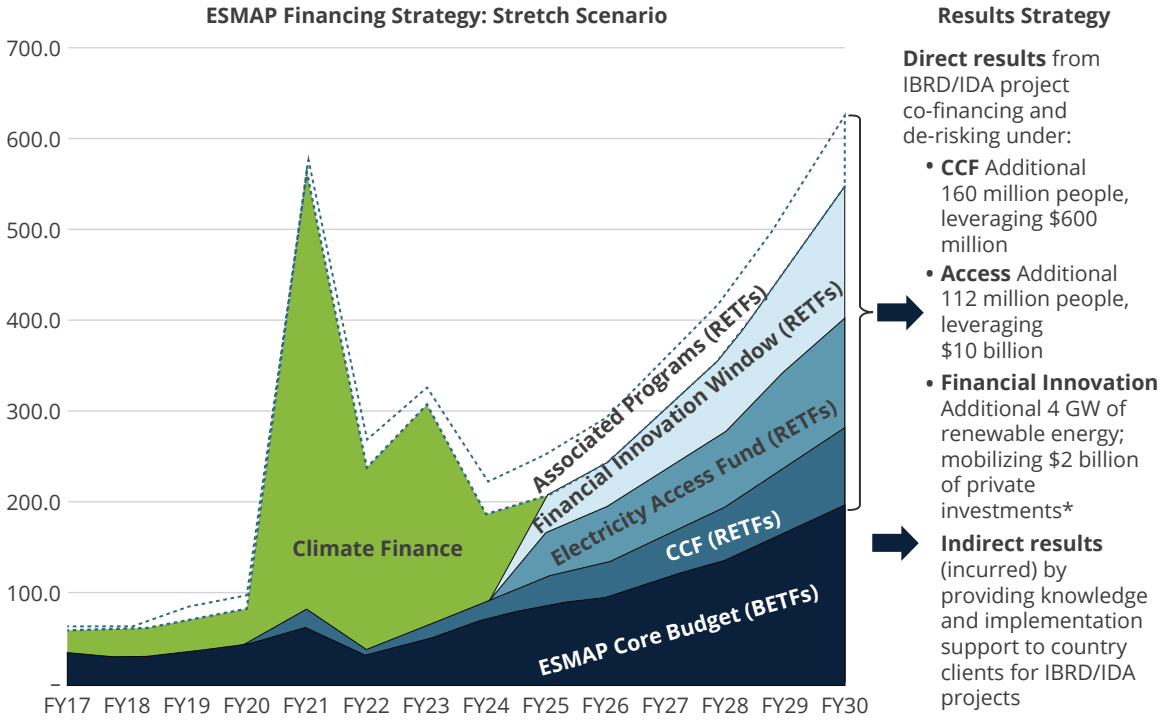
6.2 Proposed Budget for the FY2025–30 Business Plan

The proposed budget target for the FY2025–30 BP presents a base case and a stretch scenario. The budget will include intermediate reviews with the Consultative Group (CG) proposed for years two and four, respectively. In the **base case**, the budget target assumes modest growth in Bank-executed grants of $690 million—averaging $110 million per year, compared to $96 million per year for the FY2021–24 business plan—and recipient-executed grants of $450 million, which would be nearly double the approved RETFs under the FY2021–24 business plan. The Program Management and Administration (PM&A) cost is budgeted at $30 million.

In the **stretch scenario**, the budget target for Bank-executed activities is $850 million, on average, $137 million per year, and $1,585 million for recipient-executed activities. The growth in recipient-executed activities will scale the impact of the ESMAP business plan (see Figure 6.2 for a summary of expected results under the stretch scenario).

FIGURE 6.2

ESMAP FY2025–30 Business Plan Financing Strategy: Stretch Scenario with Expected Results



Note: *Other expected results of the Financial Innovation Window include: expedite 3 GW of direct electrolyzer project FIDs and catalyze a total of 10 GW electrolyzers, as part of a multi-MDB effort to implement hydrogen projects in at least five countries, and deploy EE programs in six or more countries.

TABLE 6.1

ESMAP FY2025–30 Business Plan Budget Scenarios ($ Million)

	Base Case			Stretch		
	BETF	**RETF**	**Total ($M)**	**BETF**	**RETF**	**Total ($M)**
Energy Access	200	222	**422**	235	893	**1,128**
Energy Transition	300	194	**494**	375	614	**989**
Foundations	160	34	**194**	210	78	**288**
PM&A	30	—	**30**	30	—	**30**
Target Budget	**690**	**450**	**1,140**	**850**	**1,585**	**2,435**

Note: — indicates "0".

The sections below present the proposed RETF programs in both the base case and stretch scenario, including the expected results. Table 6.1 summarizes the proposed budget targets by BP themes for the base case and the stretch scenarios.

It is expected that there will be about $128 million of ongoing activities that will be rolled over from the current business plan into the next. This carryover will provide a buffer to manage the variability in the funding and budget cycles of the various ESMAP donors.

6.3. Modular Approach to Recipient-Executed Budget Targets

In addition to funding the ESMAP core program, ESMAP will provide specific windows for donors to co-finance World Bank operations through recipient-executed grants: (1) the Clean Cooking Fund; (2) the Electricity Access Fund; (3) the Financial Innovation Window for Energy Transition; and (4) other RETFs, with specific country and regional focus.

This approach builds on the experience of the first phase of the CCF, which demonstrated that direct access to grant funds for co-investment could significantly accelerate client commitment, portfolio development, innovation, and learning. This has led to tangible outcomes on challenging and high-risk policy priorities. The experience of the Sustainable Renewables Risk Mitigation Initiative (SRMI) to mitigate the risks of renewable energy deployment with support of the multilateral climate funds, CTF and GCF, has been equally successful; several donors have already channeled funding for specific country or regional budgets through ESMAP as an umbrella trust fund.

In this business plan, the following four RETF windows are proposed, in addition to core programming.

RETF Window 1: Clean Cooking Fund 2.0. CCF 2.0 is presented in section 4 of this business plan. To accelerate clean cooking operations of the World Bank and other multilateral development banks, CCF 2.0 expects to raise $390 million in funds by 2030. Grants are essential to leverage IBRD and IDA development funds, as well as climate finance. The integration of clean cooking support as a component of larger operations, with longer-term dialogue through a multi-sectoral approach, is a key mechanism to decrease transaction costs. It also guarantees the construction of a solid base for long-term sustainable programs that consider the heterogeneities of markets and countries' needs while leveraging public and private capital. Envisioned as a catalyst for transformative change, the CCF 2.0 is expected to leverage more than $600 million from IBRD and IDA, reaching more than 160 million people with clean cooking solutions. This is expected to generate a catalytic effect by improving trust, accelerating market transformation, and raising policymakers' prioritization of clean cooking with a larger indirect impact. However, if CCF 2.0 raises only about $100 million (in the base case), then it could benefit approximately 66 million people.

RETF Window 2: Electricity Access Fund. Despite major progress on access to electricity, 660 million people will remain without access in 2030, with the majority in Sub-Saharan Africa, unless there is a significant leap in the acceleration of electrification, particularly in remote rural areas and fragile contexts, where capacity is weakest and government priorities are frequently lacking. The proposed Electricity Access Fund is presented in section 4 of this Business Plan.

The Electricity Access Fund, if fully capitalized with its targeted $400 million over six years, can co-finance and leverage approximately $10 billion of World Bank lending in the most challenged communities and deliver electricity access to an additional 112 million people, to achieve a total of 300 million people. If funding the Electricity Access Fund is limited to its minimum capitalization target of about $100 million, then its impact would only reach about 188 million people. This further demonstrates the high cost of electrifying populations living in contexts of fragility, conflict, and violence (FCV).

RETF Window 3: Financial Innovation Window for Energy Transitions. The overarching goal of the Financial Innovation Window for Energy Transitions is to maximize finance for development, ensuring timely project commissioning and significant leveraging effects, with an anticipated leverage ratio of 1 to 10, particularly in renewable energy projects.

With regard to the short-term pipeline of projects, $150 million is required to unlock 2 gigawatts of renewable energy, 350 megawatt hours of battery energy storage systems, resilience, and innovation investments in three Small Island Developing States (SIDS), and Energy Efficiency (EE) program deployment in at least two countries with plans to mobilize at least $2 billion of private investments.

In the stretch scenario, a budget of $500 million will unlock a total of 6 gigawatts of renewable energy capacity, expedite 3 gigawatts of direct electrolyzer project financial

investment decisions, and catalyze 10 gigawatts of electrolyzers as part of a multi-MDB effort to implement clean hydrogen projects in at least five countries and deploy energy efficiency programs in six or more nations.

RETF Window 4: Other RETFs, including associated trust funds and climate finance programs. As the Umbrella trust fund program of the World Bank's energy practice, ESMAP continues to provide donors with the option to make contributions to specific regional or country RETFs—for example, co-financing IBRD and IDA operations either through the core ESMAP MDTF or "associated" trust funds (TFs) under the ESMAP umbrella.

For example, ESMAP supported the co-financing of: (1) Advancing Regional Energy Projects (AREP) in Southern & Eastern Africa with support from donors through the core ESMAP MDTF, under our Energy Markets, Connectivity, and Regional Trade (MARCOT) program; and (2) the Regional Off-Grid Electricity Access Project (ROGEAP) with a contribution from the Netherlands under an associated trust fund.

ESMAP will continue to mobilize finances from multilateral climate funds—particularly the Climate Investment Funds, GCF, and GEF—for recipient-executed activities in line with the ESMAP business plan. ESMAP supports client countries and World Bank teams to strengthen the transformational impact of operations by applying concessional climate finance, thereby maximizing value for money for both contributing countries and recipient countries.

Endnotes

1. For a definition and examples of ASAs, see https://www.worldbank.org/en/what-we-do/products-and-services/advisory-services.
2. For definitions on the types of World Bank financing, see https://www.worldbank.org/en/what-we-do/products-and-services/financing-instruments.
3. Government officials in client countries can be reluctant to use IBRD/IDA resources for untested innovation, such as those in institutional contexts, financial instruments, delivery mechanisms, or engagement of the local private sector. This can delay the catalyzing of innovations that can be scaled up after proving their effectiveness and incorporating initial lessons of experience.
4. Including recipient-executed grants of "associated" trust funds, such as the Regional Off-Grid Electricity Access Project (ROGEAP), Kyrgyz Electricity Sector Modernization and Sustainability (KEMS) Project, and Additional Finance to Scale Up Modern Energy in Rwanda, increasing access to clean cooking solutions for public schools.

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APPENDIX A

A Brief History of ESMAP

The Energy Sector Management Assistance Program—better known as ESMAP—is a program born of the oil and energy crisis of the 1970s. The oil embargo of the Organization of Arab Petroleum Exporting Countries early in that decade led to fuel shortages and sky-high prices, which had major repercussions across the world, hitting oil-importing developing countries particularly hard. Rising prices put pressure on national budgets, leaving little room for other development priorities. In response, the World Bank and donors established ESMAP 40 years ago, in 1983. Initially, the trust fund was designed to turn recommendations produced by the Bank's Energy Sector Assessment Reports into concrete measures for implementation by oil-importing developing countries. The program's mandate was to provide hands-on advice to governments facing energy challenges. Over time, ESMAP's work has changed and expanded significantly, but that core mandate is still at the heart of our work today.

Since its inception 40 years ago, ESMAP has provided unmatched knowledge and expertise in the areas of energy access, decarbonization, and renewable energy in emerging and developing economies. Not only has ESMAP supported innovative technologies, such as off-grid solar, mini grids, and battery storage, but it has also addressed issues that had been overlooked, such as reducing the gender gap in the energy sector.

During the 1990s, ESMAP focused on increasing the availability of energy services for poverty alleviation and social development. ESMAP integrated its work on market development with its emphasis on energy access to increase energy services and their sustainability. During the first decade of the twenty-first century, ESMAP extended its engagement with client countries to include the nexus between energy security, energy access, and climate change, mirroring the changing landscape of energy challenges. ESMAP proactively assisted client countries in reducing their energy sectors' susceptibility to climate variability while transitioning to a low carbon development path in support of poverty reduction and economic growth.

Energy-related greenhouse gas emissions are at the center of the climate crisis. Yet, 40 years on from the energy crises of the 1970s and early 1980s, the world now has many of the technological capabilities at its disposal to make the switch from fossil fuels to zero-carbon energy sources, while connecting the world's population to electricity. One of the formidable tasks that remains today is putting commercial models in place that are sufficiently attractive to the private sector and to find financing arrangements that are sufficiently affordable for all stakeholders to make modern energy solutions a reality in even the poorest and most remote areas.

While the private sector must play a critical role in energy development, as governments and multilateral institutions alone cannot provide the vast funds necessary, multilateral development banks play an important role as catalysts. As a result, ESMAP placed an

intense focus in FY2023–24 on devising and supporting financial solutions that help make projects viable for commercial players.

Going forward, demand for ESMAP's work will only increase against the backdrop of the significant climate pledges at the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28) late in 2023 and the World Bank's plans to triple energy lending by 2030. ESMAP will be able to meet these rising expectations only with a new approach and a longer-term view. Thus, the FY2025–30 business plan reflects ESMAP's heightened level of ambition. Substantial grant resources will be needed to support the critical capacity building and knowledge necessary to build a pipeline of ambitious projects and consistently achieve impacts on the ground.

In addition, for about a decade, ESMAP has prioritized gender equality to ensure energy interventions include a gender focus that is aligned with World Bank gender strategies and country priorities.

APPENDIX B

ESMAP Risk Framework

TABLE B.1

ESMAP Risk Framework

	Risk Description	Risk Rating	Proposed Mitigation Measures
I. Strategic Risks			
1	ESMAP's work is not guided by a clear strategic framework	Low	• Consultative Group (CG) provides guidance and advice, meeting annually to review the strategic direction, achievements, use of resources and funding requirements. • Technical Advisory Group (TAG), in its fit-for-purpose capacity, provides informed, independent opinions to the CG about the purpose, strategic direction, and priorities, as well as provides advice and suggestions on current and emerging global energy sector issues likely to impact ESMAP's client countries. • For global and regional activities, strategic alignment with the Bank's corporate objectives (approved Bank/regional/sectoral strategies). • For country-specific activities, strategic alignment with Country Partnership Framework (CPF) or Country Engagement Note (CEN). • The Global Challenge Program for Energy (GCP-E) will apply joint World Bank Group client engagements and instruments to achieve scale with increasing private investment and programmatic approaches. • International Development Association 20 (IDA20) issues replenishment of $93 billion with IDA's innovative hybrid financial model, which allows for donor partner contributions to be complemented by capital market borrowings at low-interest rates, supported by IDA's AAA rating. • Energy Practice provides: (1) increased focus on IDA20 delivery; (2) focus on core set of global challenges identified in the GCP-E; (3) more efficient programmatic engagement with clients; (4) leveraging of knowledge partnerships to boost client capacity; and (5) enhanced efforts to mobilize and target concessional finance to address global public goods and affordability.
2	ESMAP fails to direct resources, promptly, efficiently, or appropriately	Moderate	
3	The Bank's existing capital base, in particular, International Bank for Reconstruction and Development (IBRD) capital, is not adequate to meet borrower demands for loans, thus decreasing the leverage potential of ESMAP	Moderate	
II. Stakeholder Risks			
4	Roles & Responsibilities are unclear, diffused, or unknown roles and responsibilities lead to diminished performance or potential, real, or perceived conflicts of interest	Low	• ESMAP follows the Bank's Accountability and Decision-Making (ADM) Framework which: (a) clarifies roles for key decisions, (b) establishes disciplined decision processes, and (c) modifies behaviors and ways of working. • The Bank's Conflicts of Interest Office, within the General Counsel's office, assists staff and management in identifying and managing potential, real, or perceived conflicts in the operational setting, including those arising between and among the three Bank institutions—IBRD/IDA, International Finance Corporation (IFC), and Multilateral Investment Guarantee Agency (MIGA). • The Bank's Development Finance Institution (DFI) Vice Presidency's role and initiatives enhance transparency and facilitate strategic dialogue with donors, information sharing, prioritization, and fundraising coordination. • Partnerships are established clearly and transparently through formalized arrangements and/or agreements, including grant agreements, operations manuals, and memoranda of understanding.

(*continues*)

TABLE B.1

ESMAP Risk Framework (*Continued*)

	Risk Description	Risk Rating	Proposed Mitigation Measures
III. Operational Risks			
5	ESMAP activities/projects: • Do not respond to client needs • Are duplications with existing activities and sources of finance • Suffer implementation problems or delays; and/or • Do not have adequate results measurement and dissemination of results • Fail to co-ordinate and promote coherence with the relevant programs of contributing donor partners • Fail to ensure that the benefits of ESMAP support are reaching the vulnerable population, including girls and women, especially in fragile environments • Are subject to COVID-19 related risks, including implementation delays, changed priorities, and reduced energy demand • Are subject to FCV operating risks, including delayed/cancelled implementation, lack of data, or sudden change of direction • Result in a lack of donor appetite for the proposed recipient-executed work	Moderate	• Country and regional activities are anchored in World Bank country programs and must demonstrate client commitment • Aid coordination is strengthened by ESMAP's participation in and organization of events, including annual meetings, dialogue roundtables, and joint study tours • Country-level activities are implemented through World Bank operational units, which participate in country/project-specific coordination structures and processes • ESMAP activities are subject to standard World Bank portfolio monitoring and implementation status reporting systems • ESMAP's online Results Dashboard provides transparency and timeliness of information • ESMAP is developing a Knowledge Management system to strengthen organization and dissemination of knowledge • An annual portfolio review with regional energy management strengthens focus on results and outcomes and identifies forthcoming demand for ESMAP resources and high-priority activities • Approved ESMAP activities include plans for task team leaders (TTLs) to coordinate and include consultations with donors in the field or in donor capitals, as appropriate • Approved ESMAP proposals include identifying the expected benefits and the risks to extending them to the most vulnerable population, in particular, females and those residing in fragile, conflict and violence (FCV) afflicted countries • ESMAP has been proactive in understanding the challenges and opportunities that arise and how ESMAP programs can be part of the response for scaling energy access and energy transition impacts • Specific approaches suitable to different FCV contexts will be adopted, including collaboration with the local private sector, non-profit partners, and appropriate United Nations (UN) agencies • ESMAP can support clients and World Bank Group teams to apply for climate finance for some of the recipient-executed activities proposed, and under its new Business Plan, proposes to make increased and longer-term commitments allocated to programs based on client commitment and ambition with the potential to mobilize private capital
6	ESMAP Staff Turnover	Low	• Teams have critical mass that allows for assigned back-ups and are also complemented by external specialists.
IV. Financial Risks			
7	Donor commitment to contribute is not qualified. For example, donor contributions are subject to parliament approval, or availability of budget/ funds, or diverted to other priorities, such as global pandemics	Moderate	• Maintain strong communication channels with existing donors to track pledges • ESMAP will conduct outreach to new donors • Ensure that the basis of commitment is based on cash received from donors

(*continues*)

TABLE B.1

ESMAP Risk Framework (*Continued*)

	Risk Description	Risk Rating	Proposed Mitigation Measures
8	Bank unable to contribute to ESMAP (Bank Budget and IDA)	Low	• Integration of Bank-executed trust funds (BETFs) with the Bank's planning & budget processes lends transparency to the tradeoffs associated with reducing the Bank's contributions to ESMAP
9	Parties external to the Bank may engage in fraud, corruption, or misconduct[a] under ESMAP-financed projects	Moderate	• Bank-executed trust funds (BETFs) are subject to the same controls as Bank budget expenditures • Recipient-executed trust funds (RETFs) are subject to the same review and appraisal process as equivalent Bank lending activities • Trust fund grants are subject to the Bank's Anti-Corruption, Procurement and Consultant Guidelines, as well as Standard Conditions for Trust Fund (TF) Grants, which provide for suspension and/or cancellation of disbursements. In addition, the Anti-Corruption, Procurement, and Consultant guidelines provide that the Bank may sanction firms and individuals found to have engaged in corrupt, fraudulent, coercive, collusive, or obstructive practices in connection with the use of TF grant proceeds, including (but not limited to) in the course of procurement or the selection of consultants, or in the execution of contracts financed by the TF grant. Sanctions include indefinite or temporary debarment, debarment with conditional release, conditional non-debarment, restitution, and reprimand. The Anti-Corruption Guidelines also provide for certain actions to be taken by grant recipients to prevent and combat fraud and corruption in connection with the use of grant proceeds.

[a] Misconduct would include the risks arising from acts that are inconsistent with World Bank values that might harm staff, other stakeholders, or the Bank's reputation and finances, such as financial mismanagement, fraud, or corruption; abuse of position for any reason, including personal financial gain; breaches of confidentiality; personal conflict-of-interest issues; staff not respecting personal legal obligations; and/or ethical breaches.

APPENDIX C

Results Framework

The revised Energy Sector Management Assistance Program (ESMAP) Results Framework (RF) offers a streamlined approach to measuring fewer, though key, results indicators aligned with the donors' priorities. At the highest outcome level, the RF will expand on the current ESMAP approach of reporting the *expected* results, which are results from the World Bank lending operations approved by the Board in the given fiscal year, to reporting the *actual* results of the previously approved ESMAP-informed operations, which may be ongoing or closed in the year of reporting. This approach is aligned to the new World Bank Scorecard reporting approach. Moreover, ESMAP will adopt the new Scorecard indicators, which include people with access to electricity and whether renewable energy capacity is enabled; follow the same definitions; and validate the proportion of the corporate results reported that is informed by ESMAP. This approach will align the World Bank corporate and ESMAP reporting and avoid misinterpretation of results, should different definitions be used.

The core RF reporting will present the results for the whole of ESMAP; however, disaggregation across different aspects, such as sub-programs, geographies, and county income status, will be provided to demonstrate preferenced results and align with specific donors' reporting requirements.

Given the duration of the proposed ESMAP Business Plan period, which encompasses FY2025–30, the RF envisages a mid-term milestone of FY2027 and a final target of FY2030 for all results indicators; moreover, the milestone and the target present both base and stretch scenarios aligned with the fundraising scenarios. Specifically, inclusion of RETF-focused thematic funds provides the basis for the stretch estimates. Additionally, ESMAP proposes to conduct a mid-term review at the end of FY2027 to take stock of the progress of the Business Plan implementation, including the results focus. ESMAP proposes to conduct the mid-term review with participation of Technical Advisory Group (TAG) experts, who will focus on providing the expertise on specific themes and geographies. For this purpose, the mid-term review task team composition may include a consortium of a firm specializing in monitoring and evaluation (M&E) and independent energy experts, such as the TAG members.

For further details about the methodology of the Results Framework, refer to the complete version: Consolidated ESMAP Results Framework FY2025–30 (available upon request).

TABLE C.1

ESMAP Results Framework FY2025–30

	Outcome Indicators	FY2027 Milestone Base	FY2027 Milestone Stretch	FY2030 Target Base	FY2030 Target Stretch	Contributing Program (Primary)
1.	**Gigawatts (GW) of renewable energy capacity enabled**	17.15	—	45.3	—	Energy Transition, Foundations for Decarbonized Energy Systems
2	**Gigawatt hours (GWh) energy storage**	7.875	—	15.75	—	Energy Transition
3	**Net greenhouse gas (GHG) emissions per year**	32.4	—	86.6	—	Energy Transition
4	**Projected energy and fuel savings in megawatt hours (MWh)**	72,0000	—	150,0000	—	Energy Transition
5	**Number of people provided with access to electricity**	66,000,000	105,000,000	188,000,000	300,000,000	Energy Access (Electricity and Clean Cooking)
6	**Number of people provided with access to clean cooking**	27,500,000	60,000,000	55,000,000	160,000,000	Energy Access (Electricity and Clean Cooking)
7	**Number of businesses and public institutions provided with access to electricity**	231,000 total businesses and public institutions: 210,000 businesses and 21,000 public institutions	385,000 total businesses and public institutions: 350,000 businesses and 35,000 public institutions	660,000 total businesses and public institutions: 600,000 businesses and 60,000 public institutions	1.1 million total businesses and public institutions: 1 million businesses and 100,000 public institutions	Energy Access (Electricity Access and Clean Cooking)

(*continues*)

TABLE C.1

ESMAP Results Framework FY2025–30 (*Continued*)

	Outcome Indicators	FY2027 Milestone Base	FY2027 Milestone Stretch	FY2030 Target Base	FY2030 Target Stretch	Contributing Program (Primary)
8	**Number of businesses and public institutions provided with access to clean cooking**	2,500	5,000	7,500	15,000	Energy Access (Clean Cooking)
9	**Number of countries with enacted policies, regulations, and plans on energy subsidy reform, utility modernization, regional markets, and data & AI driven energy planning**	20*	—	40*	—	Foundations for Decarbonized Energy Systems
10	**Number of countries with enacted policies, regulations, and plans on energy system climate resilience preparedness**	2	5	20	50	Foundations for Decarbonized Energy Systems
11	**Amount of private capital enabled (US$ billions)**	41	—	92	—	All
12	**Number of clean energy jobs created from the World Bank's energy sector projects (undetermined)**	—	—	—	—	All
13	**Percent of people benefitting from greater gender equality, from actions that expand and enable economic opportunities**	—	—	—	—	All
14	**GW of renewable energy reaching financial close for privately owned projects**	—	3	—	6.3	Energy Transition

	Intermediate Outcome Indicators	FY2027 Milestone Base	FY2027 Milestone Stretch	FY2030 Target Base	FY2030 Target Stretch	Contributing Program (Primary)
1	**World Bank lending operations informed (US$, billion)**	31.57	—	89.79	—	All
2	**Amount of private capital mobilized (USD, billions)**	43.39	—	98.85	—	All
3	**Amount of co-financing (multilateral and bilateral development banks, climate finance, philanthropies) mobilized (US$, billions)**	0.75	—	15.65	—	All
4	**Data-driven decision making: Number of World Bank lending operations and other government and partner initiatives referencing the ESMAP-produced knowledge and analytics in project design**	15	—	30	—	All
5	**Increased client technical capacity to implement World Bank and other multilateral development bank (MDB) projects (number of clients)**	25	—	45	—	All
6	**Number of World Bank energy sector lending operations that incorporate job creation in the results frameworks**	7	—	19	—	All
7	**Percent of World Bank energy sector lending operations that achieve the Gender Tag**	80%	—	85%	—	All
8	**Number of enhanced decarbonization and energy efficiency policies, plans, and regulations for energy**	0	—	16	—	Energy Transition

(*continues*)

TABLE C.1

ESMAP Results Framework FY2025–30 (*Continued*)

	Intermediate Outcome Indicators	FY2027 Milestone Base	FY2027 Milestone Stretch	FY2030 Target Base	FY2030 Target Stretch	Contributing Program (Primary)
9	**GW of Renewable Energy (RE) commitments added in countries' policies and plans**	25	—	40	—	Energy Transition
10	**GWh of energy storage commitments added in countries' policies and plans**	15	—	30	—	Energy Transition
11	**Number of countries that adopt policies on phasing out fossil fuel generation, including coal power plant decommissioning**	10	—	15	—	Energy Transition
12	**GW of electrolyzers enabled**	5	—	5	—	Energy Transition
13	**Number of countries provided with multi-sectoral access approaches (including focus on clean cooking, gender, pro-poor approaches, financing innovation, productive uses, sustainable cooling, and digital platforms) as part of their national electrification/energy access strategies and plans**	15	—	27	—	Energy Access (Electricity and Clean Cooking)
14	**Number of countries with plans or policies developed in utility reform, subsidy reform, digitalization, market development, and energy system climate resilience**	20	—	40	—	Foundations for Decarbonized Energy Systems

	Outputs	FY2027 Milestone Base	FY2027 Milestone Stretch	FY2030 Target Base	FY2030 Target Stretch	Contributing Program (Primary)
1	**Number of own-managed analytical reports produced and disseminated**	27	—	60	—	All
2	**Number of international knowledge-sharing events hosted**	32	—	69	—	All
3	**Number of external partners engaged in key thematic cooperation**	16	—	220	—	All
4	**Number of risk mitigation instruments deployed under Financial Innovation Window**	—	20	—	50	Energy Transition
5	**Volume of climate finance mobilized, such as Green Climate Fund (GCF) financing (US$, billions)**	0.40	—	0.95	—	All
6	**Number of World Bank clean cooking financing projects supported**	6	—	12	—	Energy Access (Electricity and Clean Cooking)
7	**Number of World Bank electricity access financing projects supported through the Electricity Access Fund**	—	6	—	12	Energy Access (Electricity and Clean Cooking)

(*continues*)

TABLE C.1

ESMAP Results Framework FY2025–30 (*Continued*)

	Outputs	FY2027 Milestone Base	FY2027 Milestone Stretch	FY2030 Target Base	FY2030 Target Stretch	Contributing Program (Primary)
8	**Number of conference events led by regional networks for women in energy**	3	—	5	—	Foundations for Decarbonized Energy Systems
9	**Amount of documentation that summarizes the experiences and successful outcomes of the mentees who participated in the ESMAP gender-focused mentorship programs**	2	—	4	—	Foundations for Decarbonized Energy Systems
10	**Number of regional programs supporting corporate gender tagging in energy sector lending projects**	6	—	6	—	Foundations for Decarbonized Energy Systems
11	**Number of country and regional grants provided**	53	—	102	—	All

Note: *The milestone and the target are based on the pipeline of countries receiving support from the Foundations window and in progress to have policies enacted. ** The methodology for the measurement is currently under development and expected to be rolled out by FY2025. Reporting modality will be determined once the Scorecard methodology is developed.

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