

GEF-8 PROJECT IDENTIFICATION FORM (PIF)

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General Project Information

Project Title

Promoting low-carbon energy access through integrated renewable electricity, e-cooking, and productive use solutions in Somalia

Region

Africa

GEF Project ID

12305

Country(ies)

Somalia

Type of Project

MSP

GEF Agency(ies):

UNDP

GEF Agency ID

10319

Executing Partner

Ministry of Energy and Water Resources

Executing Partner Type

Government

GEF Focal Area (s)

Climate Change

Submission Date

3/11/2026

Project Sector (CCM Only)

Renewable Energy

Taxonomy

Influencing models, Convene multi-stakeholder alliances, Strengthen institutional capacity and decision-making, Transform policy and regulatory environments, Demonstrate innovative approach, Deploy innovative financial instruments, Stakeholders, Private Sector, SMEs, Individuals/Entrepreneurs, Beneficiaries, Local Communities, Civil Society, Community Based Organization, Non-Governmental Organization, Type of Engagement, Consultation, Partnership, Information Dissemination, Participation, Communications, Behavior change, Education, Awareness Raising, Capacity, Knowledge and Research, Innovation, Knowledge Exchange, Capacity Development, Learning, Gender Equality, Gender Mainstreaming, Women groups, Sex-disaggregated indicators, Gender-sensitive indicators, Gender results areas, Participation and leadership, Knowledge Generation and Exchange, Access and control over natural resources, Access to benefits and services, Focal Areas, Climate Change, Climate Change Mitigation, Technology Transfer, Renewable Energy, Financing, United Nations Framework Convention on Climate Change, Enabling Activities, Nationally Determined Contribution

Type of Trust Fund

GET

Project Duration (Months)

36

GEF Project Grant: (a)

1,776,484.00

GEF Project Non-Grant: (b)

0.00

Agency Fee(s) Grant: (c)

168,766.00

Agency Fee(s) Non-Grant (d)

0.00

Total GEF Financing: (a+b+c+d)

1,945,250.00

Total Co-financing

4,324,000.00

PPG Amount: (e)	PPG Agency Fee(s): (f)
50,000.00	4,750.00
PPG total amount: (e+f)	Total GEF Resources: (a+b+c+d+e+f)
54,750.00	2,000,000.00
Project Tags	
CBIT: No NGI: No SGP: No Innovation: No Competitive Window: No	

Project Summary

Provide a brief summary description of the project, including: (i) what is the problem and issues to be addressed? (ii) what are the project objectives, and if the project is intended to be transformative, how will this be achieved? (iii), how will this be achieved (approach to deliver on objectives), and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. The purpose of the summary is to provide a short, coherent summary for readers. The explanation and justification of the project should be in section B “project description”. (max. 250 words, approximately 1/2 page)

Somalia faces one of the world’s most severe energy access and e-cooking deficits, characterized by extremely low rural electrification, high electricity costs driven by diesel dependence, and widespread reliance on charcoal and firewood for cooking. These challenges undermine livelihoods, public health, gender equality, and environmental sustainability. The project addresses these interlinked barriers by supporting an integrated transition toward affordable renewable electricity, electric cooking, and productive use of renewable energy (PURE), aligned with Somalia’s National Transformation Plan, Nationally Determined Contribution (NDC), and GEF climate mitigation priorities.

The project aims to increase access to affordable and reliable renewable energy services through standalone solar PV systems that support household electricity needs, electric cooking, and energy-enabled livelihoods. Its theory of change posits that strengthening enabling policies, financing mechanisms, and private-sector service delivery models—while demonstrating them under real-world conditions—will enable scalable, market-driven adoption of integrated solar, e-cooking, and PURE solutions, resulting in sustained emissions reductions and inclusive socio-economic benefits.

The project comprises two mutually reinforcing components. Component 1 strengthens the enabling environment through policy and regulatory support for e-cooking and PURE, development and piloting of inclusive financing mechanisms (including on-bill financing, PAYGO, results-based finance, and high-quality MRV for outcome-based finance), multi-stakeholder coordination, and national knowledge systems. Component 2 demonstrates integrated and financially viable solar service models in pilot locations, de-risking private investment and generating evidence to inform tariff optimization and national scale-up.

The project will deploy a portfolio of renewable energy systems, including solar home systems (up to 1.05 MW installed PV capacity), electric cooking solutions for 800 households, and PURE technologies for 189 micro-businesses/households, delivering approximately 32,382 MWh over a 20-year lifetime. Direct emission reductions are estimated at 59,505 tCO₂ over 20 years (and net anthropogenic CO₂ emission reduction of 8,467 tCO₂ over 20 years). Applying a conservative 1× replication factor, total cumulative emission reductions are estimated at 119,010 tCO₂ (and net anthropogenic CO₂ emission reduction of 8,467 tCO₂ over 20 years). The project will directly benefit 11,040 people, including more than 5,520 women and 1,840 households and micro-enterprises, while building capacity across government, private sector, and development partners.

Indicative Project Overview

Project Objective

To increase access to affordable, reliable renewable energy services in Somalia through the deployment of standalone solar PV systems that enable household electrification, e-cooking, and productive use of renewable

energy, thereby reducing greenhouse gas emissions, strengthening livelihoods, promoting gender equality, and narrowing disparities in energy access.

Project Components

Component 1: Supporting enabling environment for energy access, electric cooking and productive use and livelihoods creation

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
580,000.00	970,720.00

Outcome:

- 1.1. Reduced greenhouse gas emissions from cooking and productive energy use in Somalia through scaled electric cooking solutions and renewable energy technologies for productive use, enabled by strengthened policies, markets, and financing mechanisms.
- 1.2. Adoption of modern electric cooking and energy-efficient productive-use technologies increased among households and micro-enterprises, generating evidence on performance, affordability, and socio-economic benefits to inform scale-up.
- 1.3. Knowledge, coordination, and market linkages strengthened to support scale-up of integrated renewable energy solutions for electrification and livelihoods

Output:

Output 1.1.1: National and sub-national policy, regulatory, and institutional frameworks for e-cooking and the productive use of renewable energy strengthened and aligned with renewable electrification goals, informed by evidence from pilot implementation.

Output 1.1.2: Innovative and inclusive financing mechanisms for e-cooking and PURE designed and deployed, including mechanisms that leverage private sector participation and results-based finance.

Output 1.1.3: Multi-stakeholder coordination mechanisms established in pilot locations to strengthen sub-national governance and accelerate the adoption of e-cooking and PURE solutions.

Output 1.2.2: Targeted, gender-responsive capacity building, skills training, and awareness activities delivered to households, women's groups, micro-enterprises and local authorities to strengthen understanding and adoption of e-cooking and productive use of energy, highlighting health benefits, cost savings, safety, and time-use gains.

Output 1.3.1: Digital reporting and monitoring system enhanced and operational to support performance tracking, learning, and scale-up of integrated renewable solar electrification, e-cooking, and productive-use solutions.

Output 1.3.2: Knowledge products generated, and national learning and regional exchange mechanisms established to support replication and scale-up of integrated renewable solar electrification, e-cooking, and productive-use solutions.

Output 1.3.3: National policy dialogue and multi-stakeholder coordination platform established to strengthen market development and scale-up of integrated renewable solutions.

Component 1: Supporting enabling environment for energy access, electric cooking and productive use and livelihoods creation

Component Type	Trust Fund
Investment	GET
GEF Project Financing (\$)	Co-financing (\$)
160,000.00	400,000.00

Outcome:

1.2. Adoption of modern electric cooking and energy-efficient productive-use technologies increased among households and micro-enterprises, generating evidence on performance, affordability, and socio-economic benefits to inform scale-up.

Output:

Output 1.2.1: Efficient e-cooking and productive-use technologies deployed and operational in households and micro-enterprises, connected to renewable energy-based standalone PV systems in selected locations, generating evidence on user adoption, livelihood impacts, and affordability.

Component 2: Demonstration of integrated, private-sector-led solar electrification models

Component Type	Trust Fund
Investment	GET
GEF Project Financing (\$)	Co-financing (\$)
744,986.00	2,001,680.00

Outcome:

2.1. Integrated, private sector-led solar electrification models demonstrated and adopted, improving access to reliable and affordable energy services for households and micro-enterprises and enabling replication and scale-up.

Output:

Output 2.1.1: Pilot locations established with operational integrated solar solutions (standalone PV), delivering electricity access and electric cooking, and productive use of energy services to households and micro-enterprises.

Component 2: Demonstration of integrated, private-sector-led solar electrification models

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
80,000.00	200,000.00

Outcome:

2.1. Integrated, private sector-led solar electrification models demonstrated and adopted, improving access to reliable and affordable energy services for households and micro-enterprises and enabling replication and scale-up.

Output:

Output 2.1.2: Pilot-level regulatory and tariff frameworks analyses conducted to inform optimization, financial viability, and scale-up of integrated solar electrification models.

M&E

Component Type	Trust Fund
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Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
50,000.00	50,000.00

Outcome:

3.1. Project performance and accountability strengthened through effective digital monitoring and evaluation systems.

Output:

3.1.1. A participatory, effective, and gender-inclusive digital monitoring and evaluation system implemented, including (i) Ongoing project M&E and reporting, and (ii) Terminal Evaluation (TE), in line with UNDP-GEF requirements.

Component Balances

Project Components	GEF Project Financing (\$)	Co-financing (\$)
Component 1: Supporting enabling environment for energy access, electric cooking and productive use and livelihoods creation	580,000.00	970,720.00
Component 1: Supporting enabling environment for energy access, electric cooking and productive use and livelihoods creation	160,000.00	400,000.00
Component 2: Demonstration of integrated, private-sector–led solar electrification models	744,986.00	2,001,680.00
Component 2: Demonstration of integrated, private-sector–led solar electrification models	80,000.00	200,000.00
M&E	50,000.00	50,000.00
Subtotal	1,614,986.00	3,622,400.00
Project Management Cost	161,498.00	701,600.00
Total Project Cost (\$)	1,776,484.00	4,324,000.00

Please provide justification

NA

PROJECT OUTLINE

A. PROJECT RATIONALE

Briefly describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

Situation Analysis

Somalia, located in the Horn of Africa, occupies a strategically important position with borders to Ethiopia, Kenya, and Djibouti, and an extensive coastline along the Gulf of Aden and the Indian Ocean. The country's geography is characterized by arid and semi-arid landscapes, making livelihoods highly sensitive to climate variability, drought, and resource scarcity. Somalia's population exceeds 19 million and is among the youngest globally, with rapid urbanization placing additional pressure on already limited infrastructure and public services. Despite recent political and institutional reforms, Somalia continues to face significant development challenges, reflected in its low Human Development Index and persistent poverty across rural and peri-urban areas.

Energy poverty remains one of the most binding constraints to Somalia's socio-economic development. Electricity access is extremely uneven: while urban electrification is estimated at around 60%, rural access remains as low as 15%. In the absence of a national grid, electricity supply has evolved almost entirely through private Electricity Service Providers (ESPs) operating isolated diesel-based mini-grids. This fragmented and fuel-dependent system results in some of the highest electricity tariffs in the world. Such costs severely limit household access and discourage electric cooking as well as other forms of productive use of electricity and services.

The cooking sector represents an even more acute dimension of Somalia's energy challenge. An estimated 80 to 90% of households rely on traditional biomass (charcoal and firewood) for daily cooking, while only around 5% of the population has access to clean cooking (and e-cooking) solutions. Indoor air pollution from biomass cooking is a leading risk factor for respiratory and cardiovascular diseases, disproportionately affecting women and children who spend long hours near cooking fires. Despite Somalia's abundant solar resource, high electricity prices and weak market development have so far prevented large-scale adoption of electric cooking as a viable alternative.

Energy poverty also critically constrains productive use of renewable energy across key value chains. Livestock, which underpins rural livelihoods and export revenues, is particularly affected through the milk value chain. In the absence of electricity and cold storage, fresh milk spoils rapidly, often within hours, forcing producers to sell at low prices or discard unsold volumes. Without access to milk chillers, refrigeration, or small-scale processing equipment, opportunities for value addition, income stabilization, and nutrition improvement remain largely unrealized. Similar challenges affect Somalia's fisheries sector, which holds significant untapped potential given the country's 3,300-kilometer coastline, one of the longest in Africa. Fisheries could play a transformative role in food security, employment, and export diversification. However, the sector is constrained by extremely limited access to electricity and cold-chain infrastructure. Diesel-powered cold storage, where available, is prohibitively expensive for small operators due to fuel costs and maintenance, preventing broader investment in refrigeration, ice machines, or processing facilities.

Even where electricity exists, high tariffs discourage investment in energy-intensive equipment. Many businesses deliberately limit electricity use to avoid high bills, reinforcing a cycle in which low demand keeps tariffs high and prevents mini grids from achieving economies of scale. This underutilization weakens both livelihoods and the financial viability of decentralized energy systems.

Access to finance represents a further structural barrier in Somalia. Households and micro-entrepreneurs typically lack the capital to purchase solar systems, which could enable them to have electric cooking^[1] and/or other forms of productive use of renewable energy. Appliance leasing, pay-as-you-go, and bundled electricity-plus-appliance service models remain underdeveloped, and few Electricity Service Providers (ESPs) have the capacity or incentives to offer them. At the institutional level, policy and planning frameworks for e-cooking and PURE, linked to electrification from renewables, are still emerging. While national strategies increasingly recognize the importance of productive energy use and e-cooking, concrete incentives, standards, and data systems remain limited, constraining effective system design and investment prioritization.

Current Situation

Somalia is at a critical stage in its development. While progress has been made in political stabilization, institutional reform, and economic recovery, as reflected in the National Transformation Plan (2025 - 2029) and updated energy legislation, access to modern, affordable energy remains one of the country's most significant constraints.

Somalia's electricity access remains highly unequal, with rural areas significantly underserved. Private diesel-based mini-grids dominate supply, resulting in high costs and limited productive use (See Situation Analysis, Project Rationale for detailed figures).

Widespread reliance on biomass for cooking continues to drive deforestation and health risks, particularly for women and children. These impacts are detailed in the Situation Analysis and Cooking Practices sections.

Energy shortages also weaken key sectors such as agriculture, livestock, fisheries, and food processing. Limited refrigeration and cold-chain infrastructure led to significant post-harvest losses, reduced incomes, and lower rural resilience.

Although reforms, including the Electricity Act, the establishment of the National Electricity Authority, and digital regulatory tools, mark important progress, institutional systems remain at an early stage. Data gaps, weak financing models, and limited experience with electric cooking and productive-use solutions constrain sector transformation.

In this context, Somalia's current energy situation is characterized by high costs, low access, heavy reliance on diesel and biomass, suppressed productive demand, and emerging but still-fragile institutional capacity. Addressing these interlinked challenges requires integrated solutions that simultaneously reduce the cost and carbon intensity of electricity, enable electric cooking transitions, unlock productive uses of energy, and strengthen policy, regulatory, and market frameworks. The project responds directly to this context by targeting both supply and demand side barriers and aligning energy access with livelihoods, health, gender equality, and climate objectives.

Electricity Sector Overview

Somalia's electricity sector is highly fragmented and underdeveloped. With no national grid or public utility, power is supplied by more than 50 private Electricity Service Providers operating isolated diesel-based mini-grids. Installed capacity is estimated at 340 - 350 MW, of which only 50 - 60 MW comes from renewable sources, mainly solar. The dominance of diesel (about 85 - 90% of supply) leads to high costs, fuel price volatility, and carbon-intensive generation.

Because mini-grids are not interconnected, each provider operates independently, leading to inefficiencies and high costs. Electricity use remains limited, especially in rural areas (See Situation Analysis for access and Baseline situation without the project for tariff data).

In summary, Somalia's electricity sector is marked by small-scale diesel mini-grids, very high costs, and highly uneven access. There is no unified transmission network or central utility responsible for planning expansion, which results in urban areas having expensive power while vast rural regions remain without electricity. This situation has significant repercussions as the manufacturing and large industries are almost non-existent, as they cannot thrive with electricity prices around 1 USD/kWh. Even small businesses and farms struggle to utilize electricity effectively due to its high cost and limited availability. The challenge lies not only in extending service to new areas but also in fundamentally reducing electricity costs and improving reliability. This is where a transition to renewable, distributed energy solutions becomes essential.

Renewable Transition and Policy Framework

The Government of Somalia recognizes renewable energy as central to achieving affordable and sustainable electricity. The 2018 National Energy Policy and the National Transformation Plan (NTP 2025 - 2029) set ambitious goals, including 80% national electrification by 2029, with a strong focus on off-grid solar solutions for rural areas. Somalia's high solar potential (5.5–7 kWh/m²/day) positions solar energy as a strategic alternative to diesel. Long-term planning documents, including the National Electrification Strategy/Power Master Plan, the 2025 Generation and Transmission Plan, and the National Renewable Energy and Energy Efficiency Action Plans, outline pathways to expand renewable generation, modernize infrastructure, and achieve universal access by 2045.

Institutional reforms are advancing this transition. The 2023 Electricity Act established the National Electricity Authority (NEA) as an independent regulator and provides for new entities to promote renewable energy and rural electrification. Although still being operationalized, this framework aims to reduce fragmentation, strengthen regulation, and attract investment. Somalia is also aligning with regional initiatives, including membership in the Eastern Africa Power Pool and planned interconnection studies with Ethiopia.

Climate commitments further reinforce the renewable shift. In its updated Nationally Determined Contribution (NDC 3.0), Somalia prioritizes renewable energy expansion and improved cooking technologies as key mitigation measures, emphasizing decentralized renewable systems with storage and productive-use applications. The country has also joined global efforts to scale up renewables and identified electric cooking as a national priority.

Current cooking practices and challenges

Access to clean cooking (including e-cooking) in Somalia remains one of the most pressing and under-addressed dimensions of the country's energy poverty, with only 5% of the population using clean cooking^{[2]²}. This means 95% of households still cook with solid fuels, one of the highest rates in the world. The urban-rural gap is stark. In cities, 60–65% of families use charcoal (with 8% using clean fuels by 2022), whereas in rural and nomadic communities, almost 99% of households depend on firewood or charcoal^{[3]³}. Modern cooking fuels such as electricity, LPG, or biogas remain largely inaccessible or unaffordable for most of the population. This widespread reliance on traditional biomass is deeply entrenched in the absence of affordable alternatives, limited infrastructure, and high electricity tariffs, and it carries severe implications for health, the environment, livelihoods, and food security.

Household cooking practices in Somalia are shaped by large household sizes, which average 6–7 people per household^{[4]⁴}, with many families hosting extended relatives or displaced persons. Cooking sufficient food for such large households requires significant amounts of energy daily. Biomass fuels remain the default option because they are perceived as scalable for cooking large meals, despite being inefficient, labor-intensive, and harmful. Electric cooking, where electricity is available, is often viewed as impractical due to high electricity prices, limited power capacity, and uncertainty about whether systems can handle the sustained loads required for cooking for large families.

This reliance on biomass has severe health consequences. Indoor air pollution, primarily from cooking smoke, contributes to an estimated 27,550 deaths annually, about 2% of all deaths in Somalia^{[5]⁵}. Women and children are disproportionately affected, with 60.3% of households facing high smoke exposure risk^{[6]⁶}. The national average PM2.5 concentration is nearly three times the WHO guideline^{[7]⁷}, driving high rates of respiratory illness, adverse pregnancy outcomes, and chronic disease.

Environmentally, biomass use is a major driver of deforestation. Somalia loses approximately 40,000 hectares of forest annually, with 4.4 million trees felled each year for charcoal production^{[8]⁸}. Despite a UN export ban, domestic demand continues to fuel unsustainable harvesting, contributing to land degradation, biodiversity loss, and greenhouse gas emissions—estimated at 5 million tonnes of CO₂ between 2000 and 2017⁹.

The burden of fuel collection falls heavily on women and girls, who spend 3–5 hours daily sourcing firewood^{[9]⁹}. This time, poverty limits opportunities for education and income generation. Improved cookstoves could reduce this burden by up to 60%, saving over 1,200 hours per household annually¹⁰.

The institutional and market ecosystem for e-cooking in Somalia remains promising. While national energy reforms are underway, electric cooking is not yet fully integrated into energy planning, electrification strategies, or tariff design. Appliance standards, safety guidelines, and financing mechanisms for e-cooking are limited, and private-sector actors face high risks in introducing new cooking technologies without supportive policies or demand-side incentives. Awareness of the long-term cost savings, health benefits, and safety of modern cooking solutions remains low, particularly in peri-urban and low-income communities. Somalia is developing a National Clean Cooking strategy in 2026, which will set the overall framework for scaling access to e-cooking solutions, particularly modern solutions, including renewable-powered electric cooking, that are proven to be more efficient and resilient.

In summary, Somalia's cooking sector is characterized by high biomass dependence, severe health and environmental impacts, affordability constraints on modern fuels, and systemic barriers to e-cooking adoption. Large household sizes, high electricity prices, limited infrastructure, and weak market and policy support combine to lock households into harmful and inefficient cooking practices. Addressing these challenges requires integrated interventions that reduce electricity costs, enable e-cooking through appropriate system design and financing, promote behavior change, and place women at the center of e-cooking transitions. The project directly responds to this context by linking renewable electricity expansion with electric cooking solutions, productive use of energy, and enabling policy and market frameworks.

Current PURE practices and challenges

The productive use of energy, particularly from renewable sources, remains severely underdeveloped in Somalia despite its critical importance to livelihoods, food security, and economic resilience. While agriculture, livestock, and fisheries account for a substantial share of employment and income, especially in rural and peri-urban areas, these sectors operate largely without reliable, affordable electricity. Limited access to modern energy constrains value addition, increases post-harvest losses, and reinforces low-income, subsistence-based economic structures.

Livestock is the backbone of Somalia's economy, contributing an estimated 40–60% of GDP and supporting the livelihoods of more than 65% of the population. Based on the most recent data from 2020–2023, Somalia's total annual milk production (including camel, cow, and goat milk) is estimated at approximately 2.5 billion liters, with camel milk contributing the largest share due to the country's significant camel population^[10]¹⁰. Seasonal variation is substantial: during the rainy season, households produce an average of 4.5 liters of milk per day, dropping to 1.6 liters in the dry season⁴. For pastoral households, income from milk sales can reach \$6–\$10 per day in peak seasons, translating to roughly \$180–\$300 per month, while urban dairy farms report monthly profits ranging from \$250 to \$2,500^[11]¹¹. The dairy sector supports the livelihoods of millions, with over 65% of Somalia's population engaged in livestock-related activities, and women comprising more than 80% of the workforce in small-scale milk trade and retail^[12]¹². Milk production, in particular, is a key source of nutrition and income for many households, with women playing a central role in milking, processing, and local marketing. However, the absence of electricity for cooling and storage severely limits the milk value chain. Fresh milk spoils rapidly in Somalia's hot climate, often within a few hours, forcing households to sell immediately at low prices or discard unsold milk. Thus, interventions are suggested to address constraints along the milk chain and preservation of milk, such as to train producers on preservation and processing methods during high milk production seasons. Moreover, trade along the milk chain can be enhanced if the traders are supported with refrigerators to prevent spoilage, a milk tanker with a cooling system for hygienic milk transportation and to minimize spoilage during transportation, and improved road conditions to ensure all-weather connectivity to the markets^[13]¹³. Therefore, without access to refrigeration, chilling centers, or electric pasteurization, producers are unable to aggregate supply.

Post-harvest milk losses in Somalia are estimated to range between 20–30%, driven primarily by lack of cold storage and transport. These losses translate directly into reduced household incomes, food waste, and nutritional deficits, particularly for children. According to a joint World Bank/FAO assessment, Somali women “control at least 80% of milk production and 100% of milk collection”^[14]¹⁴. In practice, this means virtually all small-scale milk collectors, vendors, and retail traders in urban and peri-urban markets are women. Women, who dominate small-scale dairy trade in urban and peri-urban markets, are disproportionately affected. Energy poverty thus reinforces gender inequities by limiting women's ability to scale enterprises, stabilize income, or improve product quality and safety. Renewable energy-powered milk cooling and processing technologies, such as solar-powered milk chillers or mini-grid-connected refrigeration remain rare and largely unaffordable under current price conditions.

Similar challenges affect Somalia's fisheries sector, which holds significant untapped potential given the country's long coastline of over 3,300 kilometers, one of the longest in Africa. The fisheries sector contributes 3% to GDP and 2% to Somalia's exports^[15]¹⁵. Fisheries could play a transformative role in food security, employment, and export diversification. However, the sector is constrained by extremely limited access to electricity and cold-chain infrastructure. Fish spoilage rates are high, often exceeding 30–40 %, due to lack of ice production, cold storage, and refrigerated transport. Most artisanal fishers are forced to sell catches immediately at the landing site, often at unfavorable prices, or see their catch wasted altogether.

Cold storage powered by diesel generators is prohibitively expensive for small-scale operators, given high fuel costs and maintenance requirements. As a result, investments in refrigeration, ice machines, or cold rooms are rare outside a few urban centers. The absence of reliable renewable energy solutions prevents the development of fish-processing, smoking, drying, or freezing enterprises that could significantly increase incomes and create jobs. Women, who are often engaged in fish processing and retail, face limited opportunities to participate in higher-value segments of the fisheries value chain due to energy constraints.

Beyond livestock and fisheries, energy poverty constrains a wide range of other productive activities, including agro-processing, grain milling, oil pressing, fruit and vegetable storage, welding, carpentry, tailoring, and water pumping for irrigation. Where electricity is available, high tariffs discourage productive use. Businesses often limit operations to lighting or phone charging rather than investing in energy-intensive equipment. This underutilization weakens the financial viability of electricity production and effects a cycle in which low demand leads to high tariffs, further suppressing productive activity.

Access to finance represents a major barrier to PURE adoption as well. Small producers and micro-entrepreneurs typically lack capital to purchase productive-use appliances such as refrigerators, freezers, milk chillers, or electric pumps. Leasing, pay-as-you-go, and appliance financing models remain underdeveloped, and few energy service providers offer bundled electricity-plus-appliance services. Without tailored financing and technical support, renewable energy systems fail to translate into meaningful economic transformation for users.

Institutional and policy frameworks for PURE in Somalia are still emerging. While national electrification strategies increasingly recognize the importance of productive use, concrete incentives, standards, and planning tools remain limited. Energy planning has traditionally focused on connections rather than utilization, and data on productive demand, appliance needs, and sector-specific value chains are scarce. This limits the ability of government and private actors to design systems that match productive loads or to prioritize investments with the highest livelihood and climate impact.

Somalia's current PURE landscape is characterized by high economic dependence on energy-constrained value chains, significant post-harvest losses, gendered livelihood impacts, and limited access to affordable, renewable-powered productive technologies. The lack of cold storage for milk, fish, and agricultural products represents a critical bottleneck to income generation, food security, and climate resilience. Addressing these challenges requires integrated renewable energy solutions that go beyond household electrification to actively support productive activities, reduce losses, and enable value addition. The project responds directly to these constraints by linking solar solutions with targeted productive-use technologies, financing mechanisms, and capacity-building interventions, laying the foundation for inclusive, low-carbon livelihood creation on a scale.

Situation Analysis

Decades of conflict and underinvestment have left the country without an integrated national grid, resulting in a patchwork of privately operated, diesel-based mini-grids concentrated in urban and peri-urban areas. Rural electrification remains critically low, commonly estimated at around 15%, compared to approximately 60% in urban centers, thus leaving the majority of rural households and productive activities without access to modern energy services. Where electricity is available, tariffs frequently range between USD 0.35 and USD 1.50 per kWh, reflecting high diesel fuel costs, import dependence, small system sizes, and limited economies of scale. These tariffs are among the highest globally and are unaffordable for most low-income households and micro-enterprises. At the same time, many families would still depend on charcoal and firewood for cooking, which would continue to harm people's health, deepen gender inequalities, and contribute to environmental degradation (all challenges already highlighted in the Situation Analysis). Somalia's energy system remains one of the least developed and most fragmented globally, characterized by extremely low access, very high costs, and heavy reliance on polluting fuels.

Electricity use in peri-urban and rural areas is typically limited to basic services such as lighting, phone charging, and small appliances, with minimal uptake of productive or income-generating applications. This constrains rural economic development and reinforces a vicious cycle, i.e. low demand and low consumption undermine the financial viability of decentralized systems, discouraging private operators from expanding networks or investing in cleaner generation technologies. Diesel dependence also exposes communities and service providers to fuel price volatility and supply disruptions, further undermining reliability and affordability.

From an economic perspective, the lack of modern energy services severely constrains value chains critical to rural livelihoods, particularly in agriculture, livestock, fisheries, and small-scale processing. Somalia's economy is heavily dependent on livestock and agri-food systems, yet inadequate access to electricity limits milk chilling, meat processing, cold storage, and ice production. In the dairy sector, for example, the absence of cold storage leads to rapid spoilage of fresh milk, especially during peak production periods, reducing incomes for pastoralist households and limiting market integration. Similarly, in fisheries and horticulture, limited refrigeration and cold-chain infrastructure contribute to post-harvest losses often estimated at 20 to 30%, reducing food availability, raising consumer prices, and undermining nutrition outcomes. These losses represent not only wasted food but also wasted water, labor, and emissions embedded in production.

Baseline Scenario (without GEF intervention)

In the absence of the proposed GEF intervention, Somalia's energy sector is expected to continue evolving through a combination of national reforms and ongoing donor-supported initiatives. Programs such as the World Bank's Somali Electricity Sector Recovery Project, the Africa Minigrids Programme, and the EU's GEED/ACTIVE initiative are expected to expand electricity access, strengthen regulatory frameworks, and increase the share of renewable energy in selected areas. These efforts will contribute to gradual improvements in grid infrastructure, mini-grid hybridization, and institutional capacity. Over time, these interventions are likely to lead to a moderate increase in electrification rates, particularly in urban and peri-urban areas, as well as improved reliability and

governance of the electricity sector. Clean cooking initiatives are also expected to progress, primarily through the dissemination of improved (biomass) cookstoves and the development of national strategies and policy frameworks. In parallel, ongoing reforms of the operationalization of the Electricity Act and strengthening of the National Electricity Authority could contribute to a more structured and transparent energy sector.

However, this progress is likely to remain uneven and insufficient to address key structural challenges as these electrification efforts will continue to prioritize basic electricity access, with limited integration of electric cooking and productive uses of energy, i.e., to strengthen the demand (electric utilization), not just the supply side (access to affordable electricity), nor linking them. Diesel-based systems are expected to remain dominant in many areas, sustaining high tariffs and limiting affordability for households and micro-enterprises. Similarly, clean cooking interventions are likely to remain focused on incremental improvements within biomass-based systems, without enabling a structural transition toward electric cooking at scale. As a result, adoption of modern cooking solutions will remain limited, and reliance on traditional fuels will persist, particularly among low-income and rural populations.

As a result, significant gaps will persist, particularly in rural and peri-urban areas. These include limited adoption of end-use technologies (such as electric cooking and productive-use equipment), lack of integrated energy service models, weak consumer financing mechanisms, and insufficient linkage between energy access and livelihoods development. Without targeted interventions to address these gaps, Somalia risks remaining locked in a cycle of high energy costs, low productive demand, continued biomass reliance, and constrained economic transformation.

Looking ahead, the evolution of Somalia's energy sector will also be influenced by broader socio-economic and environmental drivers that are independent of the project. Rapid population growth, urbanization, and increasing demand for energy services are expected to drive higher electricity consumption, particularly in peri-urban areas. At the same time, continued volatility in global fuel prices is likely to affect the cost of diesel-based generation, reinforcing both the risks associated with fuel dependence and the economic rationale for renewable energy, while also creating uncertainty for consumers and service providers. Moreover, climate change represents a critical external driver as Somalia is highly vulnerable to climate variability, including recurrent droughts, floods, and temperature extremes, which directly affect livelihoods, agricultural productivity, and energy demand patterns. These risks are expected to intensify over time, increasing the need for resilient, decentralized, and climate-adaptive energy solutions.

The continued expansion of digital services and mobile money platforms is expected to create opportunities for innovative financing models, including pay-as-you-go and on-bill repayment mechanisms. While these trends could support improved affordability and access to energy services, they are unlikely on their own to overcome existing structural barriers related to technology adoption, market development, and integrated energy service delivery linked to livelihood development. Therefore, without the proposed GEF project, Somalia's energy sector is expected to progress incrementally but remain characterized by persistent gaps in affordability, integration, and utilization. This will limit the ability of energy access to drive broader socio-economic transformation, climate mitigation, and gender equality outcomes as described further in the project description.

Lessons learned from past and ongoing interventions

By aligning with national priorities and leveraging synergies with ongoing projects and initiatives, the project aims to maximize impact, avoid duplication, and contribute to a coherent energy transition strategy. An overview of baseline projects and complementarity with the project is given below:

Project Information	Summary of project initiative	Complementarity with the proposed PIF
Somalia's national Africa Minigrids Project – UNDP/GEFs (GEF ID: 10470) Project Value: \$3.2 Implementer/Partners: UNDP, GEF, MoEWR Status/Closing Date : Ongoing/ end of 2027	As part of the UNDP-supported, GEF-financed Africa Mini-grids Program (AMP), the AMP in Somalia seeks to support access to clean energy by increasing the financial viability, and promoting scaled-up commercial investment, in low-carbon mini-grids in Somalia, with a focus on cost-reduction levers and innovative business models. The project strategy corresponds to the unique nature of the energy sector in Somalia, and the AMP's concentration on clean energy, by focusing on digital transformation and institutionalization of ongoing initiatives to expand the adoption of solar PV technologies, and promote hybridization of existing diesel minigrid systems as a financially viable path to driving down tariffs and reducing GHG emissions in Somalia.	Policy & regulatory framework (Somalia AMP-specific): Somalia's AMP is directly supporting MoEWR and the national regulator to strengthen the national mini-grid policy and regulations (including licensing, tariff setting, and consumer protection) and to improve regulatory transparency (e.g., translation of licensing/tariff regulations into English). The proposed project can leverage these strengthened regulatory foundations and extend their practical application to standalone PV-based service delivery and the integration of e-cooking and PURE into electrification rules (e.g., customer protection, service quality, consumer finance enablement). Private sector engagement and delivery models: The Somalia AMP is explicitly designed to improve the financial viability of low-carbon mini-grids and promote scaled-up commercial investment, including through innovative business models and

		cost-reduction levers. Complementarity with the proposed project is that the project can coordinate with AMP's engaged ESP ecosystem and capacity-building pipeline (business modelling) to roll out turnkey, ESP-led bundled services for households and micro-enterprises (PV + e-cooking + PURE), reducing duplication and accelerating market uptake. Data, analytics, and digitalization: Somalia AMP has completed a Digital Readiness Assessment and developed a Digital Strategy for the mini grid sector and has conducted national dialogues and technical trainings on tariff modelling. The proposed project will build on AMP's digital and analytical groundwork to strengthen evidence-based planning, including affordability analysis for cooking loads, productive-demand profiling, and performance monitoring of standalone PV service packages.
Somali Electricity Sector Recovery Project (SES RP) - World Bank Project Value: \$150 million Implementer/Partners: WB, FGS, MoEWR, ESPs, Ministries of Health and Education Status/Closing Date : Ongoing/end of 2026	The Project Development Objective is to increase access to lower-cost and cleaner electricity supply in project areas and to re-establish the electricity supply industry in Somalia. Reconstructing and reinforcing sub-transmission and distribution networks in major load centers like Mogadishu and Hargeisa to connect existing independent ESP networks and improve reliability. Installing Solar PV and Battery Energy Storage Systems (BESS) at existing diesel mini-grids. Providing stand-alone solar off-grid access to 585 high-priority health and education facilities in rural and remote areas to ensure reliable power for essential services like maternal health centers and schools. Strengthening the energy sector's governance and regulation, developing policies, and supporting the establishment and operation of the National Electricity Authority (NEA) and Somaliland Energy Commission (SEC)	Regulatory Alignment: The proposed project can leverage the improved and operational regulatory framework (e.g., the Electricity Act's secondary legislation) being developed under SESRP Component 4, ensuring any new energy investments are compliant and sustainable. Private Sector Partnership: SESRP works extensively with private Electricity Service Providers. This proposed project can coordinate with these established partners, benefiting from existing infrastructure, local knowledge, and operational capacity. Data & Planning: The project is developing a Sector Least Cost Development Plan and an Electricity Access Plan based on geospatial analysis. The project can utilize this robust planning data for site selection and project design, ensuring alignment with national priorities and avoiding redundant efforts.
Somalia Urban Resilience Project II (SURP II) - 'NAGAAD Project' Project Value: \$278.5 million total Implementer/Partners: WB, FGS; Ministry of Public Works, Reconstruction and Housing (MPWRH); Project Coordination Unit (PCU); Status/Closing Date: Ongoing/end of 2026	The primary objective of SURP II is to strengthen the public service delivery capacity of local governments and increase access to urban infrastructure and services in selected urban areas. It focuses on improving urban resilience to climate and conflict-related shocks through infrastructure development (e.g., roads, drainage systems), institutional strengthening, capacity building for municipal staff, and support for urban forced displacement issues.	Capacity Building & Governance: SURP II is heavily invested in building the capacity of local governments and project implementation units (PIUs). This project can leverage these existing, more capable local institutions and project management structures, reducing overhead and increasing efficiency and sustainability. Community Engagement: SURP II has established community engagement frameworks and grievance redress mechanisms (GRMs) at the municipal level. This project can coordinate with these existing channels for smoother stakeholder engagement and social risk management
Households' Access to Renewable Energy and Advanced Cooking Technologies - HAREACT project Project Value: \$7.6 million grant from AfDB with Gov. contribution Implementer/Partners: AfDB, FGS, MoEWR, and private sector partners	HAREACT aims to provide off-grid electricity access and clean cooking technologies to communities in Somalia, contributing to economic growth, health improvements, and reduced environmental impact from biomass use. Key components of the project include: - Expanding power generation with solar PV and battery storage in five towns. - Expanding the electricity distribution network and connecting new customers, including vulnerable populations. - Distributing 25,000 advanced cookstoves.	While both HAREACT and the project operate in the broader clean energy and cooking space, their technological focus, scale, and intervention logic differ, making them complementary rather than overlapping. - Improved cookstoves vs. electric cooking transition: HAREACT promotes advanced biomass cookstoves, which improve efficiency and reduce smoke compared to traditional stoves but continue to rely on charcoal or firewood. The project, by contrast, promotes electric cooking powered by

Status/Closing Date : Ongoing/2026	- Providing technical assistance and capacity building to government entities and the private sector.	standalone solar PV systems, enabling a structural shift away from biomass fuels. Thus, HAREACT supports short to medium-term efficiency gains within the biomass system, while Repowering Somalia pilots a long-term transition pathway toward full electrification of cooking, aligned with climate mitigation and electrification strategies. - Grid and mini-grid Expansion vs. SHS PV service models: HAREACT expands distribution networks and reinforces solar PV generation in selected towns. The project, however, focuses on standalone PV systems bundled with e-cooking and productive-use technologies, particularly in peri-urban and off-grid contexts. - Technology demonstration and financing Innovation: The project can test innovative financing structures that, if successful, could inform future AfDB-supported scale-up under HAREACT or successor programs. - Policy and strategy alignment: HAREACT contributes to institutional strengthening and clean cooking promotion. The projects complement this by supporting policy integration of electric cooking within national electrification planning, appliance standards, regulatory frameworks for PV-based service models, and finance readiness. Close coordination through MoEWR and joint stakeholder platforms will ensure geographic and technological alignment. HAREACT supported communities receiving improved cookstoves may serve as future candidates for electric cooking pilots, creating a sequenced transition pathway rather than duplication.
Climate promise Project value: 324,000 USD (for Somalia) Implementer/Partners: MoEWR Status/Closing Date : launch in 2026	Under the Climate Promise, UNDP delivers the UN system's largest portfolio of support on climate action in more than 140 countries. This portfolio is worth over US\$2 billion in grant financing and draws on UNDP's expertise on gender equality and inclusion, energy, poverty, health, climate security, nature and biodiversity, among others. UNDP will be starting a new Project in Somalia on Clean Cooking under the Climate Promise that will be implemented in 2026. The Climate Promise activities are two fold: (1) supporting the development of Somalia's Clean Cooking strategy, through policy, market assessments and stakeholder engagement, and (2) conducting electric cooking (e-cooking) pilots in 2 already selected communities.	The proposed project and the Climate promise activities planned in Somalia have a unique opportunity to synergies work on-ground and demonstrate an integrated approach by: - Deploying electric cooking (e-cooking) pilots integrated with stand-alone PV systems in two Climate promise identified locations. - the policy work of the proposed project will focus on developing sectoral actions and strategies for scaling electric cooking in the context of the National Clean Cooking Strategy that will be developed as part of the Climate-Promise supported activities. - In addition to providing guidance on appliance standards, the policy work under the proposed project should support the enabling regulations and frameworks for stand-alone PV systems and private operators to pilot for example on-bill financing and other repayment mechanisms that are essential for electric cooking uptake. - With the aim of ensuring sustained adoption of electric cooking the proposed project will create understanding and build skills that communities need to understand the different options - how to use an e-cooking equipment, the payment structures available to them (e.g., on-bill financing

EU's GEED/ACTIVE Program Project value: 40.5m EUR (47.5m USD) Implementer/Partners: MoEWR and Federal Ministry of Agriculture and Irrigation Status/Closing Date : 2024 - 2028	The proposed Programme will boost the provision of on-grid and off-grid renewable energy solutions to households and Micro, Small Medium Enterprises through the adoption of a market-based approach to strengthen productivity and economic growth. Specifically, the Action aims at supporting the development of food value chains by facilitating investments in affordable, clean, and modern energy and in climate adaptation solutions, which, if implemented well, should lead to substantial progress on SDG 7 (Ensure access to affordable, reliable, sustainable, and modern energy). To achieve this, the Action will support the financing of private sector investments which can spur green economic development, together with relevant advisory services, technical assistance and training on renewable energy, agro-ecological approaches and nature-based solutions.	and PAYGO), as well as how to best utilize and maintain the solar PV systems. - Solar Cold-Chain for Fisheries: Both initiatives target the fishing value-chain, but at different scales. The EU's GEED/ACTIVE program plans to build fish processing plants and cold storage facilities in key coastal hubs (e.g. Eyl, Bosaso, Berbera, Mogadishu). The proposed project complements this by piloting off-grid solar freezers and chillers for artisanal fishers and cooperatives at landing sites. Synergy: projects' small-scale solar freezers (50–300 L) can preserve daily catches at the village level, feeding into GEED's larger cold storage and processing centers. Coordinating site selection means fishermen can store fish immediately after catch (via project supported units) and later aggregate at GEED-funded facilities for processing/export. - Solar Milk Cooling (Dairy Value-Chain): GEED/ACTIVE identifies dairy production as a priority and notes that lack of cold storage for milk causes very high spoilage. The proposed project directly addresses this gap by installing solar milk chillers and cooling carts for pastoral cooperatives and women milk sellers. Synergy: GEED may support dairy value-chain development (e.g. improving collection centers or small processing units) in areas like the Northwest Agropastoral Zone and Southern Pastoral zones. The proposed project supported solar-powered milk chillers (approx. 300 L) at the community level and mobile cooling trolleys enable herders to keep milk fresh from farm to collection. Together, the programs can establish a comprehensive "farm-to-market" cold chain for milk – the project pilots the technology for on-farm and first-mile cooling, while GEED can help scale it up through financing or integration into dairy cooperatives. - Off-Grid Household Systems & e-cooking: GEED/ACTIVE primarily focuses on providing pico- and small solar kits for rural households for basic household needs like lighting and phone charging in off-grid communities. In contrast, the proposed project introduces larger 1 kW solar home systems with battery storage and electric cookstoves – a setup robust enough for e-cooking, not just lighting. Complementarity: GEED's kits address lighting poverty but do not support high-power appliances; households would still cook with charcoal. This project fills this gap by enabling solar-electric cooking, directly tackling Somalia's heavy reliance on biomass. This combined approach means communities get both basic electricity access (via GEED) and e- cooking/PUE options. - Scaling, Financing, and Policy Integration: By working in parallel, the two initiatives can leverage each other's strengths. GEED/ACTIVE brings larger-scale funding (€45+ million) and a multi-year program that can scale up successful pilots, while the proposed project offers innovation and targeted demos (with international best-practice insights). For instance, if the proposed project
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	pilots in solar cold storage or electric cooking demonstrate strong results (user acceptance, business viability), GEED – which has a market-driven, private-investment focus – could invest in scaling those models to additional districts (providing concessional financing or grants to Somali entrepreneurs to replicate the project’s solutions). - Avoiding Redundancy through Coordination: Close communication between the proposed project and GEED teams (possibly via the MoEWR as a common partner) will be vital to avoid any overlap or conflicting approaches. Geographic coordination can ensure each target region gets a complementary package of support rather than duplicate investments. Likewise, harmonizing implementation models (e.g. both possibly use local solar installers or ESCOs) can avoid sending mixed signals to the market.
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The proposed project design of this project explicitly builds on AMP Somalia’s groundwork and will complement and expand the coverage of AMP while introducing new dimensions to address gaps not fully covered by AMP, i.e. the new project will be focused on standalone PV systems and its linkage to e-cooking and PURE utilization and scaling up by financing models led by the private sector. Key lessons from AMP in this project include:

- Addressing Market Distortions from Fuel Pricing: In many countries, fossil fuel or grid electricity subsidies have distorted energy markets by making diesel or centralized power artificially cheap, thus undercutting renewables. Somalia currently lacks formal electricity subsidies (the off-grid diesel market is unsubsidized), but there are still distortions – for instance, charcoal is widely used, and its environmental costs aren’t reflected in its price, and humanitarian diesel supplies, or donor-funded generators, can create expectations of “free electricity.” The lesson is that renewable solutions must be integrated into the market on a level playing field. The project will work with the government to promote targeted support instead of across-the-board fuel subsidies. By demonstrating that solar PV systems can deliver power at a lower cost than the status quo diesel (even without subsidies), the project helps “level the playing field” for renewables. Ongoing government efforts (e.g., through the new regulator) to rationalize any future subsidy schemes will be informed by project data, ensuring that if subsidies or aid are provided, they are designed in a way that supports rather than undermines decentralized solar uptake (for example, smart output-based subsidies for poor households to afford solar, instead of subsidizing diesel fuel). This approach aligns with AMP’s findings that rational tariff and subsidy policies are key to stimulating private investment in PURE solutions.
- Technical Standards and Quality Assurance: A lesson from AMP is the importance of enforcing technical standards for solar equipment. Without national standards, there is a higher risk of subpar technology deployment, which can lead to system failures, user dissatisfaction, and erosion of trust in renewable solutions. In Somalia, technical norms for off-grid systems have been ad hoc. The proposed project will incorporate this lesson by working with the new National Electricity Authority to develop technical standards and quality assurance protocols. All equipment deployed under the project will adhere to high-quality specifications. By emphasizing quality assurance, the project ensures that early adopters have positive experiences, a critical factor for wider community buy-in. This focus on standards directly complements AMP’s policy-level work: AMP helped draft regulatory guidelines, and this project implements fine-tuning technical requirements through real-world application.
- Financing for End Users – PAYGO and Digital Payments: Another critical lesson is the absence of end-user credit as a barrier to scale. AMP confirmed that even if mini grids are built, their impact is limited if households and small businesses cannot afford connections or appliances. In Somalia, upfront connection fees or appliance costs are prohibitive for many, and consumer financing is extremely scarce. The project directly applies this lesson by incorporating the best global practices in end-user financing, such as PAYGO systems, mobile money integration, or other forms of financing, linked to stand-alone PV systems. Specifically, the project will utilize Somalia’s ubiquitous mobile money platforms to let customers pay for electricity and e-cooking and PURE equipment in small installments, a mechanism proven in East Africa but new to Somalia’s energy sector. In summary, without end-user financing, scale and inclusion suffer. The project will integrate finance models to boost adoption and revenue, complementing AMP’s upstream financial de-risking with downstream affordability solutions.
- Inclusive Governance and Stakeholder Engagement: The proposed project has embedded inclusive governance features: each pilot location will have a stakeholder committee (with representation of elders, women, and youth) to provide feedback and address complaints, ensuring the community feels ownership of the project. At a higher level, the project will convene a national coordination mechanism/roundtable that brings together federal and state authorities, the private sector, donors (including AMP and others), and community representatives. This mirrors AMP’s finding that regular coordination between all actors

prevents duplication and aligns efforts. The project will institutionalize a dialogue so that lessons from the project are fed into national policy and future investments (including AMP, HAREACT, World Bank projects). Moreover, by formalizing gender inclusion (the project's monitoring and committees will actively include women), the project applies the lesson that gender and social inclusion are not automatic but rather must be deliberately built into project governance. AMP's gender mainstreaming efforts indicated that women's involvement improves outcomes. Taking these into account, the project, for example, has set targets for women's support and requires women's participation in community committees. In essence, the project takes AMP's governance lessons forward by operationalizing inclusive, multi-stakeholder structures at both local and national levels. This will enhance transparency and accountability, helping to resolve issues swiftly and building broad support that will be crucial for scale-up post-projects.

The AMP in Somalia primarily focuses on interventions that are largely concentrated on the supply side of the energy system, particularly on mini-grid development, hybridization of diesel systems with solar PV, and institutional strengthening at the sector level. While these contributions are essential, they do not sufficiently address the demand-side constraints that limit the socio-economic impact of electrification. The proposed project complements and extends AMP by addressing these gaps:

- The proposed project introduces a strong focus on end-use applications, particularly electric cooking and productive uses of renewable energy, which are largely absent from AMP's scope. While AMP improves access to electricity, it does not systematically address how that electricity is used for cooking or income-generating activities. This project, therefore, shifts the focus from access to electricity to effective and productive utilization of electricity, which is essential for achieving climate, development, and gender outcomes.
- The project introduces integrated, standalone solar PV service models that bundle electricity access with electric cooking and productive-use technologies at the household and micro-enterprise level. In contrast, AMP focuses primarily on mini-grid systems and does not test or demonstrate bundled energy-as-a-service models that combine infrastructure, appliances, and financing. This integrated approach is critical in Somalia's context, where dispersed settlements and low demand density often limit the viability of conventional mini-grid solutions.
- The project places a strong emphasis on innovative consumer financing mechanisms to address affordability constraints for end-users. While AMP supports upstream financial viability and investment conditions for developers, it does not sufficiently address downstream affordability and access to appliances for households and micro-enterprises. The proposed project fills this gap by testing and validating financing models that enable adoption of electric cooking and productive-use technologies.
- The project generates granular, user-level evidence on adoption, affordability, gender impacts, and livelihood outcomes associated with integrated energy solutions. While AMP contributes to sector-level data and planning tools, it does not provide detailed insights into how households and enterprises use electricity for cooking and productive purposes. This project therefore provides critical evidence to inform policy, tariff design, and future investments.

It can be concluded that despite the progress achieved through AMP and other ongoing interventions, important gaps remain that limit the overall impact of electrification efforts in Somalia. Current initiatives are predominantly focusing on the supply side of the energy system, including mini-grid development, diesel hybridization, and regulatory strengthening, while insufficiently addressing the demand-side constraints. As a result, electricity access does not systematically translate into meaningful utilization for cooking or potential income-generating activities. Key gaps include the absence of integrated service delivery models that combine electricity access with end-use applications, limited availability and affordability of electric cooking and productive-use technologies, and a lack of consumer financing mechanisms to enable adoption by households and micro-enterprises. Furthermore, there is limited evidence on user behavior, affordability thresholds, gender impacts, and livelihood outcomes associated with integrated energy solutions, which constrains effective policy development and the scale up of private-sector involvement. The proposed project directly addresses these gaps by introducing bundled standalone PV-based service models linked to electric cooking and productive uses of energy, piloting innovative financing approaches, and generating robust and user-level evidence. In doing so, it complements and extends the AMP by shifting the focus from access to electricity (supply-side focus) toward its effective and productive utilization, thereby unlocking the full socio-economic, climate, and gender benefits of existing and ongoing investments.

The proposed project is therefore necessary to unlock the full development and climate benefits of existing investments and to enable a transition toward integrated, low-carbon energy systems in Somalia.

Existing Barriers

Somalia's transition toward low-emission, inclusive energy systems (particularly in the cooking sector) is constrained by a set of mutually reinforcing structural, market, behavioral, and institutional barriers. These barriers perpetuate high greenhouse gas emissions, deforestation, adverse health outcomes, gender inequalities, and limited livelihood opportunities. Namely, most low-income households cannot afford the upfront costs of solar home systems, electric cooking appliances, or productive-use

equipment. Pay-as-you-go, leasing, or consumer credit mechanisms remain limited in scale and coverage, particularly outside major cities. For micro- and small enterprises, access to capital for productive appliances such as mills, refrigeration units, welding equipment, or irrigation pumps is similarly constrained. As a result, even where electricity connections exist, productive demand remains suppressed, weakening the economic case for cleaner generation and system expansion.

On the institutional and governance side, Somalia has made important progress in recent years, including the development of an electricity legal framework and the establishment of digital licensing and tariff regulation tools supported by development partners. However, despite progress, implementation remains at an early stage, with most regulatory instruments not yet fully operational or enforced. The Ministry of Energy and Water Resources and the National Electricity Authority continue to face capacity constraints related to staffing, technical expertise, data availability, and real-time monitoring. Regulatory frameworks for mini-grids, tariffs, productive use of energy, and electric cooking are still being operationalized or are nonexistent, with limited empirical evidence from pilots to inform adaptive policymaking. Coordination between national, regional, and local actors remains uneven, and sector planning has not yet fully integrated cooking energy transitions or productive-use demand into electrification strategies.

Taken together, this constitutes a self-reinforcing cycle of energy poverty, i.e., limited access to affordable electricity drives continued reliance on diesel and biomass; high costs and lack of end-use technologies suppress productive demand; weak demand undermines system viability; and institutional constraints slow regulatory learning and scale-up. The environmental and climate consequences, such as continued diesel emissions, deforestation from charcoal, and inefficient resource use across food systems, compound Somalia's vulnerability to climate change.

Barrier 1: Heavy Reliance on Charcoal and Biomass for Cooking with Severe Health, Gender, and Climate Impacts

Electric cooking remains marginal in Somalia due to weak policy prioritization, lack of appliance standards and safety guidance, and limited integration of cooking transitions into electrification and urban development plans. E-cooking is not yet sufficiently prioritized within national energy, electrification, and urban development planning frameworks, i.e. cooking energy needs are rarely integrated into electrification strategies, utility planning, tariff design, or decentralized solar deployment programmes. As a result, renewable energy investments often focus narrowly on lighting and basic electricity services, without being designed to accommodate cooking loads or support transitions away from charcoal. This disconnect limits the transformative potential of electrification. Second, the absence of clear appliance standards, safety guidelines, and quality assurance frameworks for electric cooking technologies (such as electric pressure cookers, induction stoves, and associated wiring and protection requirements) constrains market development. Without nationally endorsed standards and guidance, consumers lack confidence in product safety and durability, regulators lack benchmarks for oversight, and suppliers face uncertainty around liability and compliance. This increases the risk of low-quality products entering the market, undermines consumer trust, and discourages responsible private-sector investment. Together, these policy, regulatory, and institutional gaps form a structural barrier that sustains Somalia's continued dependence on charcoal and biomass despite the clear health, environmental, and socio-economic costs, and despite the growing technical viability of renewable-powered electric cooking solutions.

Barrier 2: High Cost and Carbon Intensity of Electricity Services Driven by Diesel Dependence

Somalia's electricity sector remains dominated by diesel-based generation, resulting in some of the highest electricity tariffs globally (typically USD 0.35–1.50/kWh, according to World Bank and AMP assessments). High fuel costs, price volatility, and logistical constraints undermine affordability and reliability, particularly for low-income households and micro-enterprises. These conditions severely limit the feasibility of electric cooking and productive energy use, reinforcing continued reliance on charcoal and suppressing demand for cleaner alternatives.

Barrier 3: Limited Access to Inclusive Financing for E-Cooking and Productive Technologies

Upfront costs for electric cooking appliances and productive-use equipment remain prohibitive for most Somali households and micro-enterprises. Consumer financing options (such as leasing, pay-as-you-go, or service-based models) are underdeveloped, while women-led households face additional barriers due to limited access to credit and assets. As a result, even where electricity is available, adoption of e-cooking and PURE technologies remains low.

Barrier 4: Low Awareness, Skills Gaps, and Behavioral Resistance to E-Cooking Transitions

Behavioral factors, such as limited awareness of health impacts, unfamiliarity with electric cooking technologies, and concerns over safety and reliability, constrain adoption even when technologies are available. Women, as primary users of cooking energy, are often excluded from energy planning and decision-making, weakening the effectiveness of interventions.

Barrier 5: Weak Data, Coordination, and Knowledge Systems Limiting Scale-Up

Fragmented stakeholder coordination, limited availability of data and utilization for development of policies, as well as weak knowledge exchange, constrain replication and policy learning. Without robust monitoring and evidence, governments and investors lack confidence to scale integrated solutions.

Barrier 6: Limited Demonstration of Financially Viable Private-Sector Models

In Somalia, private-sector engagement in integrated renewable energy, e-cooking, and productive-use services is constrained by the lack of proven, scalable business models. While private operators are active in electricity provision—particularly through urban mini-grids—most models focus on basic power supply and have not demonstrated financial viability when expanded to include e-cooking solutions and productive uses. High upfront investment costs, limited access to affordable long-term finance, and low and irregular consumer purchasing power make it difficult for firms to recover costs without continued donor support.

These challenges are compounded by fragmented and informal markets, limited economies of scale, and ongoing policy and regulatory uncertainty, which increase operational risks and deter investment. In addition, limited data on demand and willingness to pay for bundled energy services restrict innovation and scaling. As a result, few private-sector models in Somalia have successfully transitioned from pilot or subsidized approaches to commercially sustainable operations at scale.

Addressing the Energy Gap

Somalia faces one of the most severe energy access challenges globally, with rural electrification rates around 15% and widespread reliance on costly diesel generators and biomass fuels. This energy deficit undermines economic development, public service delivery, environmental sustainability, and gender equity. To address these challenges, the proposed project is designed not only to expand decentralized renewable energy access but also to complement and build upon existing and planned initiatives in the sector. By aligning national priorities and leveraging synergies with ongoing programs related to electrification and electric cooking, as well as PURE, the project aims to maximize impact, avoid duplication, and contribute to a coherent energy transition and development strategy.

Project Objective

The objective of the Project is to increase access to affordable, reliable renewable energy services in Somalia through the deployment of standalone solar PV systems that enable household electrification, e-cooking, and productive use of renewable energy, thereby reducing greenhouse gas emissions, strengthening livelihoods, promoting gender equality, and narrowing disparities in energy access.

[1] Electric cooking (e-cooking) in Africa refers to using electricity, often from renewable sources to power appliances like Electric Pressure Cookers (EPCs), induction stoves, or hot plates for food preparation, replacing traditional biomass (wood, charcoal) and fossil fuels.

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B. PROJECT DESCRIPTION

Project description

This section asks for a theory of change as part of a joined-up description of the project as a whole. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the PIF guidance document. (Approximately 3-5 pages) see guidance here

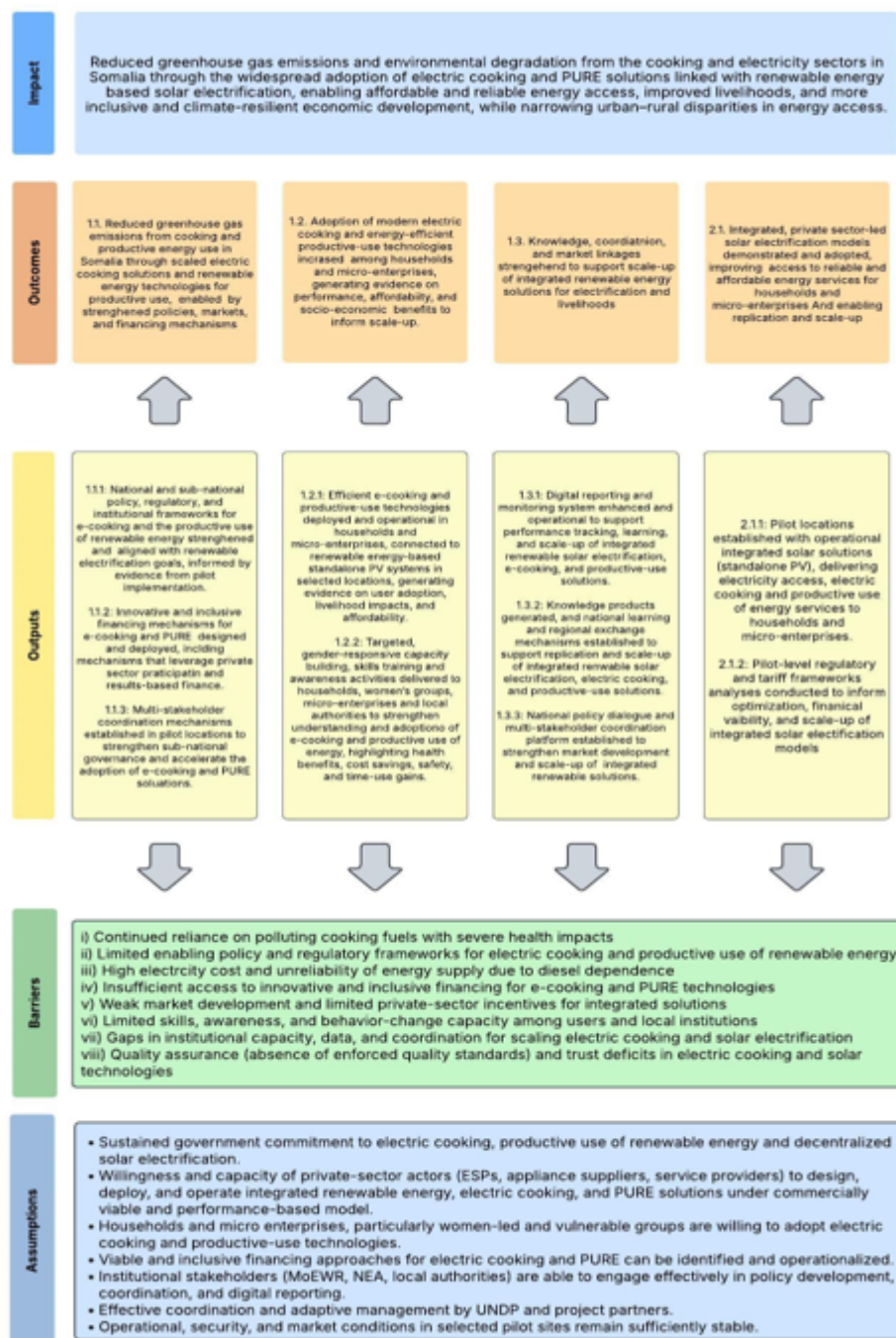


Figure 1 – Theory of Change of the proposed project

Theory of change

The proposed Theory of Change (ToC) of the initiative is that:

if

- National and subnational authorities, including the MoEWR and the Federal Government, maintain policy and institutional commitment to strengthen policy, regulatory, and incentive frameworks that explicitly support electric cooking and the productive use of renewable energy (PURE), informed by real-world pilot evidence.
- Households, micro-enterprises, and women-led groups gain access to affordable electric cooking solutions and energy-efficient productive-use technologies, connected to renewable energy-based standalone PV systems; and are engaged in skill development, capacity building, and feedback processes, and adopt services in target locations.
- Private sector (Energy Service Providers) led solar electrification models are demonstrated as technically reliable and financially viable, supported by transparent regulatory and tariff frameworks;

- Innovative and inclusive financing mechanisms are identified and deployed to reduce upfront costs and improve affordability for e-cooking and PURE technologies;
- Stakeholders across government, private sector, communities, and development partners engage in structured coordination, knowledge exchange, and data-driven learning, supported by digital reporting systems and national policy dialogue platforms;
- Operational conditions remain sufficiently stable to enable implementation, stakeholder engagement, and investment confidence in urban, peri-urban, and rural electrification environments.

then

- Electric cooking solutions and renewable energy-powered productive-use technologies will be adopted at scale, reducing reliance on charcoal and inefficient fuels;
- Greenhouse gas emissions from the cooking sector will be significantly reduced, while household health outcomes and livelihoods will improve;
- Integrated solar electrification models will be replicated and scaled, expanding access to affordable electricity for households and micro-enterprises;
- Markets for e-cooking, productive-use technologies, and renewable electricity will become more inclusive, investable, and resilient, narrowing urban–rural energy access gaps.
- Stakeholder awareness, knowledge exchange, and market connectivity will be strengthened to support the scale-up and replication of renewable solar energy for electrification and livelihood creation.

because

- Electric cooking and productive-use technologies, when powered by renewable energy systems, directly displace biomass and fossil fuels, delivering high-impact climate mitigation and environmental co-benefits and will create scalable and sustainable energy solutions in Somalia.
- Demonstrating private-sector-led, integrated solar electrification models will reduce perceived risks, improve investor confidence, and support long-term sustainability beyond grant financing.
- Targeted skills development, awareness raising, and gender-responsive engagement increase adoption, behavioral change, and equitable access, ensuring that women and vulnerable groups are active beneficiaries and agents of change.
- Operationalizing a gender-disaggregated real-time digital M&E platform, strengthening national and regional knowledge exchange through AMP and related programmes, and convening structured policy dialogue on integrated electrification and regulatory reform, will improve stakeholder awareness, enable evidence-based decision-making, and strengthen the enabling environment needed to scale renewable-energy systems across Somalia.

The transformation will be pursued through two major project components: (i) Supporting an enabling environment, for energy access, electric cooking, and productive use and livelihoods creation; (ii) Demonstration of integrated, private-sector–led solar electrification models. The concept’s Theory of Change is presented in the Figure below.

Expected results

The project significantly improves access to reliable, affordable, and modern clean energy for households and micro and small businesses. By deploying stand-alone PV systems, linked to e-cooking and PURE utilization, the project directly addresses the structural barriers that maintain low rural electrification and economic development. These systems will ensure affordable electricity access compared to diesel-generated, they will demonstrate scalable, private-sector-led models for investing into decentralized energy, linked with e-cooking and PURE. This supports Somalia’s National Transformation Plan goal of 80% electrification by 2029 and advances the country’s NDC 3.0. Thus, beyond basic access to electricity, the project addresses a critical gap in the national baseline by enabling e-cooking and productive uses of energy. These PURE interventions create new peri-urban and rural livelihood opportunities, enhance food security, health improvement, and help shift diesel-based businesses toward long-term commercial viability.

The project is designed as a target intervention to support private-sector-led solar standalone PV systems, while directly addressing the structural drivers of high electricity costs and unreliability. By integrating electric cooking solutions and energy-efficient productive-use technologies into electrification efforts, it tackles demand-side constraints and links energy access to tangible livelihood, health, and environmental benefits. Complementary support for enabling policies, financing mechanisms, skills development, and digital monitoring strengthens institutional capacity and market confidence, while generating evidence to inform national scale-up. In doing so, the project moves Somalia’s energy system away from fragmented, high-cost, and polluting pathways toward a more inclusive, productive, and climate-resilient energy future aligned with national development and climate commitments. Thus, the project will support the deployment and operation of modern electric cooking and energy-efficient productive-use technologies in households and micro-enterprises, connected to renewable energy-based standalone PV systems in selected urban and peri-urban pilot locations. Through these demonstrations, the project will generate robust evidence on technology adoption, affordability, emissions reductions, time-use savings, and livelihood impacts, informing future scale-up. At

least two pilot locations will showcase integrated solar solutions delivering electricity for household use, electric cooking, and productive activities such as livestock milk value chain and fisheries and cold storage services.

Ultimately, the project will contribute to reducing greenhouse gas emissions from Somalia's cooking and micro-business sectors while narrowing urban–rural disparities in access to affordable and reliable modern energy services. By combining enabling policy and financing frameworks for electric cooking and productive use of renewable energy with the demonstration of private-sector-led solar electrification models, the project will strengthen the foundations for an inclusive, low-carbon energy transition aligned with Somalia's National Transformation Plan, Nationally Determined Contribution, and energy access priorities. These interventions will support sustainable livelihood creation, reduce reliance on charcoal and diesel, and enhance community resilience, particularly for women and vulnerable groups.

In parallel, the project will strengthen the enabling environment for e-cooking and productive energy use by supporting national and regional policy, regulatory, and incentive frameworks, designing and deploying innovative and inclusive financing mechanisms, and establishing regional multi-stakeholder coordination platforms. Targeted skills training and awareness campaigns will build user confidence and technical capacity among households, women's groups, micro-enterprises, and local authorities, promoting behavioral change and increasing uptake of electric cooking solutions. A strong emphasis will be placed on women's participation and leadership, contributing to improved health outcomes, reduced unpaid labor, and enhanced economic opportunities.

To support learning, replication, and market development, the project will enhance digital reporting systems for integrated solar electrification, generate knowledge products, and convene national policy dialogue and coordination platforms. Together, these results will strengthen market connectivity, regulatory transparency, and stakeholder awareness, catalyze private-sector engagement, and lay the groundwork for scaling e-cooking, productive use of renewable energy, and decentralized solar electrification across Somalia, delivering lasting climate, environmental, and socio-economic benefits.

In addition, the project also contributes to climate change adaptation by strengthening resilience to climate shocks through decentralized solar systems, climate resilient livelihood support, i.e., the project supports PURE in climate-sensitive sectors such as agriculture, livestock, and fisheries, through enabling access to technologies such as solar powered refrigeration, milk chilling, and cold storage, the project helps reduce post-harvest losses, stabilize incomes, and enhance food security. This directly increases the adaptive capacity of households and micro-enterprises by allowing them to better cope with climate-induced variability in production and supply, reduced dependence on biomass, and capacity building. These interventions enhance adaptive capacity and reduce vulnerability.

The project will deliver clean-energy access to approximately 800 households (and enable electric cooking) and productive uses of energy for at least 189 end-users (individuals and/or microenterprises). It will establish a gender-disaggregated real-time M&E system and strengthen regulatory capacity for stand-alone PV system operation. In parallel, the project will build the skills and capacities of at least 200 women and youth-led enterprises, supporting local green jobs and productive livelihoods. These combined outcomes will catalyze private-sector engagement, improve public services, and lay the foundation for national-scale replication of decentralized renewable energy solutions.

Mid-Term Impact

By mid-term, the project will demonstrate measurable reductions in greenhouse gas emissions from cooking and electricity use in the pilot locations through the uptake of electric cooking solutions and renewable energy based solar electrification. Several pilot locations will have operational stand-alone PV systems (exact size and/or number will be defined during the PPG stage) supporting households and micro-enterprises, with a defined share of users adopting efficient electric cooking and productive-use technologies.

Enabling policy, regulatory, and coordination mechanisms for e-cooking and productive use of renewable energy will be operational at national and regional levels, informed by evidence from pilot deployments. Innovative financing approaches for electric cooking and productive energy use will be piloted, lowering affordability barriers and strengthening private-sector engagement.

Gender-responsive capacity building and awareness activities will have increased adoption, user confidence, and skills among households, women's groups, and micro-enterprises, with gender-disaggregated monitoring systems tracking uptake, energy use, and socio-economic benefits. Knowledge products and policy dialogue platforms will be in use, supporting replication readiness and integration of e-cooking and productive energy use into Somalia's electrification and climate planning frameworks.

Transformation Levers

Considering the barriers listed in the Project rational, as well as the project's objectives and Theory of Change, following (listed below) transformation levers will be utilized by the project to overcome the barriers and achieve project goals.

Transformation Lever 1: Enabling Policy, Regulatory, and Institutional Frameworks for Electric Cooking and PURE

The project responds by supporting the development and strengthening of national and regional policy, regulatory, and incentive frameworks that explicitly promote electric cooking and productive use of renewable energy (Output 1.1.1). These frameworks will align with Somalia's National Transformation Plan, Nationally Determined Contribution, charcoal reduction strategies, and urban electrification plans. Drawing on evidence from pilot deployments, the project will inform appliance standards, safety guidelines, planning tools, and institutional roles—creating a durable enabling environment for sustained reductions in cooking-related emissions and health risks.

Transformation Lever 2: Demonstration of Integrated Renewable Energy, E-Cooking, and PURE Solutions

The project demonstrates integrated, private-sector-led solar mini-grids and standalone PV systems that displace diesel generation and reduce the cost of electricity supply (Output 2.1.1). These systems are designed to be “e-cooking and PURE ready,” enabling electric cooking, agro-processing, refrigeration, irrigation, and other livelihood-enhancing uses. By generating real-world evidence on cost reductions, emissions mitigation, and economic benefits, the project de-risks adoption and provides scalable proof-of-concept aligned with GEF-8/9 climate mitigation strategies.

Transformation Lever 3: Innovative and Inclusive Financing Mechanisms for E-Cooking and PURE

The project identifies, designs, and deploys inclusive financing mechanisms that reduce upfront costs and align payments with energy services (Output 1.1.2). These include appliance bundling through energy service providers, service-based access models, and results-oriented incentives that improve affordability for low-income and women-headed households. This approach directly addresses demand-side barriers and supports sustained uptake.

Transformation Lever 4: Gender-Responsive Capacity Building and Behavior Change

Targeted training and awareness campaigns address these barriers by highlighting health benefits, cost savings, safety, and time-use gains associated with electric cooking and PURE (Output 1.2.2). The project prioritizes women's leadership, entrepreneurship, and participation in e-cooking and energy value chains, consistent with GEF gender policy and evidence from global e-cooking programs.

Transformation Lever 5: Digital Monitoring, Knowledge Exchange, and Policy Dialogue

The project enhances digital reporting systems to track e-cooking, PURE, and solar electrification outcomes (Output 1.3.1). Knowledge products, national learning platforms, and regional exchanges (Output 1.3.2), alongside structured policy dialogue (Output 1.3.3), enable evidence-based decision-making and accelerate market transformation.

Transformation Lever 6: Private-Sector–Led Demonstration and Market Validation

By demonstrating integrated, commercially oriented service models in pilot locations, the project reduces investment risk, builds market confidence, and creates replicable pathways for scaling low-emission cooking and energy services across Somalia.

By integrating policy reform, technology deployment, inclusive financing, capacity building, and knowledge exchange, the project establishes a coherent pathway for sustained climate mitigation and socio-economic transformation in Somalia.

Project components and outcomes

This project aims to increase access to affordable, reliable, and sustainable decentralized renewable energy services in Somalia through integrated solar electrification solutions that combine electricity access with e-cooking and productive use of renewable energy. The project's ToC is based on the premise that strengthens the policy, regulatory, institutional, and market-enabling environment, while simultaneously demonstrating viable private-sector-led delivery and financing models, building local capacities, and generating evidence through robust monitoring and knowledge exchange, will enable scalable and sustainable integrated solar electrification. Guided by this ToC, the project is structured around two mutually reinforcing components that address key barriers to decentralized energy access, linked with the uptake of e-cooking and generating income, and support replication and scale-up beyond the project pilot locations.

Component 1 addresses the upstream barriers to adoption and scale by strengthening the enabling environment for integrated solar electrification, electric cooking, and productive use of renewable energy. It focuses on policy and regulatory development, innovative and inclusive financing mechanisms, multi-stakeholder coordination, skills development (e-cooking and PURE utilization), and knowledge systems that reduce market and institutional risks, improve affordability, and align e-cooking and productive-use interventions with national electrification objectives.

Component 2 operationalizes these enabling conditions on the ground by demonstrating integrated, private-sector–led solar electrification models in pilot locations. Through targeted investment support, regulatory and tariff analysis, and real-world testing of bundled electricity, e-cooking, and productive-use solutions, it generates practical evidence on technical performance, financial viability, and user uptake. Together, the two components reinforce each other by linking policy reform and market development

with demonstration and learning, creating a scalable pathway for expanding decentralized renewable energy, e-cooking, and livelihood creation across Somalia.

Component 1: Supporting enabling environment, for energy access, electric cooking, productive use, and livelihoods creation

Component 1 aims to reduce greenhouse gas emissions and strengthen livelihoods in Somalia by accelerating the transition from biomass and diesel-based energy use toward electric cooking and productive use of renewable energy, powered by stand-alone solar PV systems. The underlying ToC is that if enabling policy and regulatory frameworks are strengthened, inclusive financing mechanisms are made available, and users are equipped with the skills and knowledge to adopt modern energy technologies, then households and micro-enterprises, and particularly women and vulnerable groups, will increasingly shift to e-cooking and energy-efficient productive uses. This transition will lower emissions, improve health outcomes, reduce pressure on forests, and unlock new livelihood opportunities, while creating the market conditions needed for sustainable scale-up.

To operationalize this ToC, Component 1 combines upstream policy and market-enabling interventions with on-the-ground demonstrations and capacity building. It strengthens national and regional policy, regulatory, and institutional frameworks for electric cooking and productive use of renewable energy, ensuring alignment with broader renewable electrification goals and grounding reforms in evidence from pilot implementations. In parallel, the component identifies, designs, and deploys innovative and inclusive financing mechanisms that reduce affordability barriers for households and micro-enterprises adopting e-cooking and productive-use technologies. Regional multi-stakeholder coordination mechanisms in pilot locations further reinforce governance, align public and private actors, and accelerate adoption.

At the user level, Component 1 supports the deployment of modern, energy-efficient electric cooking and productive-use technologies connected to stand-alone solar PV systems in selected urban and peri-urban areas. These deployments generate practical evidence on adoption rates, affordability, emissions reductions, and livelihood impacts. Complementary gender-responsive capacity building, skills training, and awareness campaigns ensure that households, women's groups, micro-enterprises, and local authorities are equipped to safely use, maintain, and benefit from these technologies, with a strong emphasis on health improvements, cost savings, time-use gains, and income generation.

Finally, Component 1 strengthens learning, transparency, and market connectivity by enhancing digital reporting systems (utilizing the digital system developed under the AMP Somalia project), producing targeted knowledge products, and establishing national and regional learning and policy dialogue platforms. Together, these interventions position electric cooking and productive use of renewable energy as integral components of Somalia's solar electrification pathway, laying the foundation for sustained market development, replication, and long-term climate and socio-economic benefits.

Outcome 1.1 - Reduced greenhouse gas emissions from cooking and productive energy use in Somalia through scaled electric cooking solutions and renewable energy technologies for productive use, enabled by strengthened policies, markets, and financing mechanisms.

Outcome 1.1 addresses one of Somalia's most critical and interlinked development and climate challenges: the heavy reliance on charcoal, firewood, and diesel for household cooking and productive activities, which drives greenhouse gas emissions, deforestation, land degradation, and severe health impacts, particularly for women and children. The outcome is achieved by creating the enabling conditions that allow electric cooking and productive use of renewable energy to move from isolated pilots to scalable, market-supported solutions embedded within Somalia's broader solar electrification pathway.

At the policy and institutional level, Output 1.1.1 strengthens national and regional frameworks that govern e-cooking and productive energy use. This includes supporting the development and operationalization of policies, regulations, standards, and planning tools that explicitly integrate electric cooking and PURE into renewable electrification strategies. The output ensures alignment with Somalia's National Transformation Plan, Nationally Determined Contribution, and emerging Clean Cooking Strategy, while addressing regulatory gaps related to appliance standards, safety, tariff structures, service delivery models, and the role of private operators providing stand-alone PV-based solutions. Importantly, policy and regulatory reforms are informed by evidence generated through pilot implementations under the project, ensuring that frameworks are practical, context-appropriate, and grounded in real user behavior, affordability constraints, and market conditions. This strengthens government capacity to guide the transition away from biomass and diesel toward low-emission energy use in both households and micro-enterprises.

Complementing the policy dimension, Output 1.1.2 focuses on overcoming affordability and investment barriers by identifying, designing, and deploying innovative and inclusive financing mechanisms for electric cooking and PURE. High upfront costs for appliances and productive equipment remain a primary constraint to adoption in Somalia, particularly for low-income households and informal micro-enterprises. This output supports the development of financing approaches such as appliance-on-bill repayment, pay-as-you-go models, results-based incentives, service-based delivery models, and other blended or consumer-friendly mechanisms that reduce initial costs and align payments with income flows (to be further identified during the PPG stage). By enabling private service providers to bundle energy services with appliances and productive technologies, these mechanisms help

stimulate demand, improve system utilization, and enhance the commercial viability of renewable energy services, while directly contributing to emissions reductions by displacing charcoal and diesel use.

At the local and regional level, Output 1.1.3 establishes multi-stakeholder coordination mechanisms in selected pilot locations to strengthen governance, build trust, and accelerate adoption of electric cooking and PURE. These platforms bring together local authorities, private service providers, women's groups, community representatives, civil society organizations, and relevant sector actors to coordinate implementation, address social and market barriers, and ensure inclusive decision-making. Such mechanisms play a critical role in facilitating behavior change, resolving operational challenges, promoting consumer awareness, and ensuring that solutions respond to local needs, particularly those of women, who are most affected by cooking-related energy poverty. They also create structured channels for feedback and learning, enabling continuous refinement of policy, financing, and delivery models.

Together, these three outputs reinforce each other to deliver Outcome 1.1. Strengthened policies and institutions provide clarity and direction; inclusive financing mechanisms unlock adoption and market participation; and coordinated local governance ensures effective implementation and social acceptance. The result is a measurable reduction in greenhouse gas emissions from cooking and productive activities, alongside co-benefits for health, gender equality, livelihoods, and ecosystem protection, positioning electric cooking and productive use of renewable energy as central pillars of Somalia's low-carbon development pathway.

Output 1.1.1 - National and sub-national policy, regulatory, and institutional frameworks for e-cooking and the productive use of renewable energy strengthened and aligned with renewable electrification goals, informed by evidence from pilot implementation.

This output focuses on addressing critical policy, regulatory, and institutional gaps that currently constrain the scale-up of electric cooking and the productive use of renewable energy in Somalia, linked to renewable energy electrification. While Somalia has made important progress in establishing an overarching energy policy framework and advancing decentralized solar electrification, existing regulations and planning instruments remain largely oriented toward electricity connections rather than energy use, cooking transitions, or productive livelihoods. E-cooking and PURE are not yet systematically integrated into electrification strategies, tariff methodologies, appliance standards, or private-sector service delivery regulations, limiting their adoption, affordability, and climate impact.

Under this output, the project will strengthen national and regional frameworks to explicitly enable electric cooking and PURE as integral components of Somalia's renewable energy transition. Policy support will be closely aligned with Somalia's National Transformation Plan (2025–2029), NDC 3.0, emerging National Clean Cooking Strategy, and SDG commitments, while also reflecting GEF-8 priorities on low-carbon power systems, energy access, enabling environments, and market transformation.

The core principle of this output is evidence-based policy development. Rather than relying solely on theoretical or externally driven policy models, the project will use data, lessons, and user feedback generated through pilot deployments of stand-alone PV systems, e-cooking technologies, and productive-use applications in selected urban and peri-urban locations (including Climate Promise pilot districts). This evidence will inform practical, context-appropriate regulations that reflect real affordability thresholds, load profiles, gendered energy needs, appliance performance, and service delivery realities in Somalia.

At the institutional level, the project will strengthen the capacity of the MoEWR, the National Electricity Authority, Federal Member State energy authorities, and relevant sector institutions to plan, regulate, and coordinate e-cooking and PURE within decentralized electrification systems. This includes improving institutional understanding of e-cooking and PURE technologies, business models, emissions reduction pathways, and gender and health co-benefits, as well as strengthening coordination across energy, environment, health, and livelihoods institutions.

Regulatory support under this output will focus on enabling private-sector-led service delivery models for stand-alone PV-based electricity, e-cooking, and productive uses. This includes clarifying the regulatory space for appliance bundling and quality assurance requirements, ensuring consumer protection while fostering innovation and investment. The output will also support the development of appliance and system standards (where appropriate) related to safety, performance, and interoperability, reducing the risk of low-quality products undermining consumer trust and climate outcomes.

At the regional and local level, the output strengthens policy coherence and implementation by aligning national frameworks with district-level planning and coordination mechanisms. This ensures that e-cooking and PURE policies are actionable at the local level and responsive to diverse livelihood contexts such as fisheries, dairy, and informal micro-enterprises.

Overall, Output 1.1.1 creates the policy and institutional foundation required for electric cooking and productive renewable energy use to transition from isolated pilots to scalable, market-driven solutions. By embedding these uses within Somalia's renewable electrification agenda, the output directly contributes to long-term greenhouse gas emission reductions, reduced pressure on forests, improved public health outcomes, and inclusive economic development. This output will be achieved by implementing the following activities:

- **Activity 1.1.1.1 – Development of sectoral actions for scaling electric cooking:** Conduct policy analysis and stakeholder consultations to develop sectoral actions and implementation pathways for scaling electric cooking within the National Clean Cooking Strategy developed under the Climate Promise. This includes defining priority market segments, technology pathways, electrification linkages, and institutional roles to support widespread adoption of e-cooking in urban and peri-urban contexts.
- **Activity 1.1.1.2 – Enabling regulatory frameworks for e-cooking appliance standards and safety:** Develop and support the adoption of regulatory guidelines and technical standards for electric cooking appliances, including safety, quality assurance, grid and stand-alone PV compatibility, and consumer protection, ensuring alignment with national energy policies and international best practices.
- **Activity 1.1.1.3 – Regulatory and policy frameworks for PURE:** Conduct sectoral assessments and develop policy and regulatory guidance to enable and incentivize productive use of renewable energy across key value chains (e.g. agro-processing, cold storage, fisheries, dairy, irrigation). This includes integrating PURE into electrification planning, tariff considerations, and investment prioritization frameworks.
- **Activity 1.1.1.4 – Enabling policies for stand-alone solar PV service delivery models:** Develop policy and regulatory frameworks that support private-sector deployment of stand-alone solar PV systems as service-based solutions, including licensing requirements, service quality standards, consumer protection measures, and alignment with national electrification and e-cooking objectives.
- **Activity 1.1.1.5 – Integrated policy framework linking electrification, e-cooking, and PURE:** Develop and validate an integrated policy and planning framework that aligns renewable electrification, electric cooking, and productive use of energy, drawing on evidence from pilot implementations to inform national planning tools, investment strategies, and cross-sector coordination mechanisms.

Output 1.1.2 - Innovative and inclusive financing mechanisms for e-cooking and PURE designed and deployed, including mechanisms that leverage private sector participation and results-based finance

This output addresses one of the most critical barriers to the adoption of electric cooking and productive-use technologies in Somalia - the lack of affordable, scalable, and risk-appropriate financing mechanisms for households, micro-enterprises, and private service providers. High upfront costs, income volatility, and limited access to credit continue to constrain the uptake of stand-alone solar PV systems, electric cooking appliances, and productive-use equipment, even where the technologies are technically viable and economically beneficial over time.

To overcome these constraints, the project will identify, design, and pilot innovative bundled financing mechanisms that integrate stand-alone solar PV systems with electric cooking and/or productive-use technologies under flexible, service-based repayment models. Building on lessons from the AMP and Climate Promise pilots, this output will explore the most suitable financing approaches in Somalia by supporting for example ESP-led/private sector energy-as-a-service models, on-bill and PAYGO-style repayment mechanisms, results-based and blended finance instruments (furthermore, the aim is to align the SOLCO developed financing structures to the Somalia context^{[1]¹⁶}). These models are designed to reduce upfront costs for end users, improve affordability, and strengthen commercial incentives for private-sector participation.

The output also supports the development of an enabling financing ecosystem by engaging ESPs, financial institutions, development partners, and government stakeholders to assess pathways for establishing a national funding facility for e-cooking and PURE linked to solar PV electrification. High-quality monitoring, reporting, and verification (MRV) systems will be developed to underpin results-based financing, ensuring the credibility and scalability of financing models while enabling access to climate finance.

By generating evidence on financing performance, repayment behavior, gender-differentiated impacts, and scalability, this output will inform national policy, investment planning, and future climate and development financing. Collectively, these interventions will convert e-cooking and PURE from grant-dependent pilots into commercially viable, inclusive market offerings that can be scaled nationally, delivering sustained emissions reductions, livelihood benefits, and improved energy access aligned with GEF climate mitigation objectives. This output will be achieved by implementing the following activities:

- **Activity 1.1.2.1 – Identification of suitable bundled financing models for stand-alone PV, electric cooking, and PURE:** Identify and assess viable bundled financing models that integrate stand-alone solar PV systems with electric cooking and productive-use appliances, tailored to Somali market conditions and income profiles. This activity will include the analysis of ESP-led/private sector energy-as-a-service models (where electricity, e-cooking, and PURE appliances are repaid over time through service payments), the adaptation of the SOLCO financing structure for PV-supported electric cooking, and the review of results-based, blended finance, and guarantee instruments in partnership with UNCDF and other financiers. The activity

will also identify and engage key stakeholders, including energy service providers, private sector equipment suppliers, financial institutions, development partners, and government entities. Additionally, it will assess options for establishing a national funding facility to support e-cooking, and PURE initiatives linked to solar PV electrification.

- **Activity 1.1.2.2 – Design and pilot bundled financing models for stand-alone PV, electric cooking, and PURE:** Design, pilot, and refine selected bundled financing mechanisms that enable households and micro-enterprises to access stand-alone PV systems together with electric cooking and/or productive-use technologies through affordable, inclusive repayment structures (e.g. on-bill financing, PAYGO-like mechanisms, or service-based contracts). This activity will support the operationalization of an ESP-led/private sector service delivery model and the establishment and initial capitalization of a national funding facility for e-cooking and PURE linked to solar PV systems, incorporating concessional capital, results-based incentives, and private-sector participation to reduce upfront costs and investment risks.
- **Activity 1.1.2.3 – Develop and operationalize high-quality MRV systems for outcome-based finance:** Develop and operationalize robust monitoring, reporting, and verification (MRV) systems to quantify greenhouse gas emission reductions, usage patterns, and co-benefits from electric cooking and renewable-powered productive use. The MRV framework will support access to high-integrity and outcome-based financing by ensuring credible data collection, digital monitoring where feasible, and compliance with international standards, enabling revenues and performance-based payments to be integrated into financing models.
- **Activity 1.1.2.4 – Generate evidence and policy-relevant learning on financing performance and scalability:** Systematically document and analyze the performance of bundled financing models, including affordability, repayment behavior, adoption rates, gender-differentiated impacts, and commercial viability for ESPs/private sector/equipment suppliers. Translate lessons learned into policy briefs, investment guidance, and technical recommendations to inform national scale-up through Somalia's e-cooking, electrification, and climate finance frameworks, and to support replication by government, private investors, and development partners.

Output 1.1.3: Multi-stakeholder coordination mechanisms established in pilot locations to strengthen sub-national governance and accelerate the adoption of e-cooking and PURE solutions.

The successful scale-up of electric cooking and productive use of renewable energy in Somalia requires strong coordination across multiple actors operating at local, regional, and national levels. Fragmented responsibilities, limited information sharing, and weak linkages between policy development and on-the-ground implementation currently slow adoption and reduce the effectiveness of energy, e-cooking, and livelihood interventions. This output addresses these gaps by establishing structured, inclusive multi-stakeholder coordination mechanisms in selected pilot locations to strengthen governance, align incentives, and accelerate the uptake of e-cooking and PURE solutions linked to stand-alone solar PV electrification.

The project will establish coordination platforms that bring together Federal Member State authorities, sub-national/district administrations, ESPs/private sector/equipment suppliers, women's groups, micro-enterprises, civil society organizations, development partners, and community representatives. These platforms will serve as practical governance hubs to support integrated planning, implementation oversight, and problem-solving related to e-cooking, productive energy use, and stand-alone PV service delivery. They will ensure that policy frameworks developed at the national level are effectively translated into locally actionable measures, while real-time lessons from pilot deployments inform regulatory refinement and investment planning.

The coordination mechanisms will also play a critical role in strengthening social inclusion and gender responsiveness by ensuring meaningful participation of women, youth, and vulnerable groups in decision-making processes. By facilitating dialogue on affordability, service quality, safety standards, appliance adoption, and livelihood impacts, the platforms will help build trust between service providers and communities, improve consumer awareness, and reduce adoption risks.

In addition, these mechanisms will provide an institutional interface with complementary initiatives such as UNDP's Climate Promise clean cooking activities, AMP knowledge platforms, and AfDB-supported programs, enabling alignment, co-location of interventions, and shared learning. By anchoring coordination at the regional level while maintaining strong linkages to national policy processes, this output strengthens governance capacity, improves market confidence, and lays the foundation for sustainable scale-up of e-cooking and PURE across Somalia. This output will be achieved by implementing the following activities:

- **Activity 1.1.3.1 – Establish e-cooking and PURE coordination platforms in pilot locations:** Establish multi-stakeholder coordination platforms in selected pilot regions, bringing together Federal Member State authorities, sub-national district governments, ESPs/private sector/equipment suppliers, women's organizations, micro-enterprises, civil society, and development partners to oversee and support integrated e-cooking, PURE, and stand-alone PV implementation.
- **Activity 1.1.3.2 – Develop governance frameworks and operating modalities for regional coordination mechanisms:** Develop terms of reference, governance structures, roles and responsibilities, and operating procedures for the regional coordination platforms, ensuring clear linkages to national institutions (MoEWR, NEA) and alignment with the National Clean Cooking Strategy and electrification policies.

- **Activity 1.1.3.3 – Facilitate regular multi-stakeholder dialogues and coordination forums:** Conduct periodic regional coordination meetings, workshops, and technical dialogues to review implementation progress, address operational bottlenecks, align financing and service delivery approaches, and promote collaboration between ESPs, appliance suppliers, local authorities, and community representatives.
- **Activity 1.1.3.4 – Strengthen gender-responsive and community-inclusive governance:** Ensure systematic participation of women, youth, and vulnerable groups in regional coordination mechanisms through targeted outreach, representation quotas, and capacity-building, enabling gender-responsive decision-making on e-cooking, productive use, affordability, and service design.
- **Activity 1.1.3.5 – Link regional coordination mechanisms with national policy dialogue and learning platforms:** Establish formal channels for feeding lessons learned, adoption data, and governance challenges from pilot locations into national policy dialogue platforms, digital reporting systems, and regional knowledge exchange mechanisms, including coordination with Climate Promise, AMP, and AfDB-supported initiatives.

Outcome 1.2 - Adoption of modern electric cooking and energy-efficient productive-use technologies increased among households and micro-enterprises, generating evidence on performance, affordability, and socio-economic benefits to inform scale-up

Outcome 1.2 focuses on translating enabling policies, financing mechanisms, and market coordination into tangible, household- and enterprise-level outcomes by deploying modern electric cooking solutions and energy-efficient productive-use technologies powered by standalone solar PV systems. The outcome operationalizes the project's Theory of Change by demonstrating that when affordable renewable electricity, appropriate appliances, and user-centric support mechanisms are delivered together, households and micro-enterprises are able to adopt e-cooking and productive energy use in ways that generate measurable climate, health, and livelihood benefits.

Under this outcome, the project moves beyond infrastructure provision to test integrated service delivery models that combine standalone PV systems with electric cooking appliances and productive-use technologies suited to urban and peri-urban contexts. These deployments will prioritize applications with high climate and development impact, such as electric cooking, refrigeration, cold storage, etc., while generating real-world evidence on affordability, user behavior, system performance, and gender-differentiated impacts. By anchoring technology deployment within functioning renewable energy systems, the project addresses one of the core barriers to e-cooking and PURE adoption in Somalia - the absence of reliable, affordable electricity that can sustain everyday use.

At the same time, Outcome 1.2 recognizes that technology adoption alone is insufficient without accompanying knowledge, skills, and confidence among users and local institutions. Therefore, the outcome integrates targeted, gender-responsive capacity building and awareness activities to support households, women's groups, micro-enterprises, and local authorities. These interventions will strengthen understanding of electric cooking options, productive-use opportunities, payment mechanisms, safety standards, and system maintenance, while highlighting health benefits, cost savings, and time-use gains, particularly for women, who bear the greatest burden of traditional cooking practices.

Together, the two outputs under Outcome 1.2 ensure that electric cooking and productive-use technologies are not only installed, but effectively used, socially accepted, and economically viable. The evidence generated through these deployments will directly inform policy refinement, financing scale-up, and private-sector engagement under Component 1, while contributing to national learning on how standalone solar PV can support e-cooking transitions, reduce greenhouse gas emissions, and unlock inclusive livelihood creation in Somalia's urban and peri-urban areas.

Output 1.2.1 - Efficient e-cooking and productive-use technologies deployed and operational in households and micro-enterprises, connected to renewable energy-based standalone PV systems in selected locations, generating evidence on user adoption, livelihood impacts, and affordability

Output 1.2.1 delivers the on-the-ground demonstration and evidence base for the project by deploying integrated packages of standalone solar PV systems (installed capacity aligned to the needs of end-users, i.e., required demand depending on utilization of e-cooking and/or PURE technologies, and will be delivered under the output 2.1.1), electric cooking appliances, and energy-efficient productive-use technologies in selected locations/communities. The output operationalizes the enabling policies and innovative financing mechanisms developed under Outcome 1 by testing how bundled technology and service offerings perform in real household and micro-enterprise settings.

The output focuses on demand-driven, application-oriented deployment, prioritizing technologies with high climate, health, and livelihood impact. These include electric and efficient e-cooking appliances, refrigeration and cold storage, small food-processing equipment, milk chilling, fisheries-related cooling services, and other productive-use appliances suitable for connection to standalone PV systems. Electric cooking is treated as a core application alongside other productive uses, recognizing its dual role in reducing greenhouse gas emissions from biomass use and improving household welfare, particularly for women.

Deployment under this output is explicitly linked to the innovative and inclusive financing models piloted under Output 1.1.2, including, for example, bundled energy-as-a-service offerings, on-bill repayment mechanisms, PAYGo-style digital payments, and results-based approaches (to be further defined in PPG phase as well as during project implementation), as well as the deployment of stand-alone PV systems under Output 2.1.1. To de-risk early adoption and generate robust learning, the project will use GEF co-financing in the form of targeted grants (up to 40% of GEF targeted grants for e-cooking linked to required stand-alone home solar PV systems (SHS PV systems) and up to 25% for PURE linked to required SHS PV systems) to partially subsidize standalone PV systems, e-cooking appliances, and PURE equipment for pilot users. This grant support is time-bound and catalytic, designed to test affordability thresholds, repayment behavior, and willingness to pay, rather than to establish long-term subsidies.

The output places strong emphasis on evidence generation. Deployment will be accompanied by systematic monitoring of technical performance, energy consumption, user satisfaction, affordability, gender-differentiated impacts, livelihood outcomes, and emissions reductions. The resulting evidence will inform policy refinement, financing scale-up, and private-sector replication, ensuring that e-cooking and PURE solutions can be expanded beyond pilots in a commercially and socially sustainable manner. This output will be achieved by implementing the following activities:

- **Activity 1.2.1.1 – Site selection, demand assessment, and system design:** Conduct integrated demand assessments, e-cooking and PURE potential studies, GIS mapping, and gender-sensitive socio-economic surveys in selected locations. Analyze cooking practices, productive activities, load profiles, and affordability constraints to design standalone PV systems and appliance packages that are technically appropriate, commercially viable, and responsive to user needs.
- **Activity 1.2.1.2 – Deployment of electric cooking and productive-use technologies:** Procure and deploy 800 efficient electric cooking appliances and 189 selected productive-use technologies (e.g., refrigeration, cold storage, food processing, milk chilling, fisheries equipment) to 1,840 households and micro-enterprises. Deployment will be explicitly linked to the bundled financing models developed under Output 1.1.2, with GEF grant co-financing used to pilot and de-risk early adoption.
- **Activity 1.2.1.3 – Installation of e-cooking and PURE-ready infrastructure:** Install and verify infrastructure-level components required to support e-cooking and PURE loads, including reinforced wiring, protected outlets, enhanced metering, load control devices, and safety systems. Ensure engineering compatibility and electrical safety for sustained operation of appliances connected to standalone PV systems (deployed under output 2.1.1).
- **Activity 1.2.1.4 – Integration with financing, billing, and digital monitoring systems:** Integrate deployed systems and appliances with the selected financing and repayment mechanisms (e.g., on-bill repayment, PAYGo platforms, results-based triggers). Enable digital tracking of energy use, appliance performance, and payment behavior to support monitoring, learning, and future scale-up.
- **Activity 1.2.1.5 – Monitoring, evidence generation, and learning:** Systematically collect and analyze data on adoption rates, usage patterns, affordability, repayment behavior, livelihood impacts, gender outcomes, and emissions reductions. Document lessons learned and feed evidence into policy development, financing refinement, and knowledge of products under Outcome 1.3.

Output 1.2.2 - Targeted, gender-responsive capacity building, skills training, and awareness activities delivered to households, women's groups, micro-enterprises, and local authorities to strengthen understanding and adoption of e-cooking and productive use of energy, highlighting health benefits, cost savings, safety, and time-use gains

Output 1.2.2 focuses on the human, behavioral, and institutional dimensions required to ensure that electric cooking and productive-use technologies deployed under the project are effectively adopted, safely used, and sustained over time. While access to technology and finance is essential, evidence from Somalia and comparable contexts shows that sustained uptake depends equally on user awareness, confidence, skills, and trust, particularly among women, who are the primary users of cooking energy and key actors in household and informal economies.

This output delivers gender-responsive capacity building and behavior-change interventions that enable households and micro-enterprises to transition from traditional biomass-based cooking and low-value energy use toward modern, efficient, and income-enhancing applications of electricity. Activities will be designed to ensure users clearly understand the range of electric cooking options available, including electric pressure cookers (EPCs), induction stoves, and other efficient appliances; how to use them safely and efficiently; and how to manage energy consumption within the limits of standalone PV systems.

A core focus is to demystify and build trust in payment and financing mechanisms introduced under Output 1.1.2. Training and outreach will explain on-bill repayment, PAYGo-style digital payments, and bundled service models in accessible, practical terms, helping users understand costs, repayment schedules, and consumer protections. This is critical to reducing perceived financial risk, avoiding misuse or underutilization of appliances, and supporting sustained demand for electric cooking and PURE technologies.

The output adopts a gender-transformative approach, recognizing that women and girls bear the greatest health burdens from biomass cooking and stand to gain disproportionately from time savings, improved indoor air quality, and new livelihood

opportunities. Training programs will promote women's leadership, entrepreneurship, and participation across e-cooking and PURE value chains, including appliance use, retail, maintenance, user education, and energy-enabled businesses. Men, community leaders, and local authorities will also be engaged to support social acceptance, household decision-making, and enabling local governance.

Finally, Output 1.2.2 ensures that local authorities, utilities, and community institutions have the knowledge needed to support adoption at scale, integrate e-cooking and PURE into local development planning, and reinforce safety, quality, and consumer-awareness standards. This output will be achieved by implementing the following activities:

- **Activity 1.2.2.1 – Household-level training on electric cooking options and safe use:** Conduct hands-on, culturally appropriate training for 800 households, particularly women, on the use of electric pressure cookers, induction stoves, and other efficient e-cooking appliances. Training will cover cooking techniques, energy management, safety practices, maintenance, and adaptation of local diets to electric cooking.
- **Activity 1.2.2.2 – Awareness and behavior-change campaigns on health, environment, and time-use benefits:** Design and implement targeted awareness campaigns highlighting the health benefits of reducing indoor air pollution, cost savings compared to charcoal, reductions in fuel collection time, and environmental benefits such as reduced deforestation and emissions. Campaigns will use community demonstrations, women's groups, local media, and peer champions.
- **Activity 1.2.2.3 – Training on financing, payment structures, and consumer literacy:** Deliver user-friendly training sessions on selected project locations explaining available payment mechanisms, including on-bill financing, PAYGo, and bundled service models. Build consumer understanding of pricing, repayment schedules, digital payment tools, and user rights, reducing financial anxiety and supporting sustained adoption.
- **Activity 1.2.2.4 – Gender-responsive skills development for women and micro-enterprises:** Provide targeted capacity building for women's groups and micro-enterprises (minimum 100 participants) on energy-enabled livelihoods linked to e-cooking and PURE, such as food processing, catering, refrigeration services, and appliance distribution or servicing. Training will include basic business skills, energy management, and market linkages.
- **Activity 1.2.2.5 – Engagement and capacity building for local authorities and community leaders:** Train local authorities, community leaders, and relevant institutions on e-cooking and PURE concepts, safety standards, consumer protection, and the role of enabling local governance in supporting adoption and scale-up. This strengthens institutional ownership and long-term sustainability.
- **Activity 1.2.2.6 – Feedback, learning, and adaptive outreach:** Establish participatory feedback mechanisms, particularly for women users, to capture user experience, barriers, and preferences related to e-cooking and productive energy use. Use feedback to adapt training content, outreach strategies, and appliance selection, ensuring continuous improvement and relevance.

Outcome 1.3 - Knowledge, coordination, and market linkages strengthened to support scale-up of integrated renewable energy solutions for electrification and livelihoods

Outcome 1.3 focuses on strengthening the information, coordination, and market-enabling ecosystem required to scale renewable solar electrification, electric cooking, and productive use of energy beyond pilot interventions. While technology deployment and financing are essential, sustained market transformation in Somalia's decentralized energy sector depends on improved data availability, structured knowledge exchange, and coordinated policy and stakeholder engagement. Currently, fragmented information flows, limited performance data, and weak coordination between government, private operators, communities, and development partners constrain evidence-based planning, investment confidence, and replication.

The Theory of Change underpinning this outcome is that if reliable, gender-disaggregated data on solar electrification, e-cooking, and productive use is systematically collected and made accessible; if lessons from pilots are translated into practical knowledge products and peer-learning platforms; and if structured policy dialogue and coordination mechanisms are institutionalized, then stakeholders will be better equipped to plan, regulate, finance, and scale integrated solar energy solutions that support livelihoods and climate objectives.

To achieve this, the project enhances and operationalizes digital reporting and monitoring systems to provide real-time visibility on system performance, user adoption, affordability, and impacts (Output 1.3.1). It complements this with the generation of policy-relevant knowledge products and national and regional learning mechanisms that consolidate evidence from pilots, financing models, and behavior-change initiatives, and facilitate peer exchange among government institutions, private operators, women's groups, and development partners (Output 1.3.2). Finally, the project establishes a national policy dialogue and coordination platform that anchors learning into formal decision-making processes, aligns public and private actors, and strengthens market connectivity for solar electrification, electric cooking, and productive use of energy (Output 1.3.3).

Together, these outputs create enabling conditions for data-driven governance, informed investment, and coordinated scale-up, ensuring that lessons from the project and complementary initiatives (such as the Climate Promise and regional energy programs) translate into sustained market development and national impact.

Output 1.3.1 -Digital reporting and monitoring system enhanced and operational to support performance tracking, learning, and scale-up of integrated renewable solar electrification, e-cooking, and productive-use solutions

Output 1.3.1 strengthens Somalia's digital monitoring and evaluation architecture by enhancing the existing platform housed within the Ministry of Energy and Water Resources. Building on the digital licensing and tariff regulation system developed under AMP Somalia, the upgraded M&E platform will integrate real-time operational data from the project's standalone systems and productive-use technology deployments. It will capture gender-disaggregated and socio-economic information, track energy consumption patterns, monitor service reliability and affordability, and document the uptake and performance of productive-use applications and efficient electric-cooking appliances.

By consolidating these data sets into a unified government-managed system, the output equips policymakers, regulators, and development partners with the evidence required to refine tariff methodologies, strengthen regulatory oversight, enhance system sustainability, and support national electrification planning. This digital ecosystem will serve as a permanent asset for Somalia's energy institutions, ensuring transparency, enabling adaptive management, and facilitating future replication across Federal Member States. This output will be achieved through the following activities:

- **Activity 1.3.1.1 – Platform design and system development:** Develop a digital M&E system architecture, including data fields for energy consumption, user feedback, gender-disaggregated metrics, affordability data, and system performance.
- **Activity 1.3.1.2 – Integration, piloting, and data framework establishment:** Integrate the platform with pilot sites, define data-collection protocols, deploy field-level data tools, and conduct pilot testing to validate functionality and reporting formats.
- **Activity 1.3.1.3 – Capacity building and institutionalization:** Train MoEWR staff and relevant stakeholders on platform operation, reporting use, analytics, and gender-responsive data interpretation; establish SOPs for long-term ownership.
- **Activity 1.3.1.4 – Continuous monitoring and system optimization:** Support routine collection of real-time data, troubleshoot performance issues, and refine platform features based on early lessons and evolving sector needs.

Output 1.3.2 - Knowledge products generated, and national learning and regional exchange mechanisms established to support replication and scale-up of integrated renewable solar electrification, e-cooking, and productive-use solutions

Output 1.3.2 focuses on capturing, synthesizing, and disseminating the lessons emerging from the project's pilot interventions. As deployments of solar renewable energy and productive-use technologies begin operating in rural communities, the project will document insights on technical performance, business models, tariff structures, consumer behavior, gender outcomes, and economic impacts. These insights will be transformed into practical knowledge products, such as implementation briefs, case studies, learning notes, and technical guidance, tailored to the needs of national stakeholders and regional partners.

Through AMP's regional learning channels and AfDB's HAREACT initiative, Somalia's experience will contribute to wider African dialogues on integrated mini-grid development, productive-use electrification, and rural energy market strengthening. Within Somalia, these knowledge products will support capacity-building for government institutions, private ESPs/private sector/equipment suppliers, financial actors, and community organizations, fostering a shared understanding of what works, what does not, and how to scale successful models. The output ensures that learning becomes both a strategic asset and a driver of replication and policy influence. This output will be achieved through the following activities:

- **Activity 1.3.2.1 – Documentation of lessons learned and best practices:** Collect and synthesize implementation findings, including data from pilots, household surveys, ESPs/private sector/equipment suppliers feedback, and gender-responsive user-experience data.
- **Activity 1.3.2.2 – Development of knowledge products:** Produce at least one formal knowledge product, plus additional technical notes or learning briefs, covering business models, tariffs, user behavior, e-cooking integration, and digital regulation.
- **Activity 1.3.2.3 – Engagement with AMP and peer countries:** Share insights via AMP learning events, regional exchanges, and global mini-grid platforms; organize national learning sessions to disseminate best practices.

Output 1.3.3 - National policy dialogue and multi-stakeholder coordination platform established to strengthen market development and scale-up of integrated renewable solutions

Output 1.3.3 establishes a structured national policy dialogue platform to ensure that evidence generated through the project informs Somalia's energy planning, regulatory refinement, and investment mobilization. The platform will convene key institutional actors, including MoEWR, the National Energy Authority, Federal Member States, private energy service providers, diaspora financing actors, women-led enterprises, productive-use stakeholders, and development partners, to examine lessons from project pilots and agree on pathways for scaling integrated solar electrification nationwide. Discussions will address regulatory and tariff implications, digital monitoring requirements, productive-use and livelihood opportunities, public-institution service models, private-sector engagement frameworks, and the integration of decentralized solutions within Somalia's broader NTP and NDC commitments.

By facilitating regular dialogue and building consensus among government and market actors, this output enhances policy coherence, supports investor confidence, and ensures that Somalia's electrification agenda is aligned with practical experience, market realities, and long-term sustainability goals. This output will be achieved through the following activities:

- **Activity 1.3.3.1 – Stakeholder mapping and engagement strategy:** Identify key government institutions, private-sector partners, financial institutions, diaspora groups, civil-society actors, and women's energy networks to participate.
- **Activity 1.3.3.2 – National roundtable planning and delivery:** Organize and facilitate a national workshop to discuss lessons learned, regulatory updates, investment models, and scale-up pathways for rural electrification.
- **Activity 1.3.3.3 – Policy feedback integration and follow-up actions:** Document outcomes and revise regulatory and policy recommendations; prepare follow-up actions and guidance for MoEWR and project partners.

Component 2 – Demonstration of integrated, private-sector-led solar electrification models

Component 2 aims to demonstrate and validate integrated, financially viable solar electrification models that deliver reliable, affordable energy services to households and micro-enterprises, while enabling electric cooking and productive use of energy at scale. The objective is to move beyond pilots as isolated interventions and instead generate practical, market-ready service delivery models that can be replicated by private operators and adopted within national electrification and e-cooking strategies.

The underlying ToC is that if integrated standalone solar PV systems are deployed in real-world settings under private-sector service models, and if their technical, financial, and regulatory performance is systematically analyzed, then electricity access, electric cooking, and productive uses can be delivered in a way that is both affordable for end-users and commercially sustainable for service providers. Evidence from these demonstrations will reduce investment risk, inform regulatory and tariff optimization, and strengthen confidence in scaling decentralized solar solutions.

Accordingly, Component 2 focuses on establishing pilot locations with operational standalone PV systems that support household electrification, electric cooking, and productive energy applications (Output 2.1.1), alongside pilot-level regulatory and tariff analyses that assess affordability, cost recovery, and service quality and feed lessons into policy and market optimization (Output 2.1.2). Together, these outputs ensure that integrated solar electrification models are not only technically proven but also institutionally and financially positioned for replication and scale-up across Somalia.

Outcome 2.1 – Integrated, private sector-led solar electrification models demonstrated and adopted, improving access to reliable and affordable energy services for households and micro-enterprises and enabling replication and scale-up

Outcome 2.1 focuses on demonstrating integrated, financially viable standalone solar electrification models that can be adopted and scaled to expand reliable and affordable energy access for households and micro-enterprises in Somalia. This outcome serves as the project's practical proof point, translating enabling policies, financing mechanisms, and capacity-building developed under Component 1 into real-world service delivery models that work for both end-users and private operators.

Under this outcome, pilot locations will be established with operational, standalone PV systems that deliver electricity alongside electric cooking and productive uses of energy (Output 2.1.1). These pilots will apply the innovative and inclusive financing mechanisms developed under Output 1.1.2, including bundled service models, on-bill repayment, PAYGO-style arrangements, and other de-risking approaches. Targeted GEF investment grants will be used strategically to reduce upfront capital risk for Electricity Service Providers, enabling them to pilot these integrated service packages and demonstrate commercial viability prior to market-based scale-up.

At the same time, pilot-level regulatory and tariff framework analyses will be conducted to assess affordability, cost recovery, consumer protection, and service quality within the demonstrated models (Output 2.1.2). These analyses will generate evidence on how tariffs, connection structures, and appliance financing interact with electricity consumption, e-cooking adoption, and productive energy use. The findings will inform optimization of service design and provide actionable inputs for national regulators to refine licensing, tariff methodologies, and standards for integrated solar electrification.

Together, these outputs ensure that integrated solar electrification is not only technically feasible, but also financially sustainable, regulatorily sound, and scalable. By anchoring demonstrations in private-sector delivery models supported by targeted risk-sharing and evidence-based regulatory learning, Outcome 2.1 establishes a credible pathway for expanding decentralized solar energy, e-cooking, and productive livelihoods across Somalia.

Output 2.1.1 - Pilot locations established with operational integrated solar solutions (standalone PV), delivering electricity access and electric cooking, and productive use of energy services to households and micro-enterprises

Output 2.1.1 delivers the on-the-ground demonstration of integrated, private-sector-led standalone solar electrification models that combine electricity access with electric cooking and productive use of renewable energy. Building on the enabling policy, financing, and coordination mechanisms established under Component 1, this output translates system-level reforms into operational service delivery models that can be tested, refined, and scaled.

At selected pilot locations, private-led service models (for example, ESPs, private independent power producers (IPPs), off-grid solar providers, etc.) will deploy quality-assured standalone PV systems sized to meet household electricity needs while also supporting prioritized e-cooking appliances and productive-use equipment. These pilots will apply the bundled financing approaches developed under Output 1.1.2, including for example on-bill repayment, PAYGO-style mechanisms, PPA, and other energy-as-a-service models. Targeted GEF investment grants of 25-40% (up to 40% of GEF targeted grants for e-cooking linked to required SHS PV systems and up to 25% for PURE linked to required SHS PV systems) will be used strategically to de-risk early deployments, lower upfront costs for end-users, and enable ESPs/private sector/equipment suppliers to demonstrate commercial viability before wider replication.

Output 2.1.1 will deploy a portfolio of integrated solar solutions that combine standalone PV power with e-cooking and productive-use renewable energy applications, as follows (a more detailed overview of integrated solar solution combining standalone PV power with e-cooking and productive-use renewable energy is provided in Annex H):

e-Cooking Solutions

- **Off-grid Solar Home Systems + Battery + E-Cooking Equipment (switch from charcoal to solar e-cooking):** This solution provides a complete standalone solar home system (SHS) sized approx. 1 kW_p PV with battery storage (2,05 kWh), bundled with an electric cooking appliance. This model demonstrates “e-cooking ready” solar home systems, expanding e-cooking access in off-grid Somali communities. This involves distributing efficient electric cooking appliances (e.g. 24V DC electric pressure cookers approx. 580 W or 24V DC induction Cookers < 800W) to replace traditional charcoal stoves. The exact sites/beneficiaries will be confirmed during PPG stage, with candidates including 2 districts i.e. Berbera and Bosaso/Mogadishu.

PURE Solutions

- **Cold Storage for Fisheries:** To support fisheries value-chains, the project will pilot solar-powered cold storage at varying scales in coastal communities. These systems address the severe post-harvest losses in Somalia’s artisanal fisheries (often 30–40% due to lack of ice/cold-chain). Somalia’s coastline holds a conservative sustainable potential of about 200,000 tons per year, yet current landings are far lower due to cold chain gaps and artisanal operations. The sector employs roughly 30,000 full-time fishers and 60,000 part-time fishers. The new national Fisheries Information Management System (FIMS) will help standardize data and improve targeting. The following solutions will be demonstrated (final sites to be confirmed during PPG, with candidates including major landing hubs Eyl, Berbera, Bosaso, Bargal, Kismayo, Mogadishu, and Las Qorey):
 - **50 L Solar Freezer (PV + BESS)**
 - **300 L Solar Freezer (PV + BESS)**
 - **Solar-Powered Chill Room (0–4 °C)**
 - **Solar-Powered Freezer Container (–18 to –25 °C)**
- **Solar-Powered Milk Cooling Systems:** In pastoral and agropastoral areas, the project will introduce solar refrigeration for the dairy value chain, reducing the spoilage of fresh milk (currently 20–30% losses due to lack of cooling and adequate cold chain infrastructure). Somalia produces approximately 1.5 to 2 billion litres of milk annually, most of which is consumed fresh or processed into traditional products like fermented milk. Two solutions will be piloted to support livestock herders (particularly women milk traders) in key milk-producing regions. Potential pilot areas include the Guban Pastoral Zone in Awdal (Somaliland), the North-West Agropastoral Zone around Woqooyi Galbeed, and the Southern Agropastoral Zone in parts of Gedo/Bakool. The final sites will be selected during PPG in consultation with MoEWR and Ministry of Livestock.
 - **Solar Milk Chiller (approx. 300 L, PV + BESS)**
 - **Solar-Powered Mobile Cold/Freezer Trolley**

The pilots will generate real-world evidence on technical performance, affordability, repayment behavior, adoption rates, gender-differentiated benefits, and livelihood impacts, directly informing learning under Output 1.3 and regulatory and tariff analysis under Output 2.1.2. By integrating electricity access, e-cooking, and productive energy use into a single service offer, this output establishes a scalable model for inclusive, low-carbon electrification in Somalia's urban and peri-urban contexts. **Moreover, taking into account the identified climate risks, while purchasing, applying and utilizing the PURE equipment, specific mitigation measures will be followed; i.e. such as climate-resilient infrastructure designs, scheduling of works in lower-risk seasons and enabling remote monitoring to detect weather-related performance issues.** This output will be achieved through the following activities:

- **Activity 2.1.1.1 – Pilot site selection and integrated demand assessment:** Conduct participatory selection of pilot locations in coordination with local authorities, ESPs/private sector/equipment suppliers, women's groups, and community representatives. Undertake integrated demand assessments covering household electricity needs, e-cooking potential, and PURE opportunities (e.g. refrigeration, milling, cold storage), including gender-sensitive socio-economic surveys and load profiling to inform system sizing and service design.
- **Activity 2.1.1.2 – Implementation of bundled ESP-led/private sector service and financing models:** Operationalize ESP-led/private sector energy-as-a-service models that bundle electricity supply with access to e-cooking and PURE appliances, using the financing mechanisms developed under Output 1.1.2. This includes, for example on-bill financing, PAYGO-style digital repayment, or other structured repayment mechanisms, supported by targeted GEF investment grants to de-risk initial deployment.
- **Activity 2.1.1.3 – Procurement and deployment of standalone PV systems:** Procure, install, and commission quality-assured standalone solar PV systems, including inverters, battery storage, smart metering, and load-management components, in accordance with national and international standards for 800 households and 189 micro-businesses. Systems will be sized to support both basic electricity access and prioritized electric cooking and productive-use applications, ensuring operational reliability and future scalability.
- **Activity 2.1.1.4 – Integration of electric cooking and PURE technologies:** Deploy and integrate efficient e-cooking appliances (e.g. electric pressure cookers, induction stoves) and selected productive-use technologies (e.g. refrigeration, milk chillers, cold storage equipment, etc.) within the standalone PV systems. Ensure technical compatibility, safety standards, and load management to support simultaneous household, cooking, and productive uses.
- **Activity 2.1.1.5 – Connection, commissioning, and user onboarding:** Connect households and micro-enterprises to the standalone PV systems, prioritizing women-headed households and vulnerable groups. Conduct system commissioning, appliance installation, and user onboarding, including basic training on system use, safety, load management, and payment modalities to support early adoption and sustained utilization.
- **Activity 2.1.1.6 – Performance monitoring and evidence generation:** Monitor technical performance, energy consumption, appliance usage, repayment behavior, and livelihood outcomes using digital reporting tools. Collect sex-disaggregated data and qualitative user feedback to assess affordability, adoption, and socio-economic impacts, feeding lessons into regulatory analysis (Output 2.1.2) and knowledge exchange under Component 1.3.

Output 2.1.2 - Pilot-level regulatory and tariff frameworks analyses conducted to inform optimization, financial viability, and scale-up of integrated solar electrification models

Output 2.1.2 strengthens the regulatory and tariff foundations required to scale integrated standalone solar electrification models that combine electricity access with electric cooking and productive use of renewable energy. While Somalia has made important progress in establishing basic licensing and tariff oversight frameworks, current regulations remain largely untested against emerging service models that bundle electricity, appliances, and flexible payment mechanisms. This output addresses that gap by using real-world evidence from pilot deployments to assess how existing regulatory and tariff frameworks affect affordability, private-sector viability, and user adoption.

Drawing on operational data from pilot locations established under Output 2.1.1, the project will analyze tariff structures, cost-recovery mechanisms, licensing requirements, and consumer protection provisions as they apply to standalone PV systems, ESP-led/private sector energy-as-a-service models, and financing for PV systems linked to e-cooking and PURE. Attention will be given to how tariffs and regulations influence household uptake, repayment behavior, productive-use demand, and gender-differentiated impacts.

The findings will be translated into practical, evidence-based recommendations for the MoEWR and the NEA, supporting refinement of tariff-setting methodologies, clarification of licensing pathways, and improved regulatory guidance for private operators. By grounding regulatory learning in pilot performance rather than theoretical assumptions, this output ensures that Somalia's energy governance framework evolves in step with market innovation and supports scalable, affordable, and climate-aligned electrification. This output will be achieved through the following activities:

- **Activity 2.1.2.1 – Pilot-based regulatory and tariff diagnostic assessment:** Conduct a comprehensive review of existing licensing requirements, tariff methodologies, cost-reflective pricing rules, and regulatory oversight processes as they apply to standalone PV systems and ESP-led/private sector service models. The assessment will analyze how current frameworks affect affordability, household connection rates, repayment performance, productive-use adoption, and ESPs/private sector/equipment suppliers revenue stability, drawing on operational data from pilot locations.
- **Activity 2.1.2.2 – Analysis of tariff impacts on electric cooking and PURE uptake:** Assess how existing and pilot-applied tariffs influence the adoption of e-cooking appliances and productive-use technologies, including impacts on load growth, peak demand, system sizing, and cost recovery. This activity will examine whether tariff structures incentivize or discourage productive consumption and identify options for better aligning tariffs with livelihood creation and emissions reduction objectives.
- **Activity 2.1.2.3 – Review of regulatory implications of bundled financing and service models:** Analyze regulatory implications of bundled electricity–appliance service models developed under Output 1.1.2, including on-bill financing, PAYGO-style repayment, and energy-as-a-service approaches. Identify regulatory gaps or constraints related to consumer protection, contract structures, appliance ownership, and repayment enforcement, and propose options for regulatory clarification or adjustment.
- **Activity 2.1.2.4 – Development of evidence-based regulatory and tariff recommendations:** Develop actionable, evidence-based recommendations for MoEWR and NEA to refine tariff-setting processes, streamline licensing pathways for standalone PV and ESP-led/private sector service models, and strengthen regulatory support for integrated solar, e-cooking, and PURE solutions. Recommendations will emphasize affordability for low-income households, sustainability of private-sector business models, and alignment with Somalia’s National Transformation Plan and e-cooking objectives.
- **Activity 2.1.2.5 – Validation and policy dialogue with regulators and stakeholders:** Convene targeted technical workshops and policy dialogues with MoEWR, NEA, ESPs/private sector/equipment suppliers, consumer representatives, and development partners to validate findings and recommendations. This activity will support regulatory buy-in, clarify implementation pathways, and ensure that proposed refinements are practical, context-appropriate, and politically feasible.

Component 3 – Digital M&E

The project’s results will be periodically monitored during its implementation to ensure it effectively achieves its intended outcomes. The evaluation results will be communicated in the ongoing project M&E and reporting, and the Terminal Evaluation. Lessons learned will be integrated into the project through adaptive feedback management. Project-level monitoring and evaluation will be carried out in accordance with UNDP’s requirements, as described in the UNDP Evaluation Policy and the UNDP POPP (Programme and Operations Policies and Procedures). Gender-specific outcomes and the implementation of the Gender Action Plan (to be developed at the PPG stage) will be included in the reporting.

Component 3 ensures that the project is implemented in a transparent, accountable, and results-oriented manner, while also generating high-quality evidence to inform learning, policy dialogue, and scale-up. Given the project’s innovative nature, integrating solar electrification, e-cooking, productive use of energy, and new financing models, robust monitoring and evaluation systems are essential not only for compliance with UNDP-GEF requirements but also for supporting adaptive management and long-term sector transformation.

The component is aligned with UNDP’s Evaluation Policy and POPP requirements and will ensure full compliance with GEF monitoring, reporting, and evaluation standards, including inception reporting, PIR reporting, and Terminal Evaluation.

Outcome 3.1 – Project performance and accountability strengthened through effective digital monitoring and evaluation systems

This outcome ensures that implementation quality, evidence generation, and institutional learning are embedded across the project lifecycle, supporting both delivery of results and longer-term system transformation.

Output 3.1. - A participatory, effective, and gender-inclusive digital monitoring and evaluation system implemented, including (i) Ongoing project M&E and reporting, and (ii) Terminal Evaluation (TE), in line with UNDP-GEF requirements

This output focuses on operationalizing a robust M&E and learning system that supports compliance, adaptive management, and knowledge generation for national scale-up. This output will be achieved through the following activities:

- **Activity 3.1.1.1 – Conduct Project Inception Workshop and finalize M&E framework:** Conduct a multi-stakeholder inception workshop with MoEWR, implementing partners, private sector actors, and community representatives to validate the project’s indicators, finalize the M&E plan, and clarify institutional roles and responsibilities for monitoring, reporting, and learning.

- **Activity 3.1.1.2 – Implement ongoing monitoring and evaluation:** Conduct routine data collection, field monitoring visits, stakeholder consultations, and performance reviews to track progress against project results, indicators, and targets. Use evidence generated to inform project reporting, learning, and corrective actions, allowing adjustments to implementation approaches, workplans, and targeting strategies based on what works in practice and in line with the UNDP and GEF project requirements.
- **Activity 3.1.1.3 – Prepare and submit all UNDP-GEF required reports:** Prepare and submit all mandatory reporting products in line with UNDP-GEF requirements, including the Inception Report, annual Project Implementation Reviews, financial reports, and results updates.
- **Activity 3.1.1.4 – Conduct independent Terminal Evaluation and synthesize lessons learned:** engage an independent Terminal Evaluation in line with UNDP Evaluation Policy to assess effectiveness, efficiency, impact, sustainability, and replicability. Produce a final learning synthesis documenting good practices, challenges, and recommendations to inform national scale-up and future investments.

Replicability and scale of impact

The project is explicitly designed as a market-transformation and learning platform, with replicability and scale embedded across policy, financing, service delivery, and knowledge systems. While the project pilots a limited number of locations, its interventions target systemic barriers that currently constrain large-scale adoption of electric cooking and productive use of renewable energy linked to stand-alone solar PV systems in Somalia.

At the market level, the project demonstrates integrated, private-sector-led service models in which Electricity Service Providers deliver turn-key energy solutions that bundle electricity access with electric cooking and productive-use technologies. By de-risking early investments through targeted GEF support and piloting flexible repayment mechanisms (for example, on-bill financing, PAYGO-style models, and results-based approaches), the project generates commercially viable templates that can be replicated by other ESPs/private sector/equipment suppliers and financiers without continued grant dependence. These models are directly applicable across Somalia's peri-urban and rural contexts, where stand-alone PV systems represent the least-cost electrification option.

At the policy and institutional level, the project strengthens enabling frameworks for scaling by aligning electric cooking policies with the National Clean Cooking Strategy (developed under the Climate Promise), national electrification goals, and emerging regulatory guidance for private solar operators. Evidence generated from pilot deployments feeds directly into tariff, licensing, and consumer-protection analyses, ensuring that future scale-up is supported by tested, data-driven regulatory solutions rather than ad hoc policy adjustments.

The project's financing innovations further enhanced scalability. By testing bundled financing models, exploring SOLCO-type suggested structures, and establishing high-quality MRV systems for outcome-based finance, the project creates pathways to crowd in climate finance and blended capital. These mechanisms are designed for replication at a national scale and can be adopted by other development partners, climate funds, and private investors seeking measurable emissions reductions and livelihood impacts.

Knowledge and learning systems under Outcome 1.3 ensure that lessons from pilots are institutionalized and shared, rather than remaining project specific. Digital reporting, structured policy dialogue, and national and regional learning platforms enable government institutions, ESPs/private sector/equipment suppliers, and development partners to continuously refine and replicate successful models. This feedback loop strengthens Somalia's capacity to plan, finance, and regulate integrated solar, e-cooking, and PURE solutions at scale.

These elements position the project as a catalyst for national and regional transformation, demonstrating how e-cooking and productive energy use can be integrated into decentralized solar electrification strategies. The project's impacts extend well beyond its direct beneficiaries, laying the foundation for widespread replication, accelerated emissions reductions, improved livelihoods, and a sustained transition away from biomass and diesel toward inclusive, low-carbon energy systems across Somalia.

Relevant Stakeholders and Roles

The project brings together national institutions, private-sector actors, communities, civil society organizations, and development partners to deliver integrated, market-based solutions for stand-alone solar electrification, electric cooking, and productive use of renewable energy. Each stakeholder contributes distinct capabilities to ensure technical quality, affordability, social inclusion, and long-term sustainability.

The Federal Ministry of Energy and Water Resources serves as the executing entity, providing strategic oversight and ensuring alignment with Somalia's National Transformation Plan, National Electrification Strategy, emerging National Clean Cooking Strategy, and NDC commitments. Together with the National Electricity Authority, MoEWR supports policy development, standards, and regulatory frameworks relevant to stand-alone PV systems, service-based energy delivery models, and electric cooking adoption. Federal Member State authorities and local governments support site selection, facilitate community engagement, and integrate project activities into regional development plans.

The private sector, particularly licensed ESPs and solar service companies, is the primary delivery mechanism for all project interventions. ESPs will design, install, and operate stand-alone PV systems and provide turn-key energy services to households, micro-enterprises, and community users. These services will bundle electricity access with electric cooking solutions and productive-use technologies (such as refrigeration, cold storage for milk value chains, and fisheries, for example), through service contracts, leasing, or on-bill and/or pay-as-you-go models. This approach shifts the focus from asset ownership to service delivery, reducing upfront costs for end-users and improving affordability and uptake.

Local enterprises, cooperatives, and women- and youth-led businesses are key beneficiaries and market actors. The project strengthens their capacity to adopt e-cooking and productive-use technologies, manage energy-enabled livelihood activities, and participate in clean energy and e-cooking value chains. Women-led enterprises are supported as distributors, technicians, trainers, and service providers, reinforcing gender inclusion and local job creation.

Communities and civil society organizations (CSOs) play a central role in ensuring local ownership, equitable access, and sustained adoption. Community-level coordination mechanisms and CSOs support outreach, awareness-raising, user training, behavior change, and grievance redress, with a strong focus on women, youth, and vulnerable households. Their involvement ensures that stand-alone PV systems and electric cooking solutions respond to local needs and are effectively used.

The project also creates strong synergies with UNDP's Climate Promise clean cooking initiative, starting in 2026. The project will align with Climate Promise e-cooking pilot locations where feasible, support implementation of Somalia's National Clean Cooking Strategy (focusing only on e-cooking), through complementary policy and regulatory work, and strengthen enabling frameworks for stand-alone PV systems and private service providers. Joint training and awareness activities will build user capacity to adopt, finance, use, and maintain electric cooking appliances and solar PV systems sustainably.

Finally, development partners provide technical support, knowledge exchange, and coordination. UNDP (as GEF Agency), AfDB (through HAREACT), and the World Bank (through SESRP) contribute expertise, data, and policy alignment, ensuring coherence, avoiding duplication, and enabling scale-up. Together, these stakeholders form a cohesive ecosystem that supports Somalia's transition toward affordable, service-based, productive, and climate-resilient renewable energy solutions.

Collectively, these stakeholders form a cohesive ecosystem, i.e., government institutions regulate and guide; the private sector builds and operates; communities adopt and sustain; enterprises create value; the diaspora amplifies reach; and development partners provide technical backstopping and strategic alignment. Working together, they enable Somalia to transition toward affordable, productive, and climate-resilient electrification and uptake of e-cooking and PURE.

Project Site Description

The project will be implemented in selected peri-urban and rural communities that reflect Somalia's most pressing energy access, e-cooking, and livelihood challenges, while also offering strong potential for renewable-energy-enabled economic transformation. Specific project locations will be identified during the PPG stage through a structured, participatory site-selection process involving the MoEWR, Federal Member State authorities, district administrations, private energy service providers, women's groups, and community representatives. This approach ensures that interventions respond to local priorities, are technically and commercially feasible, and enjoy strong community ownership (more information on the selection criteria is given in the Annex).

All targeted locations will be off-grid or weakly served with kerosene lighting and biomass fuels for cooking. Electricity tariffs in these areas frequently exceed USD 1.00–1.50 per kWh, making electricity unaffordable for most households and micro-enterprises and effectively excluding productive uses of energy. Cooking practices are dominated by charcoal and firewood, contributing to deforestation, greenhouse gas emissions, and serious health risks from household air pollution, particularly for women and children.

In line with the project's design, interventions will focus on stand-alone solar PV systems delivered through private-sector, service-based models, providing turn-key energy solutions that bundle electricity access with electric cooking technologies and productive-use appliances. This integrated approach ensures that energy access directly supports income generation, food security, and resilience.

The project will prioritize urban and peri-urban districts with high charcoal consumption and strong e-cooking potential, as well as areas where productive use of renewable energy can unlock value chains. In particular, the project will seek to align and coordinate with UNDP's Climate Promise e-cooking activities, which have already identified Berbera and Bosaso/Mogadishu as priority districts for electric cooking pilots. Where feasible, the project will build on these locations by deploying stand-alone PV systems integrated with e-cooking solutions, reinforcing behavior change, affordability mechanisms, and long-term adoption. This co-location enables efficient use of resources, shared community engagement structures, and stronger evidence generation on scalable e-cooking transitions.

Site selection will also consider market readiness and delivery feasibility, including the presence of capable private service providers, access for installation and maintenance, local security conditions, and opportunities for engagement with women's groups,

cooperatives, and local authorities. Special attention will be given to women-headed households, youth-led enterprises, and vulnerable populations, ensuring equitable access to project benefits.

Target Group and Beneficiary Framework

The project targets urban, peri-urban, and rural populations that experience the most acute forms of energy poverty, characterized by limited or no access to electricity, extremely high energy expenditures, heavy reliance on charcoal and firewood for cooking, and constrained livelihood opportunities. The project is designed to deliver inclusive, scalable benefits by addressing household energy access, electric cooking, and productive uses of renewable energy through integrated, private-sector-leading stand-alone solar PV solutions.

The primary direct beneficiaries are approximately 800 households and at least 189 end-users for productive uses of renewable energy. The households will be across selected pilot locations, including districts identified under the UNDP Climate Promise (Berbera and Bosaso/Mogadishu). These households will gain first-time or significantly improved access to reliable and affordable electricity through quality-assured stand-alone solar PV systems delivered as turn-key service packages by Electricity Service Providers. Beneficiaries will transition away from costly diesel, kerosene, or no electricity toward clean energy services that support lighting, communication, refrigeration, education, and household welfare, while also enabling the adoption of electric cooking and income-generating activities.

Households, particularly women-headed households, will benefit from access to e-cooking supported by flexible repayment mechanisms such as on-bill financing and PAYGO-style arrangements. These interventions are expected to reduce household expenditure on charcoal, lower exposure to indoor air pollution, improve health outcomes for women and children, and reduce pressure on forest ecosystems. The project will also generate evidence on adoption rates, affordability, user preferences, and sustained behavior change to inform the national e-cooking scale-up.

The beneficiaries of end-users for productive uses of renewable energy include small-scale farmers, livestock keepers, dairy processors, fisherfolk and home-based producers who will adopt energy-enabled livelihood activities such as milk chilling, refrigeration, cold storage and other productive appliances. By reducing post-harvest losses, extending operating hours, and enabling value addition, these interventions strengthen local value chains contributing to income growth, food security, and climate resilience.

Women and youth are priority beneficiary groups across all project interventions. Women, who disproportionately bear the burdens of energy poverty and biomass-based cooking, will constitute at least 50% of direct beneficiaries. The project will support women's adoption of electric cooking, participation in productive-use activities, and engagement in energy-enabled enterprises. Targeted capacity-building will enable women to act not only as end-users but also as entrepreneurs, service providers, trainers, and community champions within clean energy and cooking value chains. Youth will benefit from skills training related to solar PV installation, appliance use, customer service, and basic system maintenance, contributing to local employment, entrepreneurship, and long-term sustainability of the service models.

Public and community-serving institutions within pilot areas will also benefit indirectly through improved household welfare, strengthened local economies, and reduced environmental degradation. While the project does not focus on institutional beneficiaries, improved household energy access and productive energy use are expected to enhance education outcomes, health-seeking behavior, food availability, and community resilience.

Vulnerable and marginalized groups, including internally displaced persons (IDPs), women-headed households, minority clans, and low-income or informally settled households, will be explicitly included through targeted outreach, inclusive beneficiary selection criteria, and flexible financing arrangements. Stand-alone PV systems and mobile PAYGO-compatible solutions offer particular advantages for households with irregular incomes or higher mobility, ensuring that no groups are systematically excluded.

Finally, the project benefits a broader ecosystem of stakeholders, including the MoEWR, the NEA, private ESPs, appliance suppliers, and development partners. Through strengthened policy frameworks, digital reporting systems, and national learning platforms, these actors will gain improved capacity, data, and evidence to scale electric cooking and PURE-linked solar PV solutions nationally. In this way, project's beneficiary framework extends beyond immediate users to support long-term institutional strengthening and market transformation across Somalia's energy sector.

Future Socio-Economic Dynamics and Pathways for System Change

The project is designed to catalyze long-term socio-economic transformation by addressing the interlinked challenges of energy poverty, unsustainable cooking practices, and constrained livelihood opportunities. By integrating stand-alone renewable energy systems with electric cooking solutions and productive-use technologies, the project deliberately shifts energy access away from a narrow focus on basic household electrification toward a development-oriented model that simultaneously improves health outcomes, strengthens local economies, and enhances environmental sustainability.

In the short to medium term, households and micro-enterprises participating in the project will transition away from costly diesel-based electricity and biomass-based cooking toward reliable, affordable renewable energy services. Reduced energy expenditures, driven by lower lifecycle costs of solar PV compared to diesel and charcoal, will free disposable income for food, education, healthcare, and enterprise investment. At the same time, the availability of reliable electricity will enable households and entrepreneurs to use energy not only for basic services but also for income-generating activities, such as refrigeration and other food and fisheries services.

The adoption of electric cooking technologies will generate important health, gender, and environmental benefits. Reduced exposure to household air pollution will lower respiratory illnesses and other health burdens that disproportionately affect women and children. Time savings from reduced fuel collection and faster cooking will increase women's availability for education, paid work, and business activities. By displacing charcoal and firewood use, the project will also contribute to reduced pressure on forests and rangelands, supporting ecosystem protection and climate resilience.

At the same time, the integration of productive use of renewable energy is expected to reshape local economic dynamics. Access to solar-powered refrigeration, milk chilling equipment, cold storage for fisheries, and other enterprise technologies will enable value addition, reduce post-harvest losses, and stabilize incomes across key value chains. These changes directly support food security and strengthen climate resilience while creating more diversified rural livelihoods.

Crucially, increased productive demand for electricity improves the economic viability of solar service delivery models. As households and micro-enterprises begin using electricity for income generation rather than only for lighting and phone charging, energy consumption becomes more predictable and economically meaningful. This strengthens revenue stability for service providers and reinforces the financial sustainability of private-sector-led delivery models. In this way, PURE is not only a development outcome but also a structural driver of market sustainability.

Social dynamics within participating communities are also expected to evolve. Women who are already central actors in food processing, small trade, dairy handling, and household enterprises will gain greater opportunities to participate in higher-value economic activities once energy constraints are removed. Youth will benefit from new skills development linked to solar systems, appliance use, maintenance, and enterprise services. Through targeted capacity-building activities, communities will develop the skills and confidence needed to sustain energy-enabled economic activities beyond the life of the project.

At the institutional and market level, the project contributes to systemic change by strengthening coherence between energy access, e-cooking, climate action, and livelihood development. Evidence generated through the deployment of both e-cooking and PURE technologies will inform policy frameworks, financing mechanisms, appliance standards, tariff approaches, and electrification planning. Enhanced digital monitoring and knowledge platforms will allow government and partners to better understand demand patterns, affordability thresholds, gender impacts, enterprise outcomes, and emissions reductions, supporting more integrated and effective national strategies.

Importantly, the project does not treat productive use and e-cooking as parallel add-ons to electrification, but rather as core pillars of a new integrated electrification model. Electrification that fails to support livelihoods risks remaining underutilized and financially fragile; e-cooking strategies disconnected from electricity planning struggle to scale. By demonstrating how renewable electricity, productive economic use, and e-cooking transitions can mutually reinforce each other, the project establishes a practical and scalable model for fragile and low-income contexts.

Over time, these combined dynamics are expected to influence broader system behavior. As communities experience tangible improvements such as higher incomes, reduced energy costs, healthier households, and more resilient livelihoods, demand for integrated solar services will increase organically. Private providers will gain confidence in bundled service models, policymakers will have stronger evidence to justify enabling reforms, and development partners will be better positioned to support national scale-up.

Ultimately, the project lays the foundation for a structural shift away from diesel dependence and biomass cooking toward an integrated, renewable, and economically productive energy system. By embedding productive use and e-cooking within electrification efforts, the project supports a development trajectory that is climate-aligned, gender-responsive, and economically inclusive, contributing meaningfully to Somalia's progress toward the SDGs, its NDC commitments, and long-term resilience.

[1] "Business and Financing Models for PV-Supported Clean Cooking as a Critical Climate Technology for Last Mile Communities", page 11, Figure 5. Financing structure to mobilize private capital for SOLCO; United Nations Environment Programme – Copenhagen Climate Centre (UNEP-CCC), Jun 2025.

Coordination and Cooperation with Ongoing Initiatives and Project.

Does the GEF Agency expect to play an execution role on this project?

No

If so, please describe that role here. Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing

The project is designed to operate within, and significantly strengthen, Somalia's evolving clean-energy ecosystem. Strong complementarity with ongoing national and development-partner initiatives ensures that the project not only avoids duplication but also builds directly on existing regulatory reforms, technical assistance, and infrastructure investments. Close cooperation with these initiatives will enable co-location opportunities, shared data systems, harmonized capacity-building, and a more coherent national approach to off-grid electrification and productive-use deployment.

Africa Minigrids Programme (AMP – UNDP/GEF)

AMP is the flagship enabler for the proposed project and the primary foundation for Component 1 and Component 2. AMP is currently working with the Ministry of Energy and Water Resources to strengthen the regulatory environment for mini grids, develop tariff methodologies, support private electricity service providers (ESPs), and roll out Somalia's digital licensing and tariff regulation platform. The project will integrate all project-supported mini-grids into this digital platform and will directly use AMP's regulatory tools, geospatial analysis, business-model studies, and site-screening datasets.

The two projects will share technical expertise, private-sector networks, and operational guidance. AMP's national training programme on regulatory frameworks will be extended to the project sites, while the PIF will feed real-time operational data from hybrid mini grids into AMP's knowledge systems. Coordination will be ensured through joint work planning with the AMP country team, shared consultants, and common MoEWR implementation staff. This alignment ensures fully coherent regulatory, technical, and knowledge frameworks across both initiatives.

Somalia Electricity Sector Recovery Project (SESERP – World Bank)

SESERP is restoring Somalia's electricity sector through distribution upgrades, hybridization of diesel mini-grids, and electrification of priority social institutions. Strong linkages exist with the project, which relates to SESERP's national Electricity Access Plan and Least-Cost Power Sector Development Plan, which will inform site selection for SHS pilot locations.

The project's institutional strengthening of the National Electricity Authority ensures that all interventions, especially licensing, tariff oversight, and institutional electrification, are fully aligned with national regulations. SESERP's partnerships with private ESPs offer opportunities for co-location, joint training, and operational synergies.

SESERP's work on electrifying health and education facilities provides a technical reference for sustainable service models, which the project will reinforce through private-sector service contracts and monitoring.

Somalia Urban Resilience Project II

While SURP II is primarily an urban infrastructure programme, it provides essential enabling conditions for Component 1 and 2 interventions located within peri-urban or accessible rural districts. SURP II's improved road networks, municipal capacity-building, and community engagement systems, including grievance redress mechanisms, can be leveraged by the project to ensure efficient logistics, local governance coordination, and inclusive community consultation. Opportunities exist for shared social safeguards staff, coordinated community meetings, and aligned gender and stakeholder-engagement frameworks.

Households' Access to Renewable Energy and Advanced Cooking Technologies (HAREACT – AfDB)

HAREACT focuses on off-grid solar and e-cooking solutions across several rural towns. Its implementation experience provides valuable operational lessons for Component 1 (e-cooking and PURE) and Component 2 (deployment of SHS and skills training). The projects will coordinate on technical standards, appliance procurement specifications, private-sector engagement, and environmental/social safeguards. Joint training modules, particularly on e-cooking, after-sales service, and community outreach, will be explored. Opportunities for sequential or co-located interventions exist where HAREACT has established distribution networks, community structures, or solar-powered institutional systems.

UNDP Climate Promise

The UNDP Climate Promise is the UN system's flagship initiative supporting countries to translate their Nationally Determined Contributions into implementable, investment-ready actions. In Somalia, Climate Promise support beginning in 2026 will focus specifically on advancing the e-cooking agenda through the development of a National Clean Cooking Strategy and the implementation of electric cooking pilots in two selected districts. The project is highly complementary to, and strategically aligned with, the Climate Promise initiative. While the Climate Promise concentrates on upstream policy development, market assessments, and early-stage piloting of electric cooking solutions, the project operationalizes and scales these efforts through integrated renewable energy service delivery, financing mechanisms, and private-sector engagement. The project also builds directly on Climate Promise policy outputs by supporting the implementation of sectoral actions and regulatory frameworks for scaling e-cooking within the broader context of decentralized solar electrification and productive use of renewable energy.

At the implementation level, the project creates strong synergies by deploying standalone solar PV systems linked to electric cooking and productive-use technologies in locations aligned with Climate Promise pilot districts, including Berbera and Bosaso/Mogadishu. This co-location enables harmonized community engagement, shared learning, and cost-effective scaling of e-cooking solutions. The project further complements Climate Promise activities by developing enabling financing mechanisms, such as on-bill financing, PAYGO models, results-based finance, and linked with MRV, that address affordability barriers identified under the Climate Promise.

Policies potentially contradicting the project

No national policies have been identified that contradict the project's intended outcomes. Somalia's NTP, NDC, and Energy Policy all explicitly call for decentralized renewable energy, private-sector participation, and expanded productive use. The project will remain aligned with national regulations through continuous coordination with MoEWR and NEA, ensuring full compliance.

Coordination mechanism

Coordination for the project will be formalized through existing and project-supported national energy coordination structures led by the Ministry of Energy and Water Resources. The project will actively engage with national inter-ministerial energy platforms and technical working groups involving MoEWR, the National Electricity Authority, relevant line ministries (including health, environment, and planning), development partners, and private-sector representatives. These platforms will be used to align policy reform, regulatory development, financing mechanisms, and implementation of progress related to electric cooking, standalone solar PV electrification, and productive use of renewable energy.

At the national level, the project will coordinate closely with UNDP-led initiatives such as the Africa Minigrids Programme knowledge and policy dialogue mechanisms and with the Climate Promise clean cooking programme, ensuring coherence between policy development, pilot implementation, and learning agendas. Regular technical exchanges will be held to share data, harmonize standards, and avoid duplication, particularly in relation to e-cooking strategies, financing models, and monitoring frameworks.

Regional and local coordination will be ensured through multi-stakeholder coordination mechanisms established in pilot locations. These mechanisms will bring together district and municipal authorities, community representatives (including women's groups and youth), private Electricity Service Providers, appliance suppliers, and civil society organizations. They will host joint planning and review sessions, support community engagement, monitor implementation progress, and identify opportunities to leverage complementary investments and services at the local level.

Through this structured, multi-level coordination framework, the project will ensure that GEF resources are used in a catalytic and synergistic manner, strengthening policy coherence, accelerating uptake of electric cooking and PURE solutions, and creating a robust foundation for replication and scale-up while maximizing the impact of co-financing and aligned national and regional initiatives.

Management Arrangements:

Executing Agency: The Ministry of Energy and Water Resources (MoEWR) will be the executing partner (implementing partner under UNDP terminology) and a key beneficiary on behalf of Somalia. Detailed implementation arrangements will be determined during the PPG stage.

Core Indicators

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO₂e (direct)	59505	0	0	0
Expected metric tons of CO₂e (indirect)	59505	0	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO₂e (direct)				
Expected metric tons of CO₂e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO₂e (direct)	59,505			
Expected metric tons of CO₂e (indirect)	59,505			
Anticipated start year of accounting	2028			
Duration of accounting	20			

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)				

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
Solar Photovoltaic	1.05			

Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	5,520			
Male	5,520			
Total	11,040	0	0	0

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

Direct Emissions Reductions: One of the project's outputs will be the installation of 1.05 MW of solar energy (SHS for different purposes, i.e. e-cooking and PURE technologies) across project locations in Somalia. As a result, during the three-year project implementation period, direct greenhouse gas emission reductions totaling annually 2,975 tCO₂e will be achieved (details are provided under description of project's outputs - Output 2.1.1 - Pilot locations established with operational integrated solar solutions (standalone PV), supporting electricity access and electric cooking and productive use of energy), while the total emission reduction of 59,505 tons of CO₂ equivalent over the expected 20-year lifetime of the investment. The 20-year lifetime is based on the default value provided in the GEF guideline document for calculating GHG benefits for renewable energy projects (Manual for Calculating GHG Benefits of GEF Projects: Energy Efficiency and Renewable Energy Projects, GEF 2018). Annex I provides a detailed calculation of the expected GHG emission reduction.

Beyond direct mitigation impacts, the project is explicitly designed to deliver transformational change, a core requirement under GEF-8, by demonstrating replicable, commercially viable, private-sector-led business models for decentralized solar electrification in fragile settings. These models are embedded within strengthened regulatory frameworks, digital monitoring systems, and capacity-building mechanisms that lower investment risks and enable scale-up beyond GEF financing.

Indirect Emission Reductions: Consistent with GEF-8 expectations for catalytic and market-transforming impacts, a conservative replication scenario is applied, assuming a replication factor of 5x over the project lifetime, reflecting the expected uptake by additional Electricity Service Providers, financiers, and public programs adopting similar technical configurations and service-delivery models as a result of improved market confidence, policy alignment, and demonstrated financial viability. Since replication will be carried out by stakeholders outside the project intervention, a causality factor of 0.2 is applied, recognizing the partial contribution to the project. The combined effect of these two factors yields an overall indirect impact multiplier of 1x. Under this scenario, indirect emission reductions are estimated at approximately 59,505 tCO₂, resulting in total cumulative emission reductions of approximately 119,010 tCO₂ over 20 years.

Through this combination of renewable energy sources and indirect market transformation, the project contributes to GEF-8 CCM priorities on scaling renewable energy, enabling private-sector investment, and delivering sustained mitigation beyond the project boundary. The intervention supports Somalia's long-term low-emissions development pathway, advances implementation of its Nationally Determined Contribution, and contributes to global efforts to limit greenhouse gas emissions in line with the objectives of the Paris Agreement.

Direct Beneficiaries: Direct beneficiaries include households and micro-enterprises in selected urban, peri-urban, and underserved areas (including Climate Promise-aligned locations such as Berbera and Bosaso/Mogadishu) that will benefit from demonstrated integrated solar service models. Approximately 800 households will gain access to reliable, affordable electricity through standalone solar PV systems that support household electricity needs and electric cooking. In addition, at least 189 end-users or micro-enterprises will directly benefit from the deployment of energy-efficient productive-use technologies such as refrigeration, cold storage and dairy value-chain equipment.

Women are a priority beneficiary group across all outcomes. At least 50% of direct end-users of electric cooking and PURE technologies will be women, and at least 200 women entrepreneurs and community actors will receive targeted training, skills development, and support to participate in e-cooking value chains, solar service delivery, and energy-enabled livelihood activities. Youth will also benefit through technical training and engagement in installation, operation, maintenance, customer service, and local energy services.

Assuming an average household size of 6 people in Somalia, the project is expected to directly benefit more than 11,040 individuals, including household members of participating households and micro-enterprises, through improved energy access, reduced cooking-related health risks, increased incomes, enhanced food security, and strengthened community services.

Indirect Beneficiaries: Indirect beneficiaries during the project duration amount approx. 11,040 people. Indirect beneficiaries post-project implementation includes the national Somali population, who will benefit from the enabling environment for investment in electrification via SHS PV systems and their linkage to e-cooking and PURE, which will encourage the increased supply of renewable energy.

Key Risks

	Rating	Explanation of risk and mitigation measures
CONTEXT		
Climate	Moderate	Risk summary: Extreme heat, dust storms, flooding, or drought events damage equipment or disrupt construction/operations. Mitigation measures: • Climate-resilient infrastructure designs (elevated equipment, dust protection, heat-tolerant components) • Scheduling of works in lower-risk seasons • Remote monitoring to detect weather-related performance issues
Environmental and Social	Substantial	Risk summary: Electric-cooking, PURE and PV pilots fail to reduce charcoal use or benefit women or reduce the use of Diesel fueled electricity leading to environmental + gender backlash. Disposal of solar panels and e-cooking/PURE equipment. Mitigation measures: • Prioritize vulnerable & women-headed households • Gender-sensitive design & training • Feedback surveys & behavior-change campaigns • Engage community, elders, and women leaders early • Require ESPs and equipment suppliers to apply

		lifecycle management plans, including take-back schemes and environmentally sound end-of-life handling for solar panels, batteries, and e-cooking/PURE equipment
Political and Governance	Substantial	Risk summary: Political instability or changes in government delay implementation. Mitigation measures: • Coordination with national + FMS authorities • Alignment with NTP and NDC commitments • Continuous policy dialogue • Phased implementation in stable areas

INNOVATION

Institutional and Policy	Substantial	Risk summary: Delays in the adoption of the digital platform; slow endorsement of regulatory reforms related to stand-alone PV systems linked to e-cooking and PURE. Mitigation measures: • Formal MoUs + policy timelines • Capacity-building and IT support • Technical assistance and peer learning via AMP/HAREACT • High-level regulatory champions
Technological	Moderate	Risk summary: Underperformance, breakdowns, poor maintenance of systems, and difficulty adopting electric-cooking devices. Mitigation measures: • Quality procurement standards & warranties • Local O&M training • Pilot cooking first, scale only after robust results • Smart metering & remote monitoring
Financial and Business Model	Substantial	Risk summary: Currency volatility, inflation, and import costs undermine affordability and system viability. Low uptake of ESPs in co-financing instruments, low trust or liquidity Mitigation measures: • Bulk procurement & local contracting • FX buffers in system cost estimates • Government dialogue on duty/tax exemptions • Support ESPs to enable co-finance engagement • Partnership with money-transfer operators, banks, fintechs • Attractive pay-as-you-go

EXECUTION

Capacity	Moderate	Risk summary: Limited local technical and business skills slow deployment and O&M. Mitigation measures: • Training for ESPs, women entrepreneurs, MoEWR • Mentorship via AMP & HAREACT • Target 200 women trained + 189 PUE users
Fiduciary	Low	Risk summary: Fraud, procurement issues, or weak financial control in a fragile environment Mitigation measures: • UNDP procurement standards • Due diligence for ESPs and vendors • Independent audits, spot checks, digital verification • Anti-fraud and ethics training
Stakeholder	Low	Risk summary: Community resistance, elite capture, or inequitable beneficiary selection Mitigation measures: • Transparent community selection criteria • Women's groups engagement • Participatory user-education campaigns • At least 50% women beneficiaries

Other		
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Overall Risk Rating	Substantial	• Climate-resilient system design (heat-resistant components, dust protection, elevated platforms), optimized seasonal scheduling, and remote monitoring for early detection of weather-related issues. • Prioritize women and vulnerable groups; gender-responsive user training; behavior-change campaigns; continuous feedback through surveys and community engagement. • High-quality procurement standards and warranties; local O&M training; smart metering and remote diagnostics; piloting before scale-up. • Bulk procurement; FX buffers; advocacy for tax/duty exemptions; support ESPs in enabling co-financing investments by developing suitable financing models with PAYGO and mobile-money repayment options. • UNDP procurement standards; due diligence for vendors; audits and spot checks; digital verification systems. • Transparent selection criteria; participatory processes; strong involvement of women's groups; inclusive communication.
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C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Describe how the proposed interventions are aligned with GEF- 8 programming strategies and country and regional priorities, including how these country strategies and plans relate to the multilateral environmental agreements.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how. (max. 500 words, approximately 1 page)

The project is strongly aligned with the GEF-8 Programming Directions and is fully consistent with the priorities articulated under GEF-8, particularly within the Climate Change Mitigation Focal Area. GEF-8 emphasizes accelerating low-carbon transitions, scaling distributed renewable energy, enabling e-cooking solutions, strengthening policy and regulatory frameworks, and supporting integrated approaches that deliver climate, health, gender, and livelihood co-benefits in fragile and low-income contexts. The project directly responds to these priorities through its integrated focus on stand-alone solar PV electrification, electric cooking, and productive use of renewable energy.

Under GEF-8 (*Pillar 1: Promote innovation, technology development and transfer, and enabling policies for mitigation options with systemic impacts, Objective 1.2. Enable the transition to decarbonized power systems*), programming directions highlight the need to expand decentralized renewable energy, and utilize opportunities to enhance the climate and economic resilience of communities through improved access to clean, reliable, affordable and climate-resilient energy generation and distribution systems. The project advances these objectives by replacing diesel and biomass-based energy use with renewable electricity solutions, while strengthening national and local governance for e-cooking and productive energy use. The project's support to regulatory frameworks, incentive structures, and multi-stakeholder coordination mechanisms is fully aligned with GEF-8's emphasis on governance, policy reform, and institutional capacity as foundations for long-term impact.

The project also responds to GEF-8 guidance on innovation, market development, and private-sector engagement. Through the design and deployment of inclusive financing and service-delivery models, such as bundled electricity, cooking, and productive-use solutions delivered by private providers, the project lowers affordability barriers while strengthening market viability. Skills development, awareness-raising, and behavior-change interventions further align with GEF-8 recognition that demand-side adoption, gender responsiveness, and social acceptance are essential for sustained mitigation impact.

In terms of national and regional priorities, the project is closely aligned with Somalia's National Transformation Plan (2025–2029), which identifies decentralized renewable energy, e-cooking, private-sector-led service delivery, and livelihood creation as pillars of economic recovery and resilience. The project supports Somalia's SDG framework, particularly SDG 7 (Affordable and Clean Energy), SDG 5 (Gender Equality), SDG 3 (Health), SDG 8 (Decent Work), SDG 13 (Climate Action), and SDG 15 (Life on Land), by reducing household air pollution, deforestation, and emissions while improving livelihoods and gender equity.

The project also directly operationalizes Somalia's Nationally Determined Contribution, which calls for scaling solar energy, promoting e-cooking solutions, strengthening policy frameworks, and reducing deforestation and indoor air pollution. By integrating

e-cooking and PURE into renewable electrification efforts, the project translates national climate commitments into concrete, scalable actions.

No national policies have been identified that contradict the project's intended outcomes. Where regulatory or market gaps remain, particularly related to e-cooking standards, appliance financing, and integration of cooking into energy planning, the project directly supports their resolution through policy development, institutional strengthening, and evidence generation. This ensures strong alignment with GEF-8 programming strategies, reduces policy risk, and reinforces Somalia's long-term capacity to deliver inclusive, climate-aligned energy transitions.

D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment:

We confirm that gender dimensions relevant to the project have been addressed as per GEF Policy and are clearly articulated in the Project Description (Section B).

Yes

Stakeholder Engagement

We confirm that key stakeholders were consulted during PIF development as required per GEF policy, their relevant roles to project outcomes and plan to develop a Stakeholder Engagement Plan before CEO endorsement has been clearly articulated in the Project Description (Section B).

Yes

Were the following stakeholders consulted during project identification phase:

Indigenous Peoples and Local Communities: Yes

Civil Society Organizations: Yes

Private Sector: Yes

Provide a brief summary and list of names and dates of consultations

Local communities, women's groups, and other relevant stakeholders were actively engaged during the preparation of this project through a participatory and inclusive consultation process. Namely, the project builds on prior stakeholder consultations conducted under the Somalia Energy Access and Clean Energy Solutions Assessments, as well as the Terminal Evaluation of PROSCAL I, both of which emphasized the urgent need for Clean Energy Solutions alternatives and improved access to electricity.

These assessments revealed that the majority of households still rely on traditional biomass like wood and charcoal, contributing to deforestation and exposing women and children to serious health risks due to indoor air pollution. During the development of this proposal, consultations were conducted with community representatives from underserved and off-grid areas, including women-headed households, youth, informal energy users, and internally displaced persons. These engagements prioritized voices with limited influence and ensured that community-specific needs were reflected in the project's design.

In addition to community-level feedback, inputs were obtained from local authorities, energy service providers to validate the relevance, feasibility, and ownership of the proposed interventions. Particular attention was given to women's groups and leaders, recognizing their central role in household energy use (and the disproportionate health and safety risks they face from traditional cooking practices). Their participation helped shape gender-responsive priorities such as the deployment of electric cooking appliances, clean energy entrepreneurship support, and capacity-building initiatives tailored for women.

There is concrete evidence of community demand for modern energy services. The PROSCAL I evaluation and follow-up discussions highlighted broad interest in transitioning to safer, more affordable energy solutions, particularly those that reduce time spent gathering fuel, improve health outcomes, and enhance livelihood opportunities.

Stakeholder engagement will continue into the PPG phase through structured dialogues, co-design workshops, and local advisory mechanisms to ensure continued local ownership and responsiveness throughout implementation. The table below provides an overview of engaged stakeholders.

Stakeholder(s)	Date	Engagement Summary
Office of the Prime Minister, Minister of Energy and Water Resources	27 August 2025	High level discussion on energy access, energy transition, utilizing renewable energy to enhance service delivery and energy efficiency measures. It was also discussed developing the PIF to support the government priorities in the energy sector as stipulated in the National Transformation Plan.
GEF Operational Focal Point	26 August 2025	Discussion with the GEF OFP on the PIF development, the importance of energy access, productive use of energy and alternative energy to charcoal were highlighted as major priorities.
PISC meetings	28 May 2025 27 August 2025	The country office presented the proposed project to the technical teams at RBAS and HQ to ensure technical robustness of the proposed project idea and alignment with Government, UNDP and GEF priorities.
Ministry of Energy and Water Resources	25 August 2025 15 and 16 December 2025	Discussion on MoWER vision for the PIF, alignment with national energy priorities, and the role of PUE solutions for economic development. Discussion MOEWR technical team on draft PIF outcomes and activities to ensure alignment with Ministry priorities and projects that are being implemented in parallel that could co-finance the proposed project.
UNDP Somalia CO	02 May 2025	Discussions on alignment of the Energy PIF with existing UNDP-supported programs in Somalia, particularly in economic development, gender, and climate adaptation.
Climate promise	26 December 2025	Discussion to synergize and ensure complementarity of the PIF with a new project in Somalia on e-cooking under the climate promise which is expected to be implemented in 2026.
Renewable Energy Companies	15 December 2025 02/03 January 2026	Discussions on their experience on Pay-as-you go models, partnerships with banks on microfinancing and technical aspects of products that are used for the productive use of energy.

(Please upload to the portal documents tab any stakeholder engagement plan or assessments that have been done during the PIF development phase.)

Private Sector

Will there be private sector engagement in the project?

Yes

And if so, has its role been described and justified in the section B project description?

Yes

Environmental and Social Safeguard (ESS) Risks

We confirm that we have provided indicative information regarding Environmental and Social risks associated with the proposed project or program and any measures to address such risks and impacts (this information should be presented in Annex D).

Yes

Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE
High or Substantial			

E. OTHER REQUIREMENTS

Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described in the Project Description (Section B)

Yes

ANNEX A: FINANCING TABLES

GEF Financing Table

Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non-Grant	GEF Project Grant(\$)	Agency Fee(\$)	Total GEF Financing (\$)
UNDP	GET	Somalia	Climate Change	CC STAR Allocation: CCM-1-2	Grant	1,776,484.00	168,766.00	1,945,250.00
Total GEF Resources (\$)						1,776,484.00	168,766.00	1,945,250.00

Project Preparation Grant (PPG)

Is Project Preparation Grant requested?

true

PPG Amount (\$)

50000

PPG Agency Fee (\$)

4750

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non-Grant	PPG(\$)	Agency Fee(\$)	Total PPG Funding(\$)
UNDP	GET	Somalia	Climate Change	CC STAR Allocation: CCM-1-2	Non-Grant	50,000.00	4,750.00	54,750.00
Total PPG Amount (\$)						50,000.00	4,750.00	54,750.00

Please provide justification

Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Sources of Funds	Total(\$)
UNDP	GET	Somalia	Climate Change	CC STAR Allocation	2,000,000.00
Total GEF Resources					2,000,000.00

Indicative Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing(\$)	Co-financing(\$)
CCM-1-2	GET	1,776,484.00	4324000
Total Project Cost		1,776,484.00	4,324,000.00

Indicative Co-financing

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Recipient Country Government	Ministry of Energy and Water Resources	In-kind	Recurrent expenditures	1000000
Others	Climate Promise	Grant	Investment mobilized	324000
Others	GEED / ACTIVE Program	Grant	Investment mobilized	2500000
Others	Somali Electricity Sector Recovery Project (SES RP)	Grant	Investment mobilized	500000
Total Co-financing				4,324,000.00

Describe how any "Investment Mobilized" was identified

The project is designed as a catalytic intervention that leverages substantial co-financing to accelerate the deployment of renewable electricity, electric cooking, and productive use of renewable energy (PURE). The GEF grant of USD 1,776,484 is complemented by USD 4,324,000 in expected and indicative co-financing, resulting in a total project value of USD 6,100,484. This leverage ratio reflects the project's alignment with GEF-8 priorities on market transformation, private-sector engagement, and scalable climate mitigation. Additional co-financing will be actively pursued during the PPG phase to further strengthen the project's financial base and overall impact.

Co financing for this project comes from the government, the private sector, and development partners. The Ministry of Energy and Water Resources contributes in kind support through staff time, coordination, and regulatory engagement. Electricity Service Providers and private equipment suppliers provide investment contributions to support deployment of standalone PV systems, e cooking appliances, and productive use technologies. The SESRP (World Bank) aligns pilot deployment with national electrification planning. The EU GEED/ACTIVE program supports value-chain electrification through cold chain and productive use infrastructure. UNDP's Climate Promise programme contributes resources for cooking pilots and clean cooking policy development. Together, these contributions reinforce the project's technical, regulatory, and financial foundations and enable scaling beyond direct GEF investments. Please refer to Annex J for more details.

Co-financing comes from multiple partners:

- The Ministry of Energy and Water Resources (USD 1M in-kind) for policy, regulation, coordination, and oversight, digital M&E.
- UNDP's Climate Promise (USD 324,000) for clean cooking policy development and pilot activities.
- The World Bank-supported Somali Electricity Sector Recovery Project (USD 500,000) for aligning pilots with national electrification reforms.
- The GEED/ACTIVE Program (USD 2.5M) for large-scale solar investments, including cold chains, milk cooling, household solar, and e-cooking solutions.

Overall, the project demonstrates a good leverage ratio, with each dollar of GEF financing mobilizing public and private co-financing. This blended financing structure aligns with GEF-8 expectations for catalytic impact, market engagement, and sustainability, while reinforcing Somalia's transition toward a resilient, low-emissions energy system.

ANNEX B: ENDORSEMENTS

GEF Agency(ies) Certification

GEF Agency Type	Name	Date	Project Contact Person	Phone	Email
GEF Agency Coordinator	Ms. Nancy Bennet				nancy.bennet@undp.org
Project Coordinator	Ms. Amal Aldababseh				amal.al dababseh@undp.org

Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Name	Position	Ministry	Date (MM/DD/YYYY)

Mr. Abdullahi Godah Barre	Principle Advisor to Minister of Environment and Climate Change	Ministry of Environment and Climate Change, Federal republic of Somalia	11/4/2025
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ANNEX C: PROJECT LOCATION

Please provide geo-referenced information and map where the project interventions will take place



Figure 2 – Project map

DMS latitude longitude coordinates for the central point of Somalia are: 5°47'11.025"N, 47°19'33.0708"E.

Specific project locations will be identified during the PPG stage. However, the selected project sites will be locations where solar electrification can catalyze immediate development gains and where private ESPs are already active or willing to invest under

supported conditions. Moreover, two identified locations by the Climate Promise project will be prioritized, given the high synergies' potential for e-cooking. The project will prioritize sites with:

- strong local governance structures and community cohesion,
- demonstrated willingness to adopt renewable energy solutions,
- viable potential for e-cooking and PURE-based income generation,
- security and accessibility for construction and long-term O&M,
- on-going projects location site with the aim to create high complementarity, and
- alignment with underserved "priority energy access zones" identified by NEA and MoEWR.

Overall, the selected project sites will represent high-need, high-impact in peri-urban and rural communities where clean, affordable, and reliable electricity can drive economic development, climate resilience, and gender-inclusive livelihood transformation. Through these pilots, the project will generate replicable models and evidence to guide Somalia's national-scale rural electrification efforts and contribute directly to achieving the NTP target of 80% electrification by 2029, as well as Somalia e-cooking targets.

ANNEX D: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

(PIF level) Attach agency safeguard screen form including rating of risk types and overall risk rating.

Title

10319-Somalia-SESP-260512

ANNEX E: RIO MARKERS

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
Principal Objective 2	Significant Objective 1	No Contribution 0	No Contribution 0

ANNEX F: TAXONOMY WORKSHEET

Level 1	Level 2	Level 3	Level 4
☒ Influencing models			
	☒ Transform policy and regulatory environments		
	☒ Strengthen institutional capacity and decision-making		
	☒ Convene multi-stakeholder alliances		
	☒ Demonstrate innovative approaches		
	☒ Deploy innovative financial instruments		
☒ Stakeholders			
	☐ Indigenous Peoples		
	☒ Private Sector		
		☐ Capital providers	
		☐ Financial intermediaries and market facilitators	
		☐ Large corporations	
		☒ SMEs	
		☒ Individuals/Entrepreneurs	
		☐ Non-Grant Pilot	
		☐ Project Reflow	
	☒ Beneficiaries		
	☒ Local Communities		
	☒ Civil Society		
		☒ Community Based Organization	

		☒ Non-Governmental Organization	
		☐ Academia	
		☐ Trade Unions and Workers Unions	
	☒ Type of Engagement		
		☒ Information Dissemination	
		☒ Partnership	
		☒ Consultation	
		☒ Participation	
	☒ Communications		
		☒ Awareness Raising	
		☒ Education	
		☐ Public Campaigns	
		☒ Behavior Change	
☒ Capacity, Knowledge and Research			
	☐ Enabling Activities		
	☐ Capacity Development		
	☐ Knowledge Generation and Exchange		
	☐ Targeted Research		
	☐ Learning		
		☐ Theory of Change	
		☐ Adaptive Management	
		☐ Indicators to Measure Change	
	☒ Innovation		
	☒ Knowledge and Learning		
		☒ Knowledge Management	
		☒ Innovation	
		☒ Capacity Development	

		☒ Learning	
	☒ Stakeholder Engagement Plan		
☒ Gender Equality			
	☒ Gender Mainstreaming		
		☒ Beneficiaries	
		☒ Women groups	
		☒ Sex-disaggregated indicators	
		☒ Gender-sensitive indicators	
	☒ Gender results areas		
		☒ Access and control over natural resources	
		☒ Participation and leadership	
		☒ Access to benefits and services	
		☒ Capacity development	
		☒ Awareness raising	
		☒ Knowledge generation	
☒ Focal Areas/Theme			
	☐ Integrated Programs		
		☐ Commodity Supply Chains (¹⁹ Good Growth Partnership)	
			☐ Sustainable Commodities Production
			☐ Deforestation-free Sourcing
			☐ Financial Screening Tools
			☐ High Conservation Value Forests
			☐ High Carbon Stocks Forests
			☐ Soybean Supply Chain
			☐ Oil Palm Supply Chain

			☐ Beef Supply Chain
			☐ Smallholder Farmers
			☐ Adaptive Management
		☐ Food Security in Sub-Saharan Africa	
			☐ Resilience (climate and shocks)
			☐ Sustainable Production Systems
			☐ Agroecosystems
			☐ Land and Soil Health
			☐ Diversified Farming
			☐ Integrated Land and Water Management
			☐ Smallholder Farming
			☐ Small and Medium Enterprises
			☐ Crop Genetic Diversity
			☐ Food Value Chains
			☐ Gender Dimensions
			☐ Multi-stakeholder Platforms
		☐ Food Systems, Land Use and Restoration	
			☐ Sustainable Food Systems
			☐ Landscape Restoration
			☐ Sustainable Commodity Production
			☐ Comprehensive Land Use Planning
			☐ Integrated Landscapes
			☐ Food Value Chains
			☐ Deforestation-free Sourcing
			☐ Smallholder Farmers
		☐ Sustainable Cities	
			☐ Integrated urban planning

			☐ Urban sustainability framework
			☐ Transport and Mobility
			☐ Buildings
			☐ Municipal waste management
			☐ Green space
			☐ Urban Biodiversity
			☐ Urban Food Systems
			☐ Energy efficiency
			☐ Municipal Financing
			☐ Global Platform for Sustainable Cities
			☐ Urban Resilience
	☐ Biodiversity		
		☐ Protected Areas and Landscapes	
			☐ Terrestrial Protected Areas
			☐ Coastal and Marine Protected Areas
			☐ Productive Landscapes
			☐ Productive Seascapes
			☐ Community Based Natural Resource Management
		☐ Mainstreaming	
			☐ Extractive Industries (oil, gas, mining)
			☐ Forestry (Including HCVF and REDD+)
			☐ Tourism
			☐ Agriculture & agrobiodiversity
			☐ Fisheries
			☐ Infrastructure
			☐ Certification (National Standards)

			☐ Certification (International Standards)
		☐ Species	
			☐ Illegal Wildlife Trade
			☐ Threatened Species
			☐ Wildlife for Sustainable Development
			☐ Crop Wild Relatives
			☐ Plant Genetic Resources
			☐ Animal Genetic Resources
			☐ Livestock Wild Relatives
			☐ Invasive Alien Species (IAS)
		☐ Biomes	
			☐ Mangroves
			☐ Coral Reefs
			☐ Sea Grasses
			☐ Wetlands
			☐ Rivers
			☐ Lakes
			☐ Tropical Rain Forests
			☐ Tropical Dry Forests
			☐ Temperate Forests
			☐ Grasslands
			☐ Paramo
			☐ Desert
		☐ Financial and Accounting	
			☐ Payment for Ecosystem Services
			☐ Natural Capital Assessment and Accounting
			☐ Conservation Trust Funds
			☐ Conservation Finance
		☐ Supplementary Protocol to the CBD	
			☐ Biosafety

			☐ Access to Genetic Resources Benefit Sharing
	☐ Forests		
		☐ Forest and Landscape Restoration	
			☐ REDD/REDD+
		☐ Forest	
			☐ Amazon
			☐ Congo
			☐ Drylands
	☐ Land Degradation		
		☐ Sustainable Land Management	
			☐ Restoration and Rehabilitation of Degraded Lands
			☐ Ecosystem Approach
			☐ Integrated and Cross- sectoral approach
			☐ Community-Based NRM
			☐ Sustainable Livelihoods
			☐ Income Generating Activities
			☐ Sustainable Agriculture
			☐ Sustainable Pasture Management
			☐ Sustainable Forest/Woodland Management
			☐ Improved Soil and Water Management Techniques
			☐ Sustainable Fire Management
			☐ Drought Mitigation/Early Warning
		☐ Land Degradation Neutrality	
			☐ Land Productivity

			☐ Land Cover and Land cover change
			☐ Carbon stocks above or below ground
		☐ Food Security	
	☐ International Waters		
		☐ Ship	
		☐ Coastal	
		☐ Freshwater	
			☐ Aquifer
			☐ River Basin
			☐ Lake Basin
		☐ Learning	
		☐ Fisheries	
		☐ Persistent toxic substances	
		☐ SIDS: Small Island Dev States	
		☐ Targeted Research	
		☐ Pollution	
			☐ Persistent toxic substances
			☐ Plastics
			☐ Nutrient pollution from all sectors except wastewater
			☐ Nutrient pollution from Wastewater
		☐ Transboundary Diagnostic Analysis and Strategic Action Plan preparation	
		☐ Strategic Action Plan Implementation	
		☐ Areas Beyond National Jurisdiction	
		☐ Large Marine Ecosystems	
		☐ Private Sector	
		☐ Aquaculture	
		☐ Marine Protected Area	
		☐ Biomes	

			☐ Mangrove
			☐ Coral Reefs
			☐ Seagrasses
			☐ Polar Ecosystems
			☐ Constructed Wetlands
	☐ Chemicals and Waste		
		☐ Mercury	
		☐ Artisanal and Scale Gold Mining	
		☐ Coal Fired Power Plants	
		☐ Coal Fired Industrial Boilers	
		☐ Cement	
		☐ Non-Ferrous Metals Production	
		☐ Ozone	
		☐ Persistent Organic Pollutants	
		☐ Unintentional Persistent Organic Pollutants	
		☐ Sound Management of chemicals and <u>Waste</u>	
		☐ Waste Management	
			☐ Hazardous Waste Management
			☐ Industrial Waste
			☐ e-Waste
		☐ Emissions	
		☐ Disposal	
		☐ New Persistent Organic Pollutants	
		☐ Polychlorinated Biphenyls	
		☐ Plastics	
		☐ Eco-Efficiency	
		☐ Pesticides	
		☐ DDT - Vector Management	
		☐ DDT - Other	
		☐ Industrial Emissions	

		☐ Open Burning	
		☐ Best Available Technology / Best Environmental Practices	
		☐ Green Chemistry	
	☒ Climate Change		
		☐ Climate Change Adaptation	
			☐ Climate Finance
			☐ Least Developed Countries
			☐ Small Island Developing States
			☐ Disaster Risk Management
			☐ Sea-level rise
			☐ Climate Resilience
			☐ Climate information
			☐ Ecosystem-based Adaptation
			☐ Adaptation Tech Transfer
			☐ National Adaptation Programme of Action
			☐ National Adaptation Plan
			☐ Mainstreaming Adaptation
			☐ Private Sector
			☐ Innovation
			☐ Complementarity
			☐ Community-based Adaptation
			☐ livelihoods
		☒ Climate Change Mitigation	
			☐ Agriculture, Forestry, and other Land Use
			☐ Energy Efficiency
			☐ Sustainable Urban Systems and Transport
			☒ Technology Transfer
			☒ Renewable Energy

			☒ Financing
			☒ Enabling Activities
		☐ Technology Transfer	
			☐ Poznan Strategic Programme on Technology Transfer
			☐ Climate Technology Centre & Network (CTCN)
			☐ Endogenous technology
			☐ Technology Needs Assessment
			☐ Adaptation Tech Transfer
		☒ United Nations Framework on Climate Change	
			☒ Nationally Determined Contribution
			☒ Sustainable Development Goals
		☒ Climate Finance (Rio Markers)	
			☐ Climate Change Mitigation 1
			☒ Climate Change Mitigation 2
			☐ Climate Change Adaptation 1
			☐ Climate Change Adaptation 2
			☐ Biodiversity 2
			☐ Desertification 2