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UNDP SUPPORT TO THE IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT **GOAL 7**

AFFORDABLE AND CLEAN ENERGY

United Nations Development Programme



SUSTAINABLE DEVELOPMENT GOALS



*This is a living document that will be updated periodically.
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SUSTAINABLE DEVELOPMENT

A path towards global prosperity, human well-being and a healthy planet

The world has achieved remarkable gains in human development over the past two decades. Extreme poverty has significantly reduced, access to primary education and health outcomes has improved, and substantial inroads have been made in promoting gender equality and the empowerment of women. The pursuit of the eight Millennium Development Goals has contributed to this progress and enabled people across the world to improve their lives and future prospects. Yet, despite these significant gains, extreme poverty remains a key challenge, in 2013, 767 million people lived on less than \$1.90 per day (purchasing power parity). Inequalities are either high or widening, especially within countries. Unemployment and vulnerable employment levels are high in many countries, particularly among youth. Unsustainable consumption and production are pushing ecosystems beyond their limits – undermining their ability to provide services vital to life, development and their own regeneration. Shocks associated with macroeconomic instability, disasters linked to natural hazards, environmental degradation and socio-political unrest impact negatively on the lives of millions. In many cases, these shocks hold back, if not reverse, progress already achieved in meeting national and internationally agreed development goals. Preserving the gains that have been made and addressing the current development challenges the world faces cannot be accomplished by tinkering at the margins.

There is an imperative today to foster sustainable development. A vision for what this encapsulates is laid out in the new sustainable development agenda that aims to end poverty, promote prosperity and people's well-being while protecting the environment. As the United Nations' global development network, the United Nations Development Programme (UNDP) has a key role to play in supporting countries to make this vision a reality – guiding societies towards a sustainable development pathway, managing risk and enhancing resilience, and advancing prosperity and well-being. Supporting the Sustainable Development Goals (SDGs) is a top priority for UNDP.

UNDP has outlined a vision in its Strategic Plan 2014-17, which is focused on making the next big breakthrough in development: to help countries achieve the simultaneous eradication of poverty and significant reduction of inequalities and exclusion. This vision builds on UNDP's core strengths: a large country network in more than 170 countries and territories, a principal coordination role within the United Nations system and proven ability in supporting efforts to reduce poverty, inequalities and exclusion and protect vital ecosystems.

UNDP has worked with the United Nations Development Group (UNDG) in developing a strategy for effective and coherent implementation support of the new sustainable development agenda under the acronym 'MAPS' (Mainstreaming, Acceleration and Policy Support). The *Mainstreaming* component of MAPS aims to generate awareness amongst all relevant actors; help governments land the agenda at national and local levels; and, ultimately, mainstream the agenda into their national plans, strategies and budgets. The *Acceleration* component aims to help governments accelerate progress on SDG targets by providing tools to identify critical constraints and focus on development objectives relevant to the country context. The *Policy Support* component aims to provide coordinated and pooled policy support to countries working to meet their SDG targets. To support the MAPS strategy, UNDP offers an integrated package of policy support services that align with its programming priorities. These services cover a wide range of areas: poverty reduction, inclusive growth and productive employment, gender equality and the empowerment of women, HIV and health, access to water and sanitation, climate change adaptation, access to sustainable energy, sustainable management of terrestrial ecosystems, oceans governance, and promotion of peaceful and inclusive societies.

Well-equipped with this integrated package of policy support services, UNDP stands ready to support country partners to effectively implement the new agenda for sustainable development and make this plan of action for people, planet and prosperity a reality.



AFFORDABLE AND CLEAN ENERGY

Why does this matter?

Energy is central to sustainable development. It accelerates social progress and enhances productivity. Over the centuries, energy has transformed economies and societies, spurring industrialization and raising living standards – and proving indispensable for fulfilling numerous basic human needs including nutrition, health, education, warmth, cooling and lighting. Despite these critical interlinkages, 1.1 billion people remain without access to electricity¹ and those who continue to rely on wood, coal, charcoal, agriculture residues or animal dung to cook their meals and heat their homes number some 2.9 billion people. Progress is slow; meanwhile, the world's electricity demand will grow by more than 70 percent by 2040.²

Affordable and clean energy is a complex goal. Choices around energy resources, with their different production and consumption patterns, impact the climate. Over two thirds of global greenhouse gas emissions (GHG) come from the energy sector alone.³ This rise in greenhouse gas emissions is contributing to increased intensity and severity of extreme weather events, affecting vulnerable and poor communities the most. Access to energy also directly affects people, communities, cities and countries in terms of economic growth, food production, health, clean water, security, well-being, education, employment and gender equality. In these and other areas, the world faces urgent and complex challenges related to access, sustainability and efficiency of modern energy services. Energy crises also have the potential to generate massive economic and political crises, with far-reaching social consequences. Lack of energy solutions in crisis and post-crisis contexts can undermine community and government responses, delaying recovery and undercutting resilience.

Often, energy-related impacts add to the burdens of the poor. Solid fuels and inefficient cooking and heating devices expose households to smoke and fumes causing serious health problems, resulting in more than 4 million premature deaths per annum globally, mostly of women and children.⁴ Moreover, the poor devote a disproportionately large portion of their time to energy-related activities such as gathering fuel wood and water, cooking and agro-processing. This burden falls mainly on women and children, who can spend up to six hours per day on such tasks.⁵

The urban poor in many developing countries, who typically have some access to energy, also face a number of challenges. They often experience irregular electricity supply, frequent blackouts, and quality problems associated with the electrical grid such as low or fluctuating voltage. Affordability is another factor, and households may be forced to remain without electricity due to high connection fees and tariffs.⁶ Informal or illegal connections, a common practice in many urban centres, strain the electrical supply and often pose significant safety hazards due to poor wiring and lack of safety devices.⁷

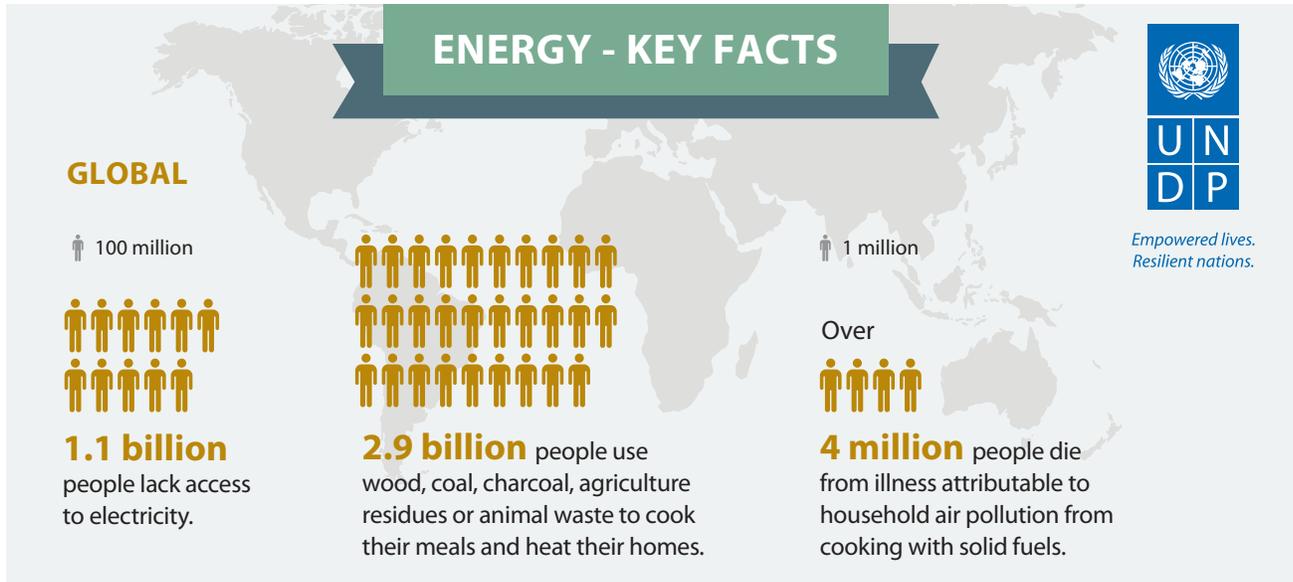
The centrality of energy to economic growth, social progress and environmental sustainability is recognized in the new 2030 Agenda for Sustainable Development as Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all. Progress towards many of the Sustainable Development Goals seeking poverty eradication, better health and education, gender equality, clean water and food security also depend on the achievement of the energy goal. Without sustainable energy, other commitments also will remain unfulfilled, such as addressing climate challenges and stabilizing the global increase in average temperature to well below two degrees Celsius, as called for in the Paris Agreement.

Energy access is defined as reliable and affordable access to clean modern energy carriers and end-use services for households and communities. It is crucial for people's livelihoods and countries' economic growth. Energy access has many benefits. Households will improve their livelihoods when they have access to sustainable, clean and affordable energy. With continuous access to affordable energy, access to basic public services such as education and health will improve. Small and medium enterprises will be more competitive and with increased productivity can contribute more to job creation and economic growth.

Energy efficiency is key to the transformation of energy and production systems. It is a proven, immediate and cost-effective option that can provide long-term benefits. Energy efficiency is regarded by many as a "first fuel" or source of energy in its own right in which countries can invest ahead of other more complex or costly energy sources. It offers a unique opportunity to reconcile economic competitiveness



ENERGY - KEY FACTS





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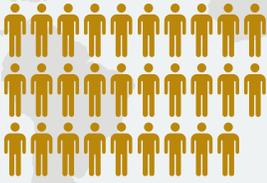
GLOBAL

100 million



1.1 billion people lack access to electricity.

2.9 billion



people use wood, coal, charcoal, agriculture residues or animal waste to cook their meals and heat their homes.

1 million

Over



4 million people die from illness attributable to household air pollution from cooking with solid fuels.



18% higher energy-related emissions are projected, despite signs that a low carbon transition is underway.



+ 70% is the projected growth of the world's electricity demand by 2040.

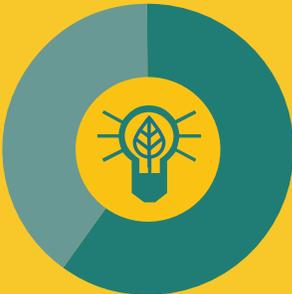


6 hours per day can be spent by women and children on energy-related activities (gathering fuel wood and water, cooking and agroprocessing).

Direct and indirect jobs from renewables, worldwide

In millions

2004	3
2014	7.7
2030	Potential growth in jobs 24

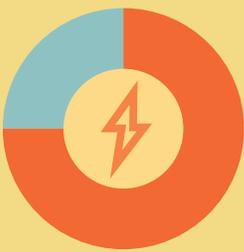


Energy efficiency can potentially contribute **almost 40%** of the energy sector GHG emissions reductions required by 2050 to limit global temperature increase to 2°C



\$ 1 trillion is needed annually to achieve universal access to energy as per the SE4ALL objectives.

Source: SE4ALL Finance Committee Report, 2015. SE4ALL Global Facilitation Team, Vienna.



The energy sector counts for **two thirds of the world's** greenhouse gas emissions.

What do we offer?

UNDP will focus on a sector-wide transformation of energy systems in developing countries, one that is based on market principles, but which takes into account the needs of the poor, and pays specific attention to gender equality, social inclusion, and protection of the environment. It will promote equity, fairness, affordability and robust policy through supporting countries to put in place the needed regulatory and institutional enabling environment and attract private sector investment.

In its support to countries, UNDP advocates for moving away from stand-alone technology and engineering interventions to comprehensive solutions where energy plays a key role as one among several enablers of sustainable development and poverty eradication. The focus of UNDP's support is on enhancing development gains through delivery of **modern energy services** rather than supply of energy technologies; **energy is seen as a means and not an end in itself.**

Sustainable energy in developing countries often faces technical, informational, financial, and regulatory barriers. In pre-market conditions, as is the case in many of the poorest countries and communities, these barriers can act as an immediate setback. Under these conditions, special attention is given to early market creation, through piloting new business models, promoting productive uses of energy and providing business development and incubation support. This support can lay the foundation for an emerging, functioning energy market, and has the greatest potential for poverty reduction and economic and human development.

Finance for sustainable energy

In some cases, investment is impeded by a lack of access to affordable financing. If sustainable energy is to be scaled up, financing in developing countries is a particular challenge. High financing costs reflect the higher returns that are needed to compensate for the greater investment risks found in early-stage markets. As sustainable energy investments are characterized by high upfront costs, they are highly sensitive to financing costs and this has the potential to make sustainable energy projects less attractive and competitive as compared with conventional solutions.

UNDP's market transformation approach seeks to assist governments to put in place packages of public instruments that systematically target these barriers and investment risks, with the aim of cost-effectively achieving risk-return profiles that attract investment in sustainable energy at scale. **The end objective is to create the investment conditions in which developing countries can access large quantities of low-cost financing for sustainable energy.**

UNDP's theory of change for sustainable energy identifies three ways through which government measures can improve an investment's risk-return profile: through *reducing risk*, *transferring risk* or *compensating for risk*. Measures that reduce or transfer risk result in lower financing costs. Any residual risk may then be addressed by measures that compensate for risk. All public interventions to promote sustainable energy act in one or a combination of these three ways.

UNDP's comparative advantage lies with assisting developing countries with the first approach, reducing risk, typically involving policy and programmatic interventions that remove the underlying barriers that create investment risk. UNDP will work with its partners to coordinate its support in reducing risk with necessary



interventions in the other two areas: transferring risk (typically involving financial products by development banks) and compensating for risk (typically involving subsidies and financial incentives for sustainable energy). UNDP's experience is that instruments that reduce or transfer investment risks are the most cost effective.¹³

A combination of all three instrument types is often needed, and can be supported by different development and public actors. UNDP's role is in supporting the design and implementation of public instruments. Through well-designed public instrument packages, governments can achieve their objectives in attracting investment, and in this way they can provide their citizens with access to affordable and sustainable energy.

UNDP is committed to intensifying and accelerating its work on sustainable energy at local, national, regional and global levels. UNDP will embed sustainable energy as part of comprehensive and integrated development solutions. Building on its proven ability to influence policy and strengthen capacity, its worldwide country presence and a long-standing role as a trusted partner working with multiple stakeholders across sectors, UNDP will support countries to transform their energy systems.

Efforts to transform energy systems will need to focus on several areas: significantly scale-up and accelerate action to achieve universal access; drastically increase the share of renewable energy in the global energy mix; and considerably improve the global rate of energy efficiency. The investment needs are enormous and can only be achieved by transforming markets.

UNDP's work on sustainable energy is aligned with the Sustainable Development Goal 7 on ensuring access to affordable, reliable, modern, and sustainable energy and is structured around three action areas: energy access, energy efficiency and renewable energy. This work focuses on three interrelated challenges: social, economic and environmental.

- **Social challenges** include the disparities in access to reliable energy services, including in conflict-affected and fragile settings.
- **Economic challenges** include the lack of affordable and reliable energy services, and energy's importance as a key input to job creation and economic growth.
- **Environmental challenges** include the threat to the planet's ecological balance, biodiversity and climate.



Guiding principles for UNDP's work on sustainable energy

Context matters: UNDP recognizes that each country faces unique energy challenges to its development objectives and offers a suite of services tailored to each country's context.

Deployment policies for technologies and applications: UNDP focuses on creating the conditions for scaling up the use of technologies, covering the full range of clean energy technologies. UNDP recognizes that the technology mix needed to decarbonize the energy sector will evolve as technological innovations mature and move to market readiness, and as social and environmental concerns associated with some solutions (e.g. nuclear energy) are met with proper response measures.

Promotion of sustainable energy sources: UNDP promotes the use of renewable sources such as wind, solar, biomass and small hydro as well as energy efficiency and switching fuels towards a zero-carbon energy system in the future.

Integration of social, economic and environmental dimensions: UNDP's work ensures inclusion of the most vulnerable groups and protection of the environment.

Climate and disaster risk-informed: UNDP will work with countries to integrate climate and disaster risk into energy sector interventions to build resilience and to safeguard future gains.

Technical excellence: UNDP will provide governments with best-in-class technical support and expertise, with thought-leadership and high-quality methodologies.

From global to local: With decades of implementation experience, supported by its convening role and responsibility that stretches from local to global levels, UNDP will continue to facilitate sharing of knowledge and lessons learned across regions including through South-South and triangular cooperation.

UNDP's three action areas

UNDP's policy and programme support in the area of sustainable energy for the period of 2017-2021 encompasses three interlinked action areas: reducing the energy access gap, increasing the share of renewable energy in the energy mix and improving the rate of energy efficiency. Across all three areas, UNDP's support to national governments will include a comprehensive package of technical assistance at the policy and institutional levels as well as on-the-ground investments ranging from local community-level support to nationwide efforts.



Energy Access

The need for electrical, thermal and mechanical energy for households, small and medium-sized businesses and communities, with an emphasis on clean energy for the poor.

Key UNDP services include policy and programme support on:

- Promoting access to clean, affordable and reliable energy services for households, communities and businesses. Energy access, combined with renewable energy and energy efficiency, often results in the most appropriate and affordable technology solutions.
- Providing project and programme design support through integrated solutions that combine access to distributed renewable electricity services with measures that generate cash incomes or improve livelihoods.
- Promoting off-grid and mini-grid renewable energy solutions. UNDP engages in the design and implementation of programmes and projects, the mobilization of financial resources, and the documentation and sharing of good practices. Renewable energy technologies most suitable for distributed generation include solar PV, mini-hydro power plants, solar water heaters, hybrid renewable energy systems, and electricity generation via biomass and biogas generators.
- Mainstreaming of gender perspectives in energy access policy and programming. Recognizing women's work and roles, and building on their expertise and influence within households and communities can increase the effectiveness of access to sustainable energy solutions for all.
- Supporting households and communities to enhance access to efficient thermal biomass, biogas and LPG solutions for cooking, heating, lighting and productive uses. Activities include implementing improved cook stoves and biogas projects, sustainable charcoal value chains, renewable production of biomass, and integrative systems combining agriculture with renewable and efficient energy solutions.
- Supporting countries in preparedness and recovery processes in disaster and conflict-affected states. Increasingly, UNDP is being requested to address the energy access needs and challenges of affected communities. Preparedness measures are especially important to ensure uninterrupted access to energy in crisis settings and allow for the continuity of health and education services as well as business and livelihoods activities. Off-grid and portable technologies such as solar lamps are particularly effective.



Energy Efficiency

The promotion of energy efficiency across sectors and the creation of strong market demand and incentives for public and private investment.

Key UNDP services include policy and programme support on:

- Promoting energy efficiency in households, public and municipal facilities, residential and commercial buildings, small and medium enterprises, industry and the transport sector.
- Assisting government partners to address barriers to investment via a combination of policy and financial de-risking instruments and targeted financial incentives to consumers and key energy market players, such as the providers of appliances, equipment and services.
- Supporting national and local governments to design and adopt efficiency policies and legislation, building codes, energy rating systems and deploying energy management information systems and capacity building for policy enforcement among authorities and relevant market stakeholders.
- Assisting governments with integrated solutions to energy efficiency and disaster risk reduction. Where appropriate, UNDP's experience elevates opportunities and building code development to combine energy efficiency and disaster resistance solutions, such as double-paned windows and seals on exterior openings. Combining these two goals within UNDP programmes creates more cost-effective solutions for home hazard mitigation and energy conservation, addressing exposures to natural hazards such as earthquakes, windstorms and floods and establishing whole-building performance standards.
- In partnership with international and national financial institutions and the private sector, UNDP also supports implementation of business models and financing mechanisms for energy efficient investment and provides targeted financial assistance to vulnerable groups when the affordability of up-front investment is a particular concern. Taken collectively, these measures lay the foundation for transforming the market, ensuring that demand for energy efficiency is in place along with required technical capacity and affordable financing to realize and scale-up energy saving measures in priority sectors.

Renewable Energy

The increased adoption of sustainable on- and off-grid renewable energy technologies and delivery services and de-risking investment.

Key UNDP services include policy and programme support on:

- Assisting governments in transforming their renewable energy markets by identifying and implementing policy and financial de-risking instruments that catalyze public and private sector investment in renewable energy technologies. Energy technologies under this segment include on-grid and off-grid renewable electricity generation from wind, solar PV, biomass (including biogas), geothermal and small hydro power plants.
- Supporting governments in development and adoption of renewable energy policies and legislation to integrate renewable energy capacity in the current power market structure.
- Supporting governments in developing clear, simplified and transparent renewable electricity license and permits processes.
- Enhancing energy governance and support for grid management and energy sector planning, including in post-disaster and post-crisis situations to strengthen the capacities and resilience of energy managers in maintenance and restoration of energy supply for affected populations.
- Supporting business and entrepreneurial skills development, and enhancing access to small-scale financing for renewable energy solutions, particularly for women. Involving women in the design, maintenance and dissemination of locally appropriate renewable energy technologies and services can increase their employment opportunities and provide other socio-economic benefits.
- Promoting integrated solutions. UNDP seeks to integrate risk-informed sustainable energy solutions across other development arenas, for example, supporting solutions that combine sustainable energy and agriculture. These initiatives are targeted at improving resilience and productivity as well as reducing drudgery for small-holder farmers and larger agricultural cooperatives.



UNDP IN ACTION

UNDP's work on sustainable energy spans two decades. UNDP is an accredited multilateral development agency of the Global Environment Facility (GEF) and is recently accredited to the Green Climate Fund. In this capacity, UNDP offers countries specialized integrated technical services for eligibility assessment, programme formulation, mobilization of co-financing, implementation oversight, results management and evaluation, and knowledge management.

Over the past two decades, UNDP has supported more than 150 countries on sustainable energy, through a portfolio of \$2 billion in grant financing for sustainable energy projects in addition to more than **4,000 community-level small grants** projects, amounting to more than \$130 million in grant financing.

As of mid-2016, UNDP is implementing 260 sustainable energy projects in more than 110 countries, representing a portfolio of more than \$1 billion in grant financing from UNDP, the GEF and other partners, and leveraging close to \$6 billion in co-financing from the public and private sectors.

Energy Access

UNDP's active portfolio includes close to 100 **energy access projects in 70 countries worldwide**, with a total of **\$410 million** in grant financing and leveraging a further **\$1.5 billion in co-financing**. About 90 percent of UNDP's energy access portfolio consists of renewable energy projects.

In **Chile**, more than 10,300 households gained electricity access through 250 small power projects using PV systems, mini hydro plants, wind, micro hybrid systems and biomass gasifiers.

In **Nicaragua**, UNDP helped provide communities with a clean, sustainable source of energy, as well as opportunities to generate income for their families, through microturbines, which built upon abundant renewable hydropower in remote areas. By 2012, this support had leveraged \$20 million in co-financing for up to 28 microturbines. The initiative also spurred new legislation for the promotion of renewable energy and influenced the design of fiscal incentives in rural electrification planning. Today around 70 percent of the population has access to electricity, including 48,000 people in rural communities. Micro-enterprises are emerging as

local community members, including women, gain access to electricity and new business opportunities.

In **Egypt**, through a bioenergy for sustainable rural development project, UNDP helped promote the use of agricultural waste to replace the use of kerosene and LPG, by introducing 200 community-size biogas digesters and more than 1,000 household-size units. The initiative introduced Bioenergy Service Providers in a new business and operational model, created new jobs and improved consumer satisfaction; the programme is being expanded to many other parts of the country.

In **Iraq**, where ongoing crisis has reduced power generation, UNDP supports the emergency supply of equipment, and training on electrical systems planning and network construction to strengthen the capacity of the Ministry of Electricity. This has facilitated the installation of 440 transformers, 700 low voltage distribution cabinets and 2,700 moulded case circuit breakers for urgent operation and maintenance of electricity distribution networks countrywide. Also, 106 diesel generators and ancillary equipment were installed in hospitals and health facilities for emergency energy access. Water pumping stations were also established benefiting some 900,000 residents in Baghdad.

In **Nepal**, UNDP's Renewable Energy for Rural Livelihoods Programme has helped install and operate 445 micro-hydro power plants, providing access to electricity for 98,000 households. The project has improved lighting, increased enrollment of children in schools from 63 to 75 percent (especially girls); reduced kerosene consumption by 90 percent and diesel usage by 23 percent; and established 670 micro-enterprises creating more than 1,500 jobs. The project also assisted recovery efforts following the 2015 earthquake.

The **UNDP Africa Regional Energy Programme for Poverty Reduction** focuses on decentralized energy solutions that go beyond the basic energy needs of communities. Targeting productive uses of energy, it provides advocacy, policy advisory and country programming support to 12 countries (Benin, Burkina Faso, Chad, Gambia, Guinea, Guinea Bissau, Madagascar, Mali, Mauritania, Niger, Senegal and Togo). The key is the multi-functional platform, a machine (often run on diesel fuel) that powers devices such as pumps and grain mills. MFPs quickly perform tasks that would otherwise take women hours to complete. These MFPs are now serving more than



4 million people, notably women, in more than 3,400 villages across sub-Saharan Africa. MFPs have been instrumental in providing a wide range of decentralized energy services, including job creation for rural women. In Mali alone a 2011 external study estimated that MFP projects helped create some 28,000 jobs.

Energy Efficiency

UNDP's active energy efficiency portfolio includes 120 projects in 63 countries worldwide, mobilizing a total of \$456 million in grant financing and leveraging an additional \$3.2 billion in co-financing.

In **Croatia**, UNDP with support from the GEF enabled the Government to reduce its energy costs by \$20 million through implementation of energy efficiency measures in buildings. By law, every public building is now obliged to record their energy consumption. As part of this work, UNDP developed a unique energy management information system (EMIS) to monitor actual energy consumption in 8,400 public buildings and facilities. This work was further promoted in other Western Balkan countries, including Russia and Turkey. The EMIS now covers thousands of buildings across the region.

In **India**, 300 secondary steel mills were made energy efficient as part of the Upscaling Energy Efficient Production

in Small Scale Steel Industry Project. This led to a reduced energy consumption of 15 percent per year, equivalent to a savings of \$15 million per year or enough energy saved to light nearly 300 villages.

In **Ghana**, new refrigerators save energy for thousands of households. Introducing minimum energy performance standards for refrigerators, combined with an appliance labeling regime and buyer rebates upon turning in old appliances, is transforming the market in Ghana, the first country to do so in West Africa. The annual energy savings achieved are enough to power more than 11,000 households for a year and result in average savings of \$50 to \$100 per household on their annual energy bill, a significant sum of money in a country where the average annual income is \$1,900.

In **Armenia**, building on an earlier GEF-funded project, UNDP aims at creating a favorable market environment and scalable business model for investment in energy efficient building retrofits with recently approved funding from the Green Climate Fund. Direct beneficiaries include: 30,000 people living in single-family individual buildings and 52,200 living in multi-family apartment buildings (with some 6,000 members of women-headed households); and 23,000 users of large public buildings and 105,000 users of small public buildings (including at least 90,000 women).



UNDP has supported building code reform in Armenia, Belarus, Kazakhstan, Russia, Turkmenistan and Uzbekistan. The codes now contain stringent energy performance requirements. In **Uzbekistan**, UNDP is supporting the development of green mortgages for rural housing to improve energy performance and help future homeowners save money on energy costs.

Renewable Energy

UNDP's active renewable energy portfolio includes **46 renewable energy projects in 35 countries worldwide**, mobilizing a **total of \$154 million** in grant financing while leveraging another **\$1 billion in co-financing**. These are all projects that follow a market transformation approach using UNDP's ground breaking de-risking methodology.

The **ARECA initiative (Accelerating Renewable Energy in Central America)** is a good example of collaborating with a sub-regional development bank, the Central American Bank for Economic Integration (CABEI), which provides support to design, capitalize, and operationalize a partial credit guarantee mechanism. This effort has catalyzed new investments estimated at some \$156 million, funding 23 small renewable energy projects for a combined installed capacity of 56 megawatts (MW) in several Central American countries.

UNDP has a very active presence in many **Small Island Developing States (SIDS)**. In the **Seychelles**, a PV rebate

scheme provides financial incentives to both commercial and residential owners, managed by the Development Bank of the Seychelles. The PV rebate scheme exceeded its target. In **Mauritius**, a Feed-in-Tariff was developed and introduced for smaller rooftop PV systems, which reached 4 MW of installed capacity by 2014. UNDP is helping the **Comoros** develop its geothermal resources. UNDP is also assisting many **Caribbean SIDS** (e.g. Barbados, Dominica, Jamaica and St. Vincent) and Pacific Island Countries (e.g. Cook Islands, Fiji, Palua and Samoa) in country-led efforts to develop their renewable energy resources and introduce energy efficiency measures.

In **Moldova**, the EU-UNDP Energy and Biomass Project aims to establish a sustainably functioning biomass market. More than 100 briquette and pellet-production companies have been established producing an estimated 120,000 tons of briquettes and pellets a year, avoiding an equivalent 80,000 tons of coal. Some 620 boilers have been installed in households and microenterprises throughout the country. More than 170 schools, kindergartens and community centres have been connected to biomass heating systems. Around 100 new jobs have been created.

In **Uruguay**, the wind power market development programme introduced a package of policy de-risking measures to address a range of energy market, institutional, technology, connectivity and financial barriers. In 2015, more than 4,000 potential investors participated in Uruguay's first initial public offering for a renewable-energy project, tendering more than \$100 million for a wind farm project, \$85 million more than expected. By 2014, Uruguay had 490 MW of wind capacity installed and is anticipated to reach 1,300 MW in 2016, for an estimated combined investment of \$2.8 billion, and covering a third of the nation's energy needs. The GEF-funded programme was initiated by UNDP in partnership with the Government.

A key contribution of UNDP's work over the last 10 years has been the development of an innovative **De-risking of Renewable Energy Investment (DREI)** framework that assists our country partners to cost-effectively-promote investment in renewable energy. As part of DREI development, case study analyses were performed in Kenya, Mongolia, Panama and South Africa, emphasizing wind energy. The approach demonstrated how public interventions could reduce risk, lower financing costs, and make renewable energy more affordable. It was replicated through pilot initiatives in Kazakhstan, Nigeria, and Tunisia.



Source: UNDP, 2016. *Delivering Sustainable Energy in a Changing Climate: Strategy Note on Sustainable Energy, 2017-2021*.

1. World Bank & IEA, 2015. *Global Tracking Framework*
2. IEA, 2015. *World Energy Outlook, Factsheet: Global energy trends to 2040*
3. IEA, 2014. *Energy and Climate Change: World Energy Outlook Special Report*
4. WHO, 2016. *Burning Opportunities: Clean household energy for health, sustainable development, and wellbeing of women and children*
5. UNDP, 2013. *Achieving sustainable energy for all in the Asia-Pacific*. Bangkok: UNDP APCR.
6. ESMAP, 2015. *Beyond Connections: Energy Access Redefined*
7. Patinkin, J. 2013. "The illegal, dangerous, unreliable electrical system that everyone supports." *Informal city dialogues, Nairobi, June 3*. <http://nextcity.org/informalcity/entry/the-illegal-dangerous-unreliable-electricalsystem-that-everyone-supports>
8. OECD/IEA, 2015. *Energy Efficiency Market Report 2015*, International Energy Agency, Paris
9. IEA, 2014. *Capturing the Multiple Benefits of Energy Efficiency*, International Energy Agency, Paris
10. SE4ALL, 2014. *SE4ALL Energy Access Committee Report*
11. IRENA, 2015. *REthinking Energy: Renewable Energy and Climate Change*, Abu Dhabi
12. REN21, 2015. *Renewables 2015: Global Status Report*, REN21 Secretariat, Paris
13. UNDP, 2013. *De-Risking Renewable Energy Investment Methodology*
14. UNDP, 2016. *Delivering Sustainable Energy in a Changing Climate: Strategy Note on Sustainable Energy, 2017-2021*

Photo credits:

Page 5: Women of the Adra family have gained access to energy through solar. Photo: UNDP Lebanon.

Page 7: Solar heating system in India. Photo: Prashanth Vishwanathan/UNDP India.

Page 8: Windmills provide electricity to remote communities. Photo: UNDP Galapagos, Ecuador.

Page 9: Family trying the new biomass stove for the first time. Photo: UNDP Lebanon.

Page 10: Energy efficient steel mills in India are reducing energy consumption. Photo: UNDP India.

Page 13: Women in rural Nepal attend to adult literacy classes in Pinthali village, where micro-hydro provides electricity. Photo: UNDP Nepal.

Page 14: Children pose in front of the new solar lighting pole. Photo: UNDP Lebanon.





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