

# EVALUATION OF UNDP SUPPORT TO ENERGY ACCESS AND TRANSITION

*Annexes*



## CONTENTS

<b>ANNEX 1. TERMS OF REFERENCE .....</b>	<b>2</b>
<b>ANNEX 2. PEOPLE CONSULTED .....</b>	<b>9</b>
<b>ANNEX 3. DOCUMENTS CONSULTED.....</b>	<b>13</b>
<b>ANNEX 4. INITIAL THEORY OF CHANGE .....</b>	<b>22</b>
<b>ANNEX 5. DATA COMPILATION .....</b>	<b>23</b>
<b>ANNEX 6. TECHNOLOGIES DEPLOYED UNDER UNDP’S ACCESS PROJECTS .....</b>	<b>24</b>
<b>ANNEX 7. FURTHER ANALYSIS OF THE RENEWABLE ENERGY RESULTS AND FACTORS OF PROJECT PERFORMANCE.....</b>	<b>25</b>
<b>ANNEX 8. FURTHER ANALYSIS OF THE ENERGY EFFICIENCY RESULTS AND FACTORS OF PROJECT PERFORMANCE.....</b>	<b>29</b>
<b>ANNEX 9. COUNTRY RESPONSES TO ENERGY .....</b>	<b>34</b>

# ANNEX 1. TERMS OF REFERENCE

## INTRODUCTION

The Independent Evaluation Office (IEO) of the United Nations Development Programme (UNDP) is conducting an evaluation of UNDP's work on energy between 2018-2021, which constitutes one of UNDP's six signature solutions and dovetails with Sustainable Development Goal #7. The evaluation will be carried out in 2021 and presented to the UNDP Executive Board in February 2022. This Terms of Reference (ToR) for the evaluation sets out an initial context, scope, planned methods and management arrangements, and will be used to guide the design of the evaluation. A draft version of the ToR was reviewed by internal stakeholders in April 2021 and this final version incorporates feedback received.

## THE EVALUATION

### OBJECTIVE

The evaluation aims to provide UNDP Management and programme stakeholders with an impartial assessment of performance, and lessons learned from, UNDP's work on energy between 2018-2021.

It will support accountability to UNDP's stakeholders by assessing to what extent the organisation's energy objectives have been met and whether its interventions remain relevant to the global efforts to meet SDG7. The evaluation will support learning by identifying the major lessons relevant to UNDP's current energy portfolio and by providing recommendations to inform the strategic direction of UNDP in its next strategy cycle (2022-25).

### FOCUS AND SCOPE

The evaluation will focus on the design and performance of UNDP's work on energy between 2018-2021, and the strategic position of the energy portfolio for 2022-2030.

It will cover all three objectives described in the Signature Solution: 1) Increasing energy access; 2) Transition to renewable energy and energy efficiency; and 3) Restoring access in post-crisis contexts. As there is significant overlap in the portfolio's activities, the evaluation will use these objectives/contexts to form clear lines of inquiry.

Not all of UNDP's energy related work between 2018-2020 is defined in the Signature Solution. The following table captures other services in the portfolio, and the nine listed below will form the core focus areas.

TABLE 1: UNDP’S ENERGY RELATED SERVICES TO BE COVERED IN THE EVALUATION

Objective	Services included:
Access to energy	<ol style="list-style-type: none"> <li>1. Support for meeting the electrical, thermal and mechanical energy needs for households, businesses and communities</li> <li>2. Promoting access to clean cooking</li> <li>3. Support in the energy-health nexus (where the primary objective is to improve the health service, rather than the efficiency of existing supply)</li> </ol>
Transition to Renewables and Efficiency	<ol style="list-style-type: none"> <li>4. Replacing high GHG emitting forms of energy with renewable sources</li> <li>5. Replacing inefficient energy technology and practices with lower-consuming versions in cooling, infrastructure, transport, and other sectors</li> </ol>
Restoring access in post-crisis contexts.	<ol style="list-style-type: none"> <li>6. Support to restore grid technologies</li> <li>7. Provision of alternative energy solutions for affected populations</li> <li>8. Incorporation of energy into crisis responses</li> <li>9. Support to recovery via zero-carbon development</li> </ol>

The scope will cover all forms of UNDP’s support directed towards these services, to the extent that relevant data is available. This includes downstream activities - projects that provide a source of energy or efficiency measures – and upstream activities, covering the array of interventions designed to improve the enabling environment for increasing or improving access – such as policy support, de-risking, the provision of technical expertise, capacity building, private sector engagement, and knowledge contributions. The evaluation will also explore to what extent UNDP’s upstream and downstream activities work together towards shared objectives.

In line with the Leave No One Behind principle, the evaluation will explore *who* is, and who is not, able to access clean and efficient energy via UNDP’s support, and which groups are less able to convert energy access into development benefits. It will consider differences in the way men, women, boy and girls are engaged by UNDP’s initiatives, as well as the groups that may face challenges because of their geographic location, age, social, economic and political position, disability, or other factors.

As UNDP is not expected, in any context, to achieve universal energy access or transition alone, the evaluation will consider how the organisation uses and contributes to partnerships in pursuit of SDG7. It will also highlight, wherever possible, how UNDP’s support for energy access and transition contributes to other development initiatives, from governments, the UN agencies, civil society, communities’ groups and others.

In seeking to understand the factors that influenced UNDP’s results in this area, the evaluation will consider how UNDP’s internal processes enable or hinder the organisation’s ability to contribute to universal access and transition. It will also capture the contextual factors that influence the effectiveness of UNDP’s contribution. Across both sets of factors, the evaluation will identify generalisable themes that can be addressed in recommendations.

## EVALUATION QUESTIONS

The evaluation will assess UNDP's energy portfolio according to standard UNEG and OECD-DAC evaluation criteria. The following overarching questions frame the evaluation:

1. To what extent is UNDP's energy support aligned with global, regional, national energy policies, programmes and investments?
2. To what extent is UNDP's service offering appropriate to the renewed efforts to accomplish SDG7 by 2030, considering COVID recovery and the global GHG emission trajectories outlined by the IPCC?
3. To what extent are the three components of UNDP's energy portfolio aligned towards shared objectives? Are there synergies, trade-offs, conflicts or gaps in the various service offers and activities within the portfolio? What effect do these have?
4. To what extent does UNDP's support for energy connect to other development sectors and initiatives in order to ensure it acts as the golden thread to the SDGs?
5. To what extent has UNDP's energy portfolio succeeded in achieving its stated output and outcome objectives?
  - a. Intermediary outcomes: strengthened capacities, improved policies, increased investments, technology adoption and associated usage
  - b. Outcomes: [As relevant]: Number of people with new access; Total kWh savings; kW produced by renewable sources / renewables as % of national production
6. Which groups are most / least able to access and benefit from UNDP's energy access and transition support, and why? How do these results relate to UNDP's commitments to Leave No One Behind and Endeavour to reach the furthest behind first, and current energy access levels?
7. What internal and external factors have influenced UNDP's ability to increase energy access and support transition?

If data availability allows, the evaluation will answer the following question in specific case studies:

8. To what extent have UNDP's energy results led to higher order change, in the following areas:
  - a. GHG avoidance – evidence that UNDP's support for renewables and efficiency is leading to, or projected, lower emissions than what would have occurred otherwise.
  - b. Selected Human Development and Environmental benefits – evidence that increased energy access is leading to one or more of the following: food and nutrition security, increased income generation, reduced indoor smoke, livelihood diversification, reduced environmental degradation, and improved health, education and information services.

If assessing contribution to higher-order change is not possible because of data constraints, the evaluation will stop at the Outcomes described above in 5b and explore higher order change thematically, with greater attention to who is and is not benefiting from UNDP's support.

9. How well has UNDP's support accounted for factors known to influence the sustainability of energy interventions, such as natural resource variability, local ownership, financing and maintenance supplies? What other factors are likely to influence the sustainability of UNDP's portfolio?

## IMPLEMENTATION & METHODS

### Portfolio desk review and analysis of available documentation and data:

- UNDP strategic and programmatic documents, including at country level
- UNDP Result-Based Management system, ATLAS and PIMS+ data
- Sample of planning and monitoring reports of projects that are exclusively/partially focused on energy access and transition. Sample to ensure coverage of geographic regions, the three components of Signature Solution, technology forms / energy source, downstream / upstream support

**Meta-synthesis of evidence from:** Previous corporate evaluations, Independent Country Programme Evaluations (ICPE's), and project evaluations. The evaluation will conduct a review of ICPEs evaluations conducted between 2018 and 2020, as these countries will be a key source of information about the effectiveness of UNDP's energy work in different contexts, and of implementation challenges. Review of Power B.I. for results and constraints.

### Stakeholder interviewing, with:

- UNDP Energy and Environment and Focal Points in Headquarters and Regional Bureaux/Hubs.
- UNDP Poverty Reduction and Sustainable Development programme officers in Headquarters, regional, and country level, and UNDP Governance colleagues as relevant.
- Representatives of United Nations programmes, funds and agencies as well as other bilateral and international development partners/banks (headquarters, regional and country-level)
- National Ministries - including Ministries of Energy, Finance, Industry, Environment) that UNDP supported through its programmes and projects
- Private sector organizations with whom UNDP has worked
- International and national civil society organisations working on energy access and transition

**Deep dives:** Evidence will be collected to better understand the focus and results of UNDP's work on access and transition in key countries. The collection of evidence on specific country cases will be done virtually unless, or until, travel is again possible prior to the completion of this evaluation. Virtual data collection is likely to be more feasible for UNDP's support to energy transition because most support is directed to institutional stakeholders. The selection of deep dives shall be done based on relevance to the evaluation questions and availability of data. The evaluation will use national consultants to obtain data and evidence specifically for energy access support, which requires conversations with energy users and those still lacking access.

**Expert sectoral review,** to capture the current thinking and projections for energy access and transition, considering geographic and financial implications. Evidence will be gathered from available documentation, and through virtual interviews with a wide array of UNDP peers, partners and stakeholders.

## EVALUATION THEORY OF CHANGE

The diagram in Annex 4 depicts the main pathways suggested in UNDP’s Signature Solution 5 and its Energy Strategic Note. It will be refined in discussion with UNDP’s programme team during the inception phase. Once validated, the Theory of Change will be used to direct evaluative inquiry toward the portfolio’s results, to analyze and synthesize findings.

The blue lines represent the change pathways. The evaluation will assess whether the steps on the path have been achieved, whether they led to the subsequent change as expected (or to other changes), and whether the assumptions underpinning the change were correct.

Under assumptions, the evaluation will consider internal factors within UNDP’s control (eg. Did staff have the necessary capacity to deliver) and external factors, which are largely outside of UNDP’s control (eg. Did the political context remain stable; Did natural resources supply remain consistent).

A major assumption in the pathway from immediate to longer-term benefits is that other forms of development support are provided. For this, the evaluation will attempt to assess how well the energy portfolio connects to other UNDP support and that of the government and other development partners. The evaluation will not seek to capture all Immediate or Longer-term benefits, but in specific contexts will select those that are most applicable to the funded interventions and data availability, and will attempt to model contribution to national commitments where data allows

The ToC is not based on UNDP’s portfolio of funded projects. A formative activity of the evaluation will be to match the pathways, activities, and target groups with resource spend.

## TIMING AND DELIVERABLES

Based on the analysis of evidence collected and triangulated, the IEO Evaluation Team will prepare a **comprehensive evaluation report** covering the issues outlined in this Term of Reference; and an **Executive Board Paper** comprising key findings, conclusions, lessons and recommendations.

The evaluation report is planned for presentation at the UNDP Executive Board in February 2022.

TABLE 2: EVALUATION TIMELINE

Activity	Responsible party	Proposed timeframe
Phase 1: Preparatory work		
TOR completed and approved by IEO management	IEO	May 2021
Selection of consultants	IEO	May 2021
Set-up of peer review panel	IEO	May 2021
Phase 2: Desk analysis		
Design of data collection instruments	IEO/Consultants	May 2021
Preliminary desk review of reference material	IEO/Consultants	May 2021
Phase 3: Data collection		
Interviews, focus groups, survey	IEO/Consultants	June 2021

Phase 5: Analysis, report writing, quality review and debrief		
Draft analysis papers	IEO/Consultants	July 2021
Zero draft report for internal IEO peer review	IEO/Consultants	August 2021
First draft for UNDP management comments	IEO/Management	September 2021
Preparation of Executive Board report	IEO/Management	September 2021
Draft report submitted to the Secretariat of the Executive Board	IEO	October 2021
Phase 6: Publication and dissemination		
Editing and formatting	IEO/Secretariat of the Board	November 2021
Informal debriefing to the Board	IEO/Secretariat of the Board	November/December 2021
Final report	IEO/Secretariat of the Board	December 2021
Executive Board formal presentation	IEO	February 2022
Knowledge management and dissemination activities	IEO	March 2022 onwards

## EVALUATION MANAGEMENT ARRANGEMENTS


### Team Composition:

The evaluation will be led and managed by a team within the IEO:

- a. The Lead Evaluator will ensure the timely conduct of the evaluation, coordinating the work of all team members and the communication with UNDP Headquarters, regional hubs, and country offices. The Lead Evaluator has responsibility for all phases of the evaluation, from design to drafting the synthesis report.
- b. The Associate Evaluator will support the Lead Evaluator throughout the exercise, including data collection, analysis, and report drafting.
- c. A Research Consultant will support the evaluation team in conducting background research and collecting documentation, as necessary. This person will lead the preparation of UNDP's non-vertical fund energy portfolio
- d. The office will provide administrative and substantive backstopping support, as well as quality assurance at key moments in the process, including report finalization.

The IEO team will also use the services of an external Lead Consultant to guide the evaluation design, and to define and execute specific analysis relating to energy policy, programming, and advise on the quantification of energy results. In addition, the team will be supported by an energy access consultant and energy transition consultant. Local consultant support will be sought for building data on specific 'deep dives' as they are identified during the inception phase. The IEO will recruit all external team members, who must possess educational qualifications, relevant work expertise, and language skills.





An expert advisory panel will provide guidance on the terms of reference, key data collection instruments, and the draft report. The panel will include academic experts and practitioners on issues of energy access and transition to ensure that the development of tools and data collection methods represent best practice and global norms for energy evaluation.

The evaluation team will work through the UNDP Energy and Environment team and focal points to collect data and identify relevant contacts. UNDP Management – including at regional and country level – will have the responsibility of supporting the evaluation, through the timely provision of programme and financial information. UNDP management will review the draft Terms of Reference and draft evaluation report and will provide a management response.

**Quality assurance:** Quality assurance will be conducted in line with IEO principles and criteria, to ensure a sound and robust evaluation methodology and analysis of the evaluation findings, conclusions and recommendations. Internal management controls and peer review are included. An external advisory panel of experts will be convened to review and critique draft evaluation reports prior to completion.

#### **DISSEMINATION STRATEGY AND KNOWLEDGE MANAGEMENT**

The IEO will ensure that the findings, recommendations, and lessons learned from the evaluation are disseminated and shared with a wide audience, including energy practitioners in a manner that is informative, engaging, and accessible. The stakeholder mapping will be used to guide the dissemination of the report, in collaboration with the IEO Communication, Data and Knowledge Management Division.

The Evaluation team will organize a virtual workshop at the end of the evaluation process, with relevant UNDP personnel as well as with other potential users of the evaluation results. Other presentations could be organized at regional level to share regional specific findings and conclusions, in collaboration with the UNDP Energy and Environment team.

## ANNEX 2. PEOPLE CONSULTED

### UNDP

ABDELLATIF Adel, Director, UNOSSC

AHMED Nouralla, Access to Energy Specialist, UNDP Sudan

ALERS Marcel, Technical Advisor, BPPS HQ

ALTINGER Laura, NCE Regional Team Leader, BPPS RBEC

BATTACHARJEE Sattya, Project Manager, UNDP Bangladesh

BAYOUMI Mohamed, Climate Change Team Leader, UNDP Egypt

BEEDASSY Shakil, Project Coordinator, UNDP Mauritius

BEEREPOOT Milou, Regional Technical Specialist, Regional Service Centre

BLANCO Ugo Blanco, Deputy Resident Representative, UNDP Barbados

CILLIERS Jaco, Manager, Bangkok Regional Hub

CONWAY George, Deputy Director, Crisis Bureau HQ

DHALIWAL Mandeep, Director, HIV, Health and Development Practice, BPPS HQ

DINIZ Ludmilla, Regional Technical Advisor, UNDP RBLAC Regional Service Centre Panama

DINU Adriana, Deputy Director, BPPS HQ

EL HASSANI Rima, Regional Strategic Planning Advisor, RBAS

ELSAWI Zaynab, Gender Specialist/Programme Analyst, UNDP Sudan

FAISAL Arif, Programme Specialist, UNDP Bangladesh

GUERRA Gonzalo, Regional Monitoring Specialist, UNDP RBLAC

HAMID Nadia, Planning/M&E Specialist, UNDP Sudan

HASSAN Abdalatif, Economics Analyst, UNDP Sudan

HATANO Ayako, Gender & Crisis Policy Analyst, UNDP Sudan

HENRY Samuel, UNDP Barbados

HERNANDEZ Melissa, Programme Associate BPPS HQ

HUIKURI Suvi, Policy Specialist, BPPS HQ

ISLAM Sharmin, Gender Analyst, UNDP Bangladesh

JARAMILLO Gabriel, Regional Technical Specialist for Ecosystems and Biodiversity, UNDP Thailand

KACELENGA Shamiso, Programme Analyst, Renewable Energy, UNDP Malawi

KHODAY Kishan, Regional Team Leader, Nature, Climate & Energy, RBAS

KUMAR Arvind, Project Manager, UNDP Yemen

KURUKULASURIYA Pradeep, Director, Nature, Climate and Energy, BPPS HQ

LACORBINIÈRE Jason, Planning, Monitoring & Evaluation Analyst, UNDP Barbados

LINDO Sacha, Monitoring & Evaluation Lead, UNDP Barbados

LITWIN Carol, Advisor (Energy), BPPS Africa Regional

LOPES Luana Assis de Lucena, Programme Analyst/ Energy & Environment Advisor, UNDP Brazil

MAGUIRE Linda, Deputy Regional Director, UNDP RBLAC

MERLEN Sylvain, Deputy Resident Representative, UNDP Egypt

MJIMAPEMBA Emmanuel, Project Manager, UNDP Malawi

MODEER Ulrika Modeer, Director, BERA HQ

MOONIARUCK Sajjid, Project Manager, UNDP Mauritius

MUNTASIR Ali, Head of Experimentation/Innovation, Accelerator Lab, UNDP Sudan

MUTWAKIL Hanan, Manager, Access to Energy and Climate Adaptation Portfolio, UNDP Sudan

NAGDEE Mohammad, Cluster Head of Sustainable Solutions, Energy & Climate Change, UNDP Barbados

NAMANDE Gloria, Project Manager NDC Support Programme, UNDP Uganda

NGUYEN Van, Deputy Resident Representative, UNDP Bangladesh

NKEM Johnson, Team Leader NCER Programme, UNDP Uganda

ODONGO Christelle, Energy and Climate Change Specialist, BPPS Africa Regional

OTSUKA Reina, Digital Innovations Specialist, BPPS HQ

OUALY Aboubacar, Project Manager, UNDP Burkina Faso

PALDI Boaz, Communications Specialist, BERA HQ

POOLE Sarah, Deputy Director, RBAS

PURDASSEE Vichitra, Project Manager, UNDP Mauritius

RAO Usha, Regional Technical Specialist, RBAP

SALIH Intisar, Programme Specialist, Environment and Climate Change, UNDP Sudan

SALOMON Mateo, Global Energy & Finance Advisor, Regional Service Centre, Panama

SANKOH Tanzila, Programme Specialist, UNDP Sierra Leone

SEOUD Jihan, Programme Manager Energy & Environment, UNDP Lebanon

SORIANO Manuel, GEF Regional Technical Advisor - Energy & Climate, UNDP

STEINER Achim, Administrator, UNDP

THIOMBIANO Tiabri Sylvain, Head of Energy Programme, UNDP Burkina Faso

WAISSBAIN Oliver, Principal Technical Advisor, Energy, BPPS HQ

WALSH Maxine, Climate Promise – Project Manager, UNDP Barbados

WEBB Douglas, Manager, Health and Innovative Financing, BPPS HQ

XU Haoliang, Director, BPPS HQ

YIN Min Htut, Programme Specialist, Environment, Energy and Climate Change, UNDP Sudan

ZHOU Xiaofang, Director, Montreal Protocol Unit, BPPS HQ

### **Development Partners**

ANTONIO José, Inter-American Development Bank

BARBOSA TAVES DE GOUVEA Heleno, IDB Group

BARUA Dipal, Bright Green Energy Foundation, Bangladesh

BERARDI Filippo, Global Environment Facility

BIN ANAM Mudabbir, Bangladesh

COLDREY Olivia, Sustainable Energy for All

EKPENYONG Okon, National Energy Commission, Nigeria

EMTAIRAH Tareq, Department of Energy, United Nations Industrial Development Organisation

FOHGRUB Thomas, United National Institute for Training and Research

GULLBERG Monica, Green Climate Fund

HUNT Steven, UK Foreign, Commonwealth and Development Office

KHAN Monwar Hasan, Bangladesh

NONG-NOGO Issaka, Ministry of Energy, Burkina Faso


OPARAOCHA Sheila, Energia

PAVEL Enamul Karim, Infrastructure and Development Company Limited, Bangladesh

ROBERTO Juan, Inter-American Development Bank

SCHROTH Daniel, African Development Bank

SEVERI Luc, Powering Healthcare, Sustainable Energy for All



SLADE Mel, International Energy Agency

ZOBAIR Siddique, Independent Consultant, Dhaka, Bangladesh

## ANNEX 3. DOCUMENTS CONSULTED

### UNDP

UNDP, 'Terminal Evaluation: Belarus: Supporting Green Urban Development in Small and Medium-Sized Cities in Belarus', Belarus, 2021

UNDP, 'Home-Owners of Ukraine for Sustainable Energy Solutions (HOUSES)', Ukraine, 2021

UNDP, 'BRA/16/G76 - HCFC Phase Out Management Plan (Stage II)', Brazil, 2021

UNDP, 'Final Evaluation of the "Deployment of Renewable Energy and Improvement of Energy Efficiency in the Public Sector" project', Jamaica, 2021

UNDP, 'Final Evaluation Mainstreaming climate change in the National Logistics Strategy and Roll-Out of Integrated Logistics Platforms', Morocco, 2021

UNDP, 'Final Evaluation: Achieving Low Carbon Growth in Cities through Sustainable Management in Thailand', Thailand, 2021

UNDP, 'Terminal Evaluation PIMS 4462: Removing Barriers to Wind Power Development in Belarus', Belarus, 2021

UNDP, 'Mid-Term Review of Project "Conservation of Snow Leopards and their Critical Ecosystems in Afghanistan" ', Afghanistan, 2021

UNDP, 'De-risking Renewable Energy Investment', Kazakhstan, 2021

UNDP, 'Mid-Term Review for the Project – "Green Energy Small & Medium Enterprises (SMEs) Development Project in Tajikistan" ', Tajikistan, 2021

UNDP, 'Final Evaluation: Maximizing carbon sink capacity and conserving biodiversity through sustainable conservation, restoration, and management of peat swamp ecosystems', Thailand, 2021

UNDP, 'E-learning on Sustainable Development and SDGs', Ukraine, 2021

UNDP, 'Final Project Evaluation for the Green Economic Development Project – II Phase', Bosnia and Hercegovina, 2021

UNDP, 'De-Risking and Scaling-Up Investment in Energy Efficient Building Retrofits in Armenia Interim Evaluation', Armenia, 2021

UNDP, 'De-risking Renewable Energy Investment', Kazakhstan, 2021

UNDP, 'Nationally Appropriate Mitigation Actions', Azerbaijan, 2021

UNDP, 'Final Evaluation of Developing a Market for Biogas Resource Development and Utilization in Guinea (BIOGAZ)', Guinea, 2021

UNDP, 'BRA/10/G31 Sugarcane Renewable Electricity – SUCRE (PIMS 3515)', Brazil, 2021

UNDP, 'Mid-term review: Rural housing project', Uzbekistan, 2021

UNDP, 'Mid-Term Evaluation of the Project Catalyzing Environmental Finance for Low-Carbon Urban Development', Bosnia and Hercegovina, 2020

UNDP, 'Development and Commercialization of Bioenergy Technologies', Ukraine, 2020

UNDP, 'Scale up of Access to Clean Energy for Rural Productive Uses (CPD Output 3.3)', India, 2020

UNDP, 'Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia', Serbia, 2020

UNDP, 'Disaster Risk and Energy Access Management, Barbados', 2020

UNDP, 'Final Project Evaluation Bioenergy for Sustainable Rural Development', Egypt, 2020

UNDP, 'Mid-term Evaluation of the "Promoting the development of photovoltaic pumping systems for irrigation" Project', Morocco, 2020

UNDP, 'BRA/17/G31 - PIMS-5896 - Taking Deforestation out of Soy Supply Chain in MATOPIBA region', Brazil, 2020

UNDP, 'Terminal Evaluation of Efficient Energy Production and Utilization of Cookstove, Sierra Leone', 2020

UNDP, 'Mid-term Evaluation of De-risking Renewable Energy (NAMA) for Nigerian Power sector', Nigeria, 2020

UNDP, 'Low Emission Climate Resilient Development Project', Kenya, 2020

UNDP, 'Mid-term Evaluation of Promoting EE Motors in SMEs', Turkey, 2020

UNDP, 'Terminal Evaluation of Climate Proofing Development Gains Project', Malawi, 2020

UNDP, 'Terminal Evaluation of the Implementing Urgent Adaptation Priorities Through Strengthened Decentralised and National Development Plans Project', Malawi, 2020

UNDP, '00086173 Market Transformation (MT) GEF Mid-Term Evaluation', Indonesia, 2020

UNDP, Mid-Term Review: Achieving Low Carbon Growth in Cities through Sustainable Management in Thailand, Thailand, 2020

UNDP, 'Terminal evaluation of the NAMA project, Mongolia', 2020

UNDP, 'Final Evaluation: Sustainable Management Model for Local Government Organisations to Enhance Biodiversity Protection and Utilization in Selected Ecosystem', Thailand, 2020

UNDP, 'End of term evaluation of the Increasing Access to Clean and Affordable Decentralized Energy Services Project', Malawi, 2020

UNDP, 'Final Evaluation of the project Support Afghanistan Livelihoods and Mobility (SALAM)', Afghanistan, 2020

UNDP, 'End term Evaluation of the Energy Generation NAMA project', Sri Lanka, 2020

UNDP, 'UNDAF Final Evaluation', Belarus, 2020

UNDP, 'Terminal Evaluation for Kidepo Project', Uganda, 2020

UNDP, 'Mid-term evaluation for Sustainable Energy for All Project', Lesotho, 2020

UNDP, 'Terminal Evaluation for Improved Charcoal Production project', Uganda, 2020

UNDP, 'Terminal Evaluation Improving the energy efficiency of Lighting and other Building Appliances', Egypt, 2020

UNDP, 'Final Evaluation: Conserving Habitats for Globally Important Flora and Fauna in Production Landscapes', Thailand, 2020

UNDP, 'Energy Efficiency in Public Buildings in Ukraine', Ukraine, 2019

UNDP, 'Ten Island Challenge - Terminal Evaluation', Barbados, 2019

UNDP, 'BRA 14/G31 Production of biomass-based charcoal', Brazil, 2019

UNDP-GEF 'Midterm Review: South Africa Wind Energy project (SAWEP) Phase 2', South Africa, 2019

UNDP, 'Joint Programme on Youth Employment', Somalia, 2019

UNDP, 'Mid Term Evaluation Roof Top Grid Connected Photo Voltaic Systems', Egypt, 2019

UNDP, 'Terminal Evaluation for Sustainable Transport in Egypt', Egypt, 2019

UNDP, 'Scale Up of Access to Clean Energy for Rural Productive Uses (CPD Output 3.3)', India, 2019

UNDP, 'Renewable Energy for the City of Marrakech's Bus Rapid Transit System. Terminal Evaluation Report', Morocco, 2019

UNDP, 'Enhanced Rural Resilience in Yemen (ERRY) Joint Programme Final Evaluation', Yemen, 2019

UNDP, 'Mid-term Evaluation of Sustainable Energy Financing Mechanism for Solar PV', Turkey, 2019

UNDP, 'Sound Management of POPs containing waste in Mexico (EvMT)', Mexico, 2019

UNDP, 'Mid-term Review: Conserving Habitats for Globally Important Flora and Fauna in Production Landscapes', Thailand, 2019

UNDP, 'Project BRA/10/G31 Sugarcane Renewable Electricity', Brazil, 2019

UNDP, 'Mid-Term Review of Supporting Green Urban Development in Small and Medium-Sized Cities in Belarus', Belarus, 2019

UNDP, 'Reducing Barriers for Development of Biomass Markets in Serbia', Serbia, 2019

UNDP, 'End term Evaluation of the Biomass Energy Production Project', Sri Lanka, 2019

UNDP, 'Mid Term Evaluation of Developing a Market for Biogas Resource Development and Utilization in Guinea (BIOGAZ)', Guinea, 2019

UNDP, 'Mid Term Evaluation Management of E-Waste and Medical Wastes', Egypt, 2018

UNDP, 'Mid-Term Review: Sustainable Management Model for Local Government Organisations to Enhance Biodiversity Protection and Utilization in Selected Eco-regions of Thailand', Thailand, 2018

UNDP, 'Nationally Appropriate Mitigation Actions for Low-carbon Urban Development in Kazakhstan', Kazakhstan, 2018

UNDP, 'Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia', Serbia, 2018

UNDP, 'Mid-term Evaluation of the Project Support to Afghanistan Livelihoods & Mobility (SALAM)', Afghanistan, 2018

UNDP, ESCO Moldova - 'Transforming the market for Urban Energy Efficiency in Moldova by introducing Energy Service Companies', Moldova, 2018



UNDP, 'Final evaluation: Project on HCFC Phase out', Uzbekistan, 2018

UNDP, Small Decentralised Renewable Energy Project (DREG) Project, Lebanon, 2018

UNDP, Mid-term evaluation of the project "Energy Efficiency and Renewable Energy for Sustainable Water Management in Turkmenistan", Turkmenistan, 2018

UNDP, 'Terminal evaluation for the Strengthening National and Decentralised Management for Global Environmental Benefits Project', Togo, 2018

UNDP, 'BRA09/G31 Market Transformation for Energy Efficiency in Buildings', Brazil, 2018

UNDP, 'Mid-term Review: Strengthening Capacity and Incentives for Wildlife Conservation in the Western Forest Complex Project', Thailand, 2018

UNDP, 'Reducing GHG emissions from road transport in Russia's medium-sized cities: Russian Urban Sustainable Transport', Russian Federation, 2018

UNDP, 'Green Urban Lighting Final Evaluation', Armenia, 2018

UNDP, 'End of Project Evaluation - Joint Programme on Youth Employment', Somalia, 2018

UNDP, 'Evaluation of Solar Energy Programme' Nigeria, 2018

UNDP, 'Final project evaluation of UNDP/GEF Promoting Technology Transfer and Market Development for Small Hydropower in Tajikistan' Tajikistan, 2018

UNDP, 'Final Evaluation Adaptation to Climate Change in the Nile Delta through Integrated Coastal Zone Management', Egypt, 2018

UNDP, 'Nationally Appropriate Mitigation Actions', Azerbaijan, 2017

UNDP, 'Terminal Evaluation (TE) Thailand: Promoting Renewable Energy in Mae Hong Son Province (MHS-RE) UNDP-GEF Project', Thailand, 2017

UNDP, 'Mid-Term Review for the Project Mainstreaming Green Environmental Development', Bosnia and Herzegovina, 2017

UNDP, 'Final Evaluation of the Strengthening the operational and financial sustainability of the National Protected Area System project', Jamaica, 2017

UNDP, 'Terminal Evaluation – Removal of Barriers to Solar PV Power Generation', Mauritius, 2017

UNDP, 'Enhanced Rural Resilience in Yemen (ERRY) Joint Programme Mid-Term Evaluation', Yemen, 2017

UNDP, 'Mid Term Evaluation for Improved Charcoal Production', Uganda, 2017

UNDP, 'Disaster Risk Management', Malawi, 2017

UNDP, '00060776 Wind Hybrid Power Generation (WHYPGEN) Market Development Terminal Evaluation Report', Indonesia, 2017

UNDP, 'Mid-term Evaluation of the Energy Generation NAMA project', Sri Lanka, 2017

UNDP, 'End of Term Evaluation of the National Climate Change Project', Malawi, 2017

UNDP, ESCO Moldova – 'Transforming the market for Urban Energy Efficiency in Moldova by introducing Energy Service Companies', Moldova, 2017

UNDP, 'Development and Commercialization of Bioenergy Technologies', Ukraine, 2017

UNDP, 'Mid-term Evaluation of Sustainable Energy Financing Mechanism for Solar PV', Turkey, 2019

UNDP, 'Ten Island Challenge - Terminal Evaluation', Barbados, 2019

UNDP, 'Terminal Evaluation of Development of Sustainable Renewable Energy Power Generation (SREPGEN) Project', Bangladesh, 2021

UNDP, 'Terminal Evaluation – Removal of Barriers to Solar PV Power Generation', Mauritius, 2017

UNDP, 'Renewable Energy for Rural Livelihood (GEF-RERL): Final Evaluation', Nepal, 2019

UNDP, 'Evaluation finale du projet Jatropha', Burkina Faso, 2020

UNDP, 'End of term evaluation of the Increasing Access to Clean and Affordable Decentralized Energy Services Project', Malawi, 2020

UNDP, 'Midterm review of the Development for Renewable Energy Applications Mainstreaming and Market Sustainability (DREAMS) Project', Philippines, 2020

UNDP, 'Tuvalu FASNETT Mid Term Review', Fiji, 2021

UNDP, 'Terminal Evaluation of PIMS 1771 CC FSP: Renewable Energy Rural Electrification (Solar PV)', Botswana, 2014

UNDP, 'Small Decentralised Renewable Energy Project (DREG) Project, Lebanon', Lebanon, 2018

UNDP, 'Disaster Risk and Energy Access Management', Barbados, 2020

UNDP, 'Final Project Evaluation Bioenergy for Sustainable Rural Development', Egypt, 2020

UNDP, 'Evaluation of Solar Energy Programme', Nigeria, 2018

UNDP, 'Terminal Evaluation of Efficient Energy Production and Utilization of Cookstove', Sierra Leone, 2020

UNDP, 'Project Mid-Term Review – “Facilitating Renewable Energy and Energy Efficiency Application for Greenhouse Gas Emission Reduction (FREAGER)”’, Papua New Guinea, 2020

UNDP, 'Promoting Access to Clean Energy Services in St. Vincent and the Grenadines (PACES )', Barbados, 2019

UNDP, 'Mid-Term Review for the Project – “Green Energy Small & Medium Enterprises (SMEs) Development Project in Tajikistan', Tajikistan, 2021

UNDP, 'Terminal evaluation - Biomass Energy for Rural India', India, 2013

UNDP, 'Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia', Serbia, 2020

UNDP, 'Scaleup – Access to Clean Energy for Rural Productive Uses (CPD Output 3.3)', India, 2020

UNDP, 'MTE: Promoting Production and Utilization of Biogas (Bio Methane) from Agro Waste in South East Botswana', Botswana, 2019

UNDP, 'Mid-term Evaluation of the CleanStart Programme Accessing Clean Energy for the Poor', Uganda, 2017

UNDP, 'Terminal Evaluation of Catalyzing the Use of Solar Photovoltaic Energy Project', Iraq, 2020

UNDP, 'Mid-term evaluation of energy efficiency in commercial building project (00084022)', Vietnam, 2019

UNDP, 'Enhanced Rural Resilience in Yemen (ERRY) Joint Programme Final Evaluation', Yemen, 2019

UNDP, 'Terminal Evaluation of Climate Proofing Development Gains Project', Malawi, 2020

UNDP, 'Strategy Note on Sustainable Energy', 2017

UNDP, 'COMPOUNDING CRISES Will COVID-19 and Lower Oil Prices Lead to a New Development Paradigm in the Arab Region?', 2021

UNDP, 'Gender Equality Strategy', 2021

UNDP IEO 'Evaluation of Disability-Inclusive Development at UNDP', 2021

UNDP IEO, 'Independent Country Programme Evaluation: Haiti', 2020

UNDP IEO, 'Independent Country Programme Evaluation: Jamaica', 2020

UNDP IEO, 'Independent Country Programme Evaluation: Zambia', 2020

UNDP IEO, 'Independent Country Programme Review: Tanzania', 2020

UNDP IEO, 'Independent Country Programme Review: Mongolia', 2020

UNDP IEO, 'Independent Country Programme Evaluation: Somalia', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Lebanon', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Serbia', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Azerbaijan', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Belarus', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Mauritius', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Kazakhstan', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Uzbekistan', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Tajikistan', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Burkina Faso', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Somalia', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Lebanon', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Serbia', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Azerbaijan', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Belarus', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Mauritius', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Kazakhstan', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Uzbekistan', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Tajikistan', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Burkina Faso', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Maldives', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Cuba', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Guinea-Bissau', 2019

UNDP IEO, 'Assessment of Development Results: Ghana', UNDP, 2011

UNDP IEO, 'Third Joint GEF-UNDP Evaluation of the Small Grants Programme', 2020

UNDP IEO, 'Independent Country Programme Evaluation: Lebanon', 2020

UNDP IEO, 'Independent Country Programme Evaluation: Barbados and Eastern Caribbean', 2020

UNDP IEO, 'Independent Country Programme Evaluation: Uganda', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Ethiopia', 2019

UNDP IEO, 'Independent Country Programme Evaluation: Haiti', 2020

UNDP IEO, 'Independent Country Programme Review: Tanzania', 2020

UNDP IEO, 'Independent Country Programme Evaluation: Eswatini', 2019

UNCDF, 'Mid-term Evaluation of the CleanStart Programme Accessing Clean Energy for the Poor', UNDP, 2017

PNUD, 'Evaluation finale du projet « GEF Hybrid mini grids in Mauritania »', Mauritania, 2020

PNUD, 'Evaluation finale du projet Jatropa', Burkina Faso, 2020

PNUD, 'Evaluation a mi-parcours du projet de promotion de la production durable de biomasse électricite au Benin (biomasse électricite Benin)', Benin, 2019

PNUD, 'Evaluation à mi-parcours du projet "Renforcement de la résilience du secteur de l'énergie aux impacts des changements climatiques au Bénin – PANA Energie" ', Benin, 2019

PNUD, 'Evaluation finale du projet "Promotion d'un développement durable et de la résilience aux changements climatiques" ', Togo, 2018

PNUD, 'Projet de renforcement du rôle de conservation du système national d'aires protégées au Togo', Togo, 2018

PNUD, 'Evaluation finale du projet ACCE: (Adaptation de la gestion des ressources en eau aux changements climatiques)', Comoros, 2017

PNUD, 'Evaluation à mi-parcours du projet « Renforcement de la résilience du secteur de l'énergie aux impacts des changements climatiques au Bénin – PANA Energie »', Benin, 2019

PNUD, 'Evaluation finale du projet « GEF Hybrid mini grids in Mauritania', Mauritania, 2020

PNUD, 'Evaluation finale de la Composante 2 du Programme d'appui au développement des économies locales (PADEL)', Burkina Faso, 2021

## **External Publications**

Asian Development Bank, 'Pacific Energy Update 2019', 2019

Batchelor, S., 'Solar Electric Cooking in Africa in 2020 A synthesis of the possibilities' report has been produced with the assistance of the UK Department for International Development (DFID), 2015

Bhatia, M. and Angelou, N., 'Beyond Connections: Energy Access Redefined. ESMAP Technical Report', 008/15. World Bank, Washington, DC, 2015

CEOBS, 'Groundwater depletion clouds Yemen's solar energy revolution', 2021

Chant, C and Sweetman, C., 'Fixing women or fixing the world? 'Smart economics', efficiency approaches, and gender equality in development', Gender & Development, 2020

Clean Cooking Alliance, 'Leveraging Energy Action for Advancing the Sustainable Development Goals: Policy Briefs in Support of the High-level Political Forum: 2021', 2021

Climate Finance Leadership Initiative, 'Financing the Low Carbon Future: A Private Sector View on Mobilising Climate Finance', 2019

Closas, A. and Rap, E., 'Solar-based groundwater pumping for irrigation: Sustainability, policies, and limitations.' Energy Policy, Volume 104, 2017

Dalberg, 'System-Wide Outline of the Functions and Capacities of the UN Development System', 2017

De Groot, J., Mohlakoana, N., Knox, A., Bressers, H., 'Fuelling women's empowerment? An exploration of the linkages between gender, entrepreneurship and access to energy in the informal food sector', Energy Research & Social Science, Volume 28, 2017

Dutta, S., 'Gender Analysis of UNDP Energy Portfolio and a Framework for Action', 2021

EA, IRENA, UN Statistics Division, World Bank, WHO, 'Tracking SDG 7: The Energy Progress Report 2020', Washington, DC, 2020

EA, IRENA, UN Statistics Division, World Bank, WHO, 'Tracking SDG 7: The Energy Progress Report 2021', Washington, DC, 2021

EADP, 'Yemen's solar revolution: Developments, challenges, opportunities', 2019

Energy Sector Management Assistance Program (ESMAP), 'The State of Access to Modern Energy Cooking Services', Washington, DC, 2020

ESMAP, World Bank, MECS, 'Cooking with electricity a cost perspective, 2020

Gielen, D., Boshell, F., Saygin, D., Bazilian, M.D., Wagner, N., Gorini, R., 'The role of renewable energy in the global energy transformation, Energy Strategy Reviews, Volume 24', 2019

Global Platform for Action, UNITAR, 'Estimating the use of diesel generators in displacement setting: Preliminary results and recommendations for a solarisation programme', 2021

GOGLA, 'Powering Opportunity: Energising Work, Enterprise and Quality of Life with Off-Grid Solar', 2020

IEA, 'World Energy Outlook 2020', Paris, 2020

IEA, 'Africa Energy Outlook 2019', Paris, 2019

IPCC, 'Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change' [Masson-Delmotte, V., Zhai, P., Pirani, A., Connors, S.L., Péan, C., Berger, S., Caud, N., Chen, Y., Goldfarb, L., Gomis, M.I., Huang, M., Leitzell, K., Lonnoy, E., Matthews, J.B.R., Maycock, T.K., Waterfield, T., Yelekçi, O., Yu, R., and Zhou, B. (eds.)], 2021

IRENA, 'Off-grid renewable energy solutions to expand electricity access: An opportunity not to be missed', 2019

Jain, A., Tripathi, S., Mani, S., Patnaik, S., Shahidi, T., and Ganesan, K., 'Access to Clean Cooking Energy and Electricity: Survey of States 2018', India, 2018

Jeuland, M. et al, 'Is energy the golden thread? A systematic review of the impacts of modern and traditional energy use in low- and middle-income countries', Renewable & Sustainable Energy Reviews, 2021

Mayne, J., 'Contribution Analysis: An approach to exploring cause and effect.' ILAC methodological brief, 2008.

Pahl-Wostl, C. 'Governance of the water-energy-food security nexus: A multi-level coordination challenge,' Environmental Science & Policy, Volume 92, 2019

PV Magazine, 'Italy's Eni wins Kazakhstan's 50 MW solar auction with \$0.032/kWh bid', 2019

REN21, 'Renewables 2021: Global Status Report', 2021

SE4ALL, 'Energizing Finance: Missing the Mark', 2020

SE4ALL, 'Coal Power Finance in High Impact Countries', 2021

SE4ALL, 'Analysis of SDG7 Progress', 2021

SE4ALL, 'Chilling Prospects: Providing Sustainable Cooling for All', 2018

United Nations, 'Leveraging Energy Action for Advancing the Sustainable Development Goals', 2021

United Nations Department of Economic and Social Affairs, 'UN Flagship Report on Disability and Development, Realization of the Sustainable Development Goals by, for and With Persons with Disabilities', 2018

UN Energy, 'Theme report on Innovation, Technology and Data: Towards the Achievement of SDG7 and Net Zero Emissions for the High-Level Dialogue on Energy', 2021

UNEP, 'Sudan First State of Environment and Outlook Report', 2020

UNFCCC, 'Nationally determined contributions under the Paris Agreement Synthesis report' by the secretariat, 2021

UNHCR, 'Inter-Agency Refugee Emergency Response Plan SUDAN: Refugee influx from Ethiopia November 2020 to December 2021. Revision May 2021', 2021

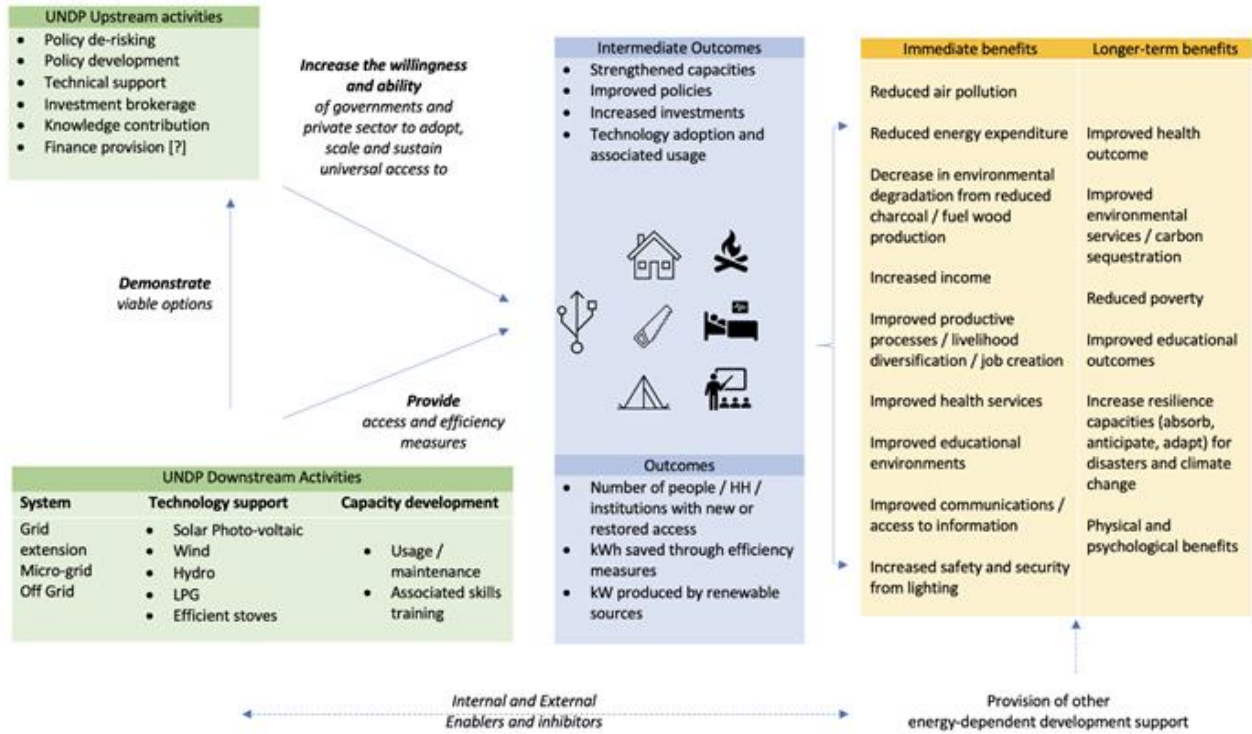
UN Secretary General, Secretary-General to Global Development Center: 'Energy is the Golden Thread' Connecting Economic Growth, Social Equity, Environmental Sustainability', 2012

USAID webinar series: 'Understanding the barriers to Private Sector engagement in the energy sector', 2020

WHO, 'Health and Energy Platform of Action', 2021

# ANNEX 4. INITIAL THEORY OF CHANGE

## WILLIN



## ANNEX 5. DATA COMPILATION

UNDP's Energy Portfolio described in this report was compiled from UNDP's Finance Data and UNDP's Portfolio Analytics stored in Atlas. Additional projects sent by the BPPS were included in the sample. The evaluation considered only projects that have budget or expenditure records in the period between 2018 and 2021.

The process of data compilation was the following:

- 1) Financial data were extracted from the UNDP's Finance Data, using the tag of Signature Solution Energy as variable to identify relevant data. These were extracted as project outputs with specific budget lines and budget codes to identify whether they fall under vertical or non-vertical funding.
- 2) From this data, the evaluators identified and removed project outputs that do not belong to the Energy Portfolio sample because they lack a significant energy component. These mostly related to biodiversity, sustainable tourism, transport, and others.
- 3) The evaluation matched the project outputs with their output descriptions from UNDP's Portfolio Analytics. The output description served to analyse the data further and consider their specific focus on energy access or transition, as well as other characteristics of Theory of Change (upstream vs. downstream support, major target groups, technologies and systems used in renewable energy projects). The budgets of these project outputs were aggregated to form the project as a unit of analysis.
- 4) An advanced search was carried out to identify additional projects that belong to this portfolio. This has been done by using the evaluations from UNDP's Evaluation Research Center as reference and classifying these additional projects in UNDP's Finance Data.
- 5) A number of projects that were shared by BPPS were matched with UNDP's Finance Data and added to this sample for further analysis.<sup>1</sup>

---

<sup>1</sup> The UNDP Finance Data were last accessed on 13<sup>th</sup> August 2021. It can be noted that UNDP BPPS internal data indicates a total budget for vertical fund energy projects of USD 541 million, composed of: USD 384 million under implementation; USD 30 million approved; and, USD 127 million in hard pipeline.





## ANNEX 6. TECHNOLOGIES DEPLOYED UNDER UNDP'S ACCESS PROJECTS

Most projects are focused on electricity access, but the portfolio contains a significant number of initiatives promoting access to clean cooking fuels and equipment. Solar PV is the main technology deployed for electricity access across the portfolio, though solar home systems mini grid and grid connection do feature. Mauritius and Sudan are particularly prominent examples of the latter. In the absence of detailed disaggregation by the project, further breakdown between the types of access (solar home systems, micro and mini grid and grid connection) was not accurate enough for analysis by system type. UNDP's portfolio contains projects that provides facilities, such as maternity centers, with access to solar heated water, in addition to electrical supply. With regard to biomass, improved cooking stoves (ICS) and biogas units for households and to a lesser extent for businesses are the main technologies. In one instance, clean cooking fuel was provided by LPG.

Wind energy is being demonstrated in large scale pilot projects in Sudan and South Africa. Although this is a mature technology, the purpose is to demonstrate the business model, local manufacturing content and uptake by the private sector.

Technology wise, for electricity access, solar PV home systems, mini grid and in grid connections are the main pathways. In a very limited number of cases, micro hydro technology was deployed.

As far as clean cooking fuels and technologies are concerned most interventions are focused on the development and dissemination of improved stoves. A limited number of projects include solar cookers (Afghanistan), biogas (Egypt, Guinea) and LPG (Azerbaijan).


## ANNEX 7. FURTHER ANALYSIS OF THE RENEWABLE ENERGY RESULTS AND FACTORS OF PROJECT PERFORMANCE

**Moderately Satisfactory:<sup>2</sup> De-risking the Transition to Renewables, Ten Island Challenge, Caribbean.** The project's objective was to accelerate the transition of Caribbean island economies from heavy dependence on fossil fuels to a diverse platform of renewables and towards energy efficiency with three project outcomes: i) Island-wide de-risked enabling environment for low GHG development through the demonstration of innovative policy tools; ii) Strengthened island capacity for integrated low GHG technical and institutional stakeholder planning and coordination; and iii) Catalysed island funding for low GHG technology deployment. The GEF grant covered specific interventions in the Bahamas, Belize, Grenada, Saint Lucia, and Saint Vincent and the Grenadines (5/10 countries in TIC). The project has had various degrees of success in achieving each of these outcomes. Overall, it had better performance in renewable energy issues than in energy efficiency matters. For Outcome 1, plans and policy tools have been drawn, yet the actual implementation of these is still has not occurred in all cases at the time of the evaluation (note there has been some progress post project and securing policy change within the project lifetime was an unrealistic target). Outcome 2 mainly entailed the creation of a platform or community of practice with the aim of creating or fostering individual and institutional capacity. The process for seeking this result were learning events and webinars. This has been a very positive initiative for piloting such an effort in the region. Outcome 3 secured measurable impact in terms of global environmental benefits (reduction in emissions) as well as in terms of electricity cost reductions. The project design was focused on energy and the environment with little connection to broader development issues. Failure to analyse stakeholder engagement at the design stage also limited connections to other development sectors.

**Highly Satisfactory: Sugarcane renewable energy, Brazil.** The project has partnered with a group of large sugar mills (four at the time of the project evaluation) to demonstrate the viability of and to mainstream technical solutions to the sustainable use of sugarcane residue (trash) for energy generation. This raised the share of sugarcane biomass in total generation from 4% to 7%. A further 8 partners have now ordered the new technology (with partners spending USD 120m in total). During the project's implementation period, partner mills exported a total of 4.95 TWh, avoiding emissions of 2.4 Mt CO<sub>2</sub>e (compared with the same amount of energy produced by gas-fired plant). International replication is likely. UNDP played a critical role using adaptive management to find a new implementing partner that met challenging government and competing private companies' conditions as well providing highly effective management over the life of the project. It is important to note that the external context provided incentives for companies to adopt the technology once proven. Specifically, the ban on pre-harvest residue burning and economic viability of biomass electricity generation. The project actually failed to get the government to adopt a proposed biofuels policy – and recognised this was an unrealistic objective for the project lifespan – but commercial incentives for electricity generation prevailed.

---

<sup>2</sup> As rated in the project evaluation




**Satisfactory: Low Emission and Climate Resilient Development (LECRD) project, Kenya.** The goal of the project implemented over the last 5.5 years (from September 2014 to February 2020) was to support Kenya's efforts to pursue long-term, transformative development and accelerate sustainable climate resilient economic growth, whilst slowing the growth of greenhouse gas emissions. The stated objectives of the project were to strengthen capacity for low emission development in Kenya, build national and county-level institutions' capacity to better coordinate climate change activities and finances, enhance decision making for increased resilience to climate change impacts and to promote climate-smart technologies and business opportunities. The project therefore contributes to Kenya's GHG reduction through the NDC but no specific gains are estimated.

The LECRD project has been implemented through a National Execution Modality (NEX). In this implementation modality, the Ministry had the overall responsibility for achieving the project goal and objectives and was directly responsible for creating the enabling conditions for implementation of all project activities. UNDP had an oversight role in the implementation of the project through monitoring the implementation of the project, reviewing progress in the realization of the project outputs, and ensuring for proper use of the funds. The project was granted 3 no-cost extensions over its lifetime although this did not seem to significantly impact the delivery of the project in a negative way. The extended implementation timelines while largely attributed to the numerous changes in position of Principal Secretaries/Accounting Officers at the Ministry of Environment and Forestry. LECRD has made notable contributions in promoting and supporting Kenya's institutions and policies to create an enabling environment for climate planning. However, significantly more sustained work is required to take advantage of the momentum created and to scale up. UNDP leveraged the close relationship with Government to support the programme to make effective cross-sectoral linkages. Yet LECRD did not substantially invest efforts in coordination with other UN agencies, resulting in partial utilization of the partnership potential. LECRD made some early strides in bringing about system level changes in the manner climate change and resilience programming addresses issues of gender and rights of most vulnerable groups, especially pastoral communities. While the work in these areas has been commendable and brought important results in the way the government views, addresses and protects rights of marginalized communities and integrates gender in policies, the results are still delicate and dependent on political and institutional commitment, resources and willingness to invest in addressing long rooted inequalities and social norms.

**Highly Satisfactory: Morocco, Renewable Energy for the City of Marrakech's Bus Rapid Transit System.**


The overall objective of the project is to support the low-carbon integration of Marrakech's Bus Rapid Transit (BRT) system through the installation of a 0.75MWp solar park. The project put in place plans for significant expansion (to 48 electric buses) and demonstrated feasibility with four buses. The creation of the Transport Local Development Corporation (TLDC) prior to the project was very valuable. While ensuring local political support, the TLDC has made it possible to streamline the decision-making process. The integration of the gender approach into all project activities, actions, publications and purchases has had a catalytic effect, especially for a project with a significant social dimension. Adopting an effective communication policy from the beginning of the project has been very beneficial, following a participatory approach. The municipality of Marrakesh has been the main actor in the implementation of all components and as the project partner responsible for the project involved in the planning, implementation, monitoring and financing of all activities. The municipality is in charge of the solar park



and will supervise the maintenance of the plant. Political will from the municipality has been an important success factor with support also provided by the Secretariat of State for Sustainable Development (SEDD), which was responsible for monitoring, developing and implementing the government's policy on the environment and sustainable development. UNDP's comparative advantage in this project is in capacity development. It also has extensive experience working with the Moroccan government and municipalities and has therefore played a central role as a facilitator directly supporting the Moroccan agencies involved in the project.

**Highly Satisfactory: Reducing Barriers for Development of Biomass Markets in Serbia.** The Project combined a technical assistance package which includes building the institutional capacity required to address the legal and institutional barriers as well as creating awareness among all relevant stakeholders from the industry, government and financing sectors and designing an Investment Grant Mechanism (IGM) to develop six bankable projects through innovative financial packaging and to leverage other sources of financing. Originally planned around EBRD, this had to be adapted when EBRD dropped out pre-project. The commitment of the private sector was seen as a key success factor in the TE. While UNDP's comparative advantage was not specifically mentioned in the initial proposal presented to the GEF, its experience in implementing similar projects in the region as well as the existence of a country office in Serbia represented an important advantage. For project design, the experience from recently installed biogas projects was taken into consideration. The Serbia Biomass Project was implemented by UNDP, the Executing Agency was the Ministry of Mining and Energy (MoME). UNDP's role can be considered catalytic due to adaptive management and support for MoME. A key component in the management arrangements was the Biomass Support Unit (BSU). The BSU was setup in the MoME and included multiple national and sub-national stakeholders. Throughout the implementation of the Project, adaptive management was a key approach for the Project Team and contributed to the excellent results of this Project. There are certain financial risks to the sustainability of the outcomes of the Project. The biogas projects supported through the Investment Grant Scheme have all been able to secure a FIT (feed-in tariff) but only for a period of 12 years. Biomass initiatives have taken off in Serbia and a stronger coordination with other initiatives is necessary to avoid duplication.

**Highly Satisfactory: Promoting Sustainable Biomass Production and Modern Bio-Energy Technologies, Sri Lanka.** The GEF intervention was expected to support the Government in achieving this target in a two-pronged approach: 1. Biomass (wood and waste) is promoted as a viable renewable energy source for industrial thermal applications over (imported) fossil fuels; 2. Continuous and sustained supply of quality-assured biomass as an industrial fuel is ensured. The Project sought to remove the barriers to increase sustainable biomass production, increase the market share of biomass energy generation mix, and adoption of appropriate biomass-based energy technologies. This was to be achieved through four components, viz., 1. providing policy and institutional support for effective fuel switching using fuel wood, 2. increasing sustainable fuel wood production, 3. introducing an enabling environment for fuel wood suppliers, and 4. introducing efficient wood-based energy technologies. Following a very slow start after its inception that resulted in the MTR recommending major changes in the project management, implementation arrangements and strategy and results framework, the Project used adaptive management and experienced a notable transformation. The TE scored UNDP implementation as highly



satisfactory to reflect their role in facilitation and management in the overall project implementation/execution, coordination, and operation. Given the extensive use of adaptive management, this would imply a catalytic role in project success. The project itself has been successful in demonstrating fuel wood plantation models, fuel supply as augmented by waste wood streams and utilization application in small and medium scale industries to boost the biomass energy market and establishing bioenergy technologies within the industrial sector in Sri Lanka at economically and environmentally acceptable levels. Private sector partners have driven uptake with co-financing of industrial applications. The Sri Lanka Cabinet has also approved a follow-up program on Biomass Energy. The creation of the Inter-ministerial Committee on Biomass Energy has defined governance and policy making processes and strengthened coordination mechanisms and was proposed by the Project for adoption and formalization by the Cabinet.

**Moderately Satisfactory: Ukraine Municipal Bioenergy.** The Government of Ukraine-UNDP-GEF project Development and Commercialization of Bioenergy Technologies in the Municipal Sector in Ukraine has \$4.7 M in GEF funding, committed co-financing of \$30,037,500, and 4 components: (1) policy/ planning, (2) biomass support unit, (3) bioenergy investments and financing, and (4) awareness. Originally a 4-year project launched in June 2014, it has received a maximum extension of 18 months and now is a 5.5 year project closing in Dec. 2019. The project aim is to accelerate the adoption of agricultural biomass for municipal sector space heating and hot water provision (a huge portion of energy use; in practice, includes district heating in cities as well as “off-grid” boilers at city institutions, such as schools and hospitals). The technological scope is solid biomass (not biogas and not liquid biofuels). By design, the project focuses on agricultural waste-based biomass instead of wood (though supports “energy crops” that are trees, but not forest, e.g. willow). In addition to high natural gas prices, a second trend that can facilitate the adoption of municipal bioenergy for heating and hot water is decentralization, which gives municipalities greater control of their budgets. Most boiler and CHP projects were estimated to have an IRR above 25% and a payback period of 4 years or less. The project was launched at a tumultuous time, just 4 months after Ukraine’s Feb. 2014 revolution. The project had a complete change of key persons from March 2017 to early 2018 and significant adaptive management was required to narrow and strengthen the project focus and move away from 100% grants to 25% maximum grant. Progress was very limited for the first 3.5 years but for the last 1.5 years, the project was led by new project team, working with team of bioenergy experts; and great progress has been made. The most important project result is development over past 1.5 years of extensive municipal bioenergy project pipeline with 48 projects across 35 cities. Support of designs is a new area that increases likelihood of implementation. There has been a change of mindset of municipalities, leading to substantial and serious bioenergy pipeline in certain cities, especially Zhytomyr, Odessa, and Uman. Most impressive is that many of the pipeline projects are likely to be implemented, the vast majority without funding from the project. Via its financial support mechanism work with IFC, the project enabled relaunch of municipal loans in Ukraine after developing a credit rating system for municipalities that could be used instead of collateral. roughly 26 of the 48 projects, or 54% will be implemented in the next few years or at latest by 2023. Sources of potential funding include municipal budgets, the private sector, bank loans, and IFIs, with the first three categories already being realized among the projects fully confirmed for implementation. With the estimated level of 54% implementation of pipeline projects within reach, direct GHG ER targets of the project are likely to be roughly achieved, but with much of this achievement in the form of direct post-project ERs.

## ANNEX 8. FURTHER ANALYSIS OF THE ENERGY EFFICIENCY RESULTS AND FACTORS OF PROJECT PERFORMANCE

*Factors explaining the performance of “highly satisfactory”<sup>3</sup> EE projects*


**Green Urban Lighting for municipalities in Armenia.** This followed a standard de-risking design with four components: i) Street lighting energy audits and capacity-building; ii) Demonstration projects; iii) Financial and institutional mechanisms for replication and iv) National policies, codes and standards. Important success factors have been firstly, multiple linked projects over a decade – this project was developed as a third in a row of UNDP-supported GEF-financed project in Armenia targeting energy efficiency. Each component was successful, but the financing and replication stands out because most projects reviewed have run into difficulties in this area. In this case, financing worked well as municipalities had good incentives to make EE savings (as they retained the proceeds) and could use an effective linkage with donors for replication.

**A NAMA for industrial technology transfer in Cundinamarca region of Colombia.** This project covered 123 companies across a wide range of industries and succeeded in raising their energy productivity by 6.82%, on average. Government was highly supportive as the project contributed to climate and environment goals but also increased industrial productivity. The project provided subsidised technical assistance to improve energy use and by adroit selection of initial companies, demonstrated the significant returns available. This has led to significantly more replication than expected outside the target region. The project evaluation identified the important contribution of UNDP in project design, planning and effective and constructive M&E.

**Improving the energy efficiency of lighting and other Building appliances, Egypt.** This project had a transformational effect on energy consumption in Egypt, saving 2GW and US\$2 billion in generation costs. Note that UNDP started with a large GEF energy efficiency project 2000-10 that had limited impact because high electricity subsidies undermined the incentives for EE. Subsequently, a crippling electricity shortage and tariff increases provided strong incentives and political backing for improving EE. The project used established EE interventions to raise awareness, pilot, providing some grant finance for piloting and working with government to support the introduction of energy standards and monitoring. Due to delays in starting the project, the efficient lighting technology actually changed from CFL to LEDs but adaptive management coped with this. Each component was successful but the innovative decision to allow private companies access to 25% grant financing of pilots was important as businesses such as supermarkets, hotels and banks discovered that the switch to LEDs had a massive, unexpected reduction on air conditioning demand – reducing electricity consumption by 40%. This led to very rapid uptake by the private sector with a payback period of a year on average. The public information component was also very successful, with a media campaign using Facebook and the Cairo underground and an EE competition with prizes. The focus on LEDs at the outset – low hanging fruit – was important to get momentum for subsequent EE regulation. UNDP played an important role in project design and management but also as

---

<sup>3</sup> As rated by the project evaluations



a trusted government partner, with the ability to work with a wide range of public and private stakeholders.

*Factors explaining the performance of the “satisfactory” EE projects*


**Azerbaijan NAMA.** This developed a NAMA for the oil & gas end-use sectors as well as an MRV and registry for NAMAs in general. The project design involved standard components to identify target areas, build awareness and capacity, pilot with partners and verify emission reductions. What made it slightly atypical was working with one very important state-owned enterprise partner – SOCAR. The project worked well in a complex stakeholder environment, used adaptive management effectively and SOCAR mobilised finance. UNDP has been involved at all stages of the project. Weaknesses were the limited focus on policy change (although this may be unrealistic in the project timeframe) and a project design that aimed for very limited engagement of the private sector. The likelihood of financial sustainability for some of the activities pursued by this project beyond the project’s lifetime is good.

**Bosnia and Herzegovina, Green Economic Development.** The project was the second phase of an earlier project that ran 2013-18. It worked in a very complex governance structure with 8 cantonal and 35 municipal governments as well as national level ministries. It built awareness and capacity for all levels of governments to improve the way in which they monitor, analyze and evaluate energy consumption, costs, emission, energy investments and savings data from public sector buildings, and to undertake practical energy efficiency infrastructure works. It also put in place a sustainable municipal financing system for EE and RES infrastructure projects and supported a new legislative framework. A key incentive to improve EE was the need to meet targets for the country’s EU accession process. UNDP leveraged the trust it had with the multiple public stakeholders to assist implementation (e.g. all the municipalities provided co-finance) and managed efficiently.

**Mongolia, Nationally Appropriate Mitigation Actions in the Construction Sector.** This developed a NAMA for this fast-growing sector and builds on two earlier UNDP/GEF EE projects. The project design involved standard components to identify target areas, build awareness and capacity, pilot with partners and verify emission reductions. The project worked with public and private stakeholders and succeeded in demonstrating the system for pilot projects. Further work is required to institutionalise results for the sector as a whole but banks are already engaged to provide financing. While buildings will be more energy efficient, individuals lack incentives to save energy as tariffs are based on floorspace or volume.

**Morocco, Mainstreaming Climate Change in the National Logistics Strategy and Roll-Out of Integrated Logistics Platforms.** This was a pioneering project for the Moroccan transport sector and delivered capacity building, tools and technical guides, a centralised data collection system, national GHG inventory of road and rail fleets, developed a NAMA as well as draft regulations for low-carbon development in the multi-flow sector. The project was closely aligned with the national strategy for GHG reduction. The project successfully communicated with and coordinated a complex group of public and state enterprise stakeholders, using adaptive management to modify implementation. Significant co-finance was provided by project stakeholders but finance for the NAMA is yet to be secured and further work over a longer period is needed to expand coverage to rail and to pass legislation.

**Serbia, Removing Barriers to Promote and Support Energy Management Systems in Municipalities.** The project involved putting in place four components: An enabling legislative and regulatory framework for municipal EE; capacity building and public awareness; demonstration projects and a municipal EE Charter. This has led to uptake by 55 municipalities and cities with EMIS software covering more than 9,400



buildings and 9,000 street lighting transformer stations (approximately 900,000 street lights), with significant proposed additional public investment and a strong case for a second phase. UNDP project management was seen as efficient and effective. While the project design was successful, sustainability could have been improved by tailoring the grant proportion to reflect the payback period and possibly by engaging private finance. A longer time horizon will be needed to secure change across municipalities in the entire country<sup>4</sup>.

**South Africa, Market Transformation Through the Introduction of Energy Efficiency Standards and the Labelling of Appliances.** The context for this project was a very low cost of electricity that de-incentivised residential EE and had previously undermined a voluntary standards & labelling (S&L) project. This project used four components to improve the incentives and capacity of consumers for EE. It involved: implement the S&L programme; developing labelling specifications and minimum energy performance standards (MEPS) thresholds for selected products; developing the necessary capacity, upgrade skill levels and create awareness amongst consumers; and implement the necessary market surveillance and compliance. The project was successful in some areas, particularly improving the EE of household water heaters. UNDP project management suffered from capacity constraints at the CO and RTA level and there were significant delays as a result of disagreement between the Government partner and UNDP CO on the modality of transferring GEF funds. On the plus side, project implementation brought together all relevant Government-level stakeholders which contributed to creation of an informal alliance that helped drive development of MEPS and related labels.


**Sri Lanka, Appropriate Mitigation Actions in Energy Generation and End-Use Sectors (NAMA).** The NAMA Project has provided the Government with a number of tools and knowledge products and the experiences of pilot implementation for both energy generation and EE. This has strengthened national capacity to implement NAMA actions that credibly quantify GHG emission reductions and contribute to NDCs. The project worked effectively with a number of national and provincial government and private stakeholders. Adaptive management was used to respond to changes in government institutions and responsibilities and to address causes of slow implementation identified in the MTR. The project successfully delivered the NAMA tools and pilots but a lack of finance for Provincial Councils to roll out energy data collection prevented mainstreaming. The TE also found no evidence for replication of EE actions in pilot tea plantations more widely. Sustainability was therefore categorised as moderately unlikely.

**Thailand, Promoting Energy Efficiency in Commercial Buildings (PEECB).** A building energy code was introduced in 2009 but there was little awareness of requirements, data on EE was scattered across organisations and the lead Government ministry lacked capacity to monitor and regulate. This project aimed to address this and demonstrate good practice in 20 buildings. The project was implemented effectively over 5.5 years by UNDP, used adaptive management and has had an impact on 2,900 high energy consuming “designated buildings”. Nonetheless, this represented 0.1% of all commercial buildings

---

<sup>4</sup> As a result of the Project, UNDP Serbia has been asked by the national Government and the Council of Europe Development bank (CEB) to take on the role of the Project Implementation Unit for EUR 40m CEB Loan for financing energy efficiency renovation of 28 central government buildings, with a view to adding new public buildings on the central, but also on a local level.






at the time and the TE highlighted the need to massively scale implementation and the need for finance and zoning to support this.

**Thailand, Achieving Low Carbon Growth in Cities through Sustainable Urban Systems Management (LCC).** This was designed as a four-year project with the overall objective of promoting low carbon urban development in four mid-sized Thai cities and built on an earlier UNDP low carbon cities project. The project addressed four issues: (i) Lack of awareness of municipal officials and citizens about GHG emissions and the “win-win” co-benefits of low carbon growth. (ii) Lack of experience and capacity of municipal officials in low carbon planning, (iii) Lack of strong examples of low carbon initiatives in mid-sized municipalities in the waste, transport, and end-use electricity sectors. (iv) Lack of up-front financing for low carbon initiatives at the municipal level. The project was broadly successful with UNDP project management bringing diverse stakeholders together, breaking down some silos and the project succeeded in changing mindsets and creating enthusiasm around demonstration projects in cities. There is also evidence of some replication. Results are likely to have been stronger if there had been better M&E, more strategic focus on getting the most emissions reductions from the funds available, low carbon funding mechanisms at the city level and using UNDP’s perceived convening strength to bring more private sector stakeholders on board.

*Factors explaining the performance of “moderately satisfactory and unsatisfactory” projects*

**Brazil, Market Transformation for Energy Efficiency in Buildings.** The GEF-funded Project aimed to promote synergies between the UNFCCC and the Montreal Protocol to replace existing CFC-based chillers and promote EE investments in public and private buildings. After a Substantive Revision in 2015, the chiller components were transferred to a separate Project. An innovative element was the introduction of the Energy Efficiency Guarantee Mechanism (EEGM), enabling Energy Service Companies (ESCOs) to implement and finance EE projects. The EEGM (USD 10,195,000) was administered directly by IDB and subsequently by IDB Invest. The Project duration was 7 years. The TE found that three outcomes were successfully delivered: (1) capacity building; (2) public building programme; and (3) chiller demonstration. The EEGM was successfully put into operation but did not generate significant market demand. The TE found this resulted from poor design that a) assumed providing finance to ESCOs would lead to uptake whereas there were other barriers in the Brazilian context (financial returns to EE were weak and ESCOs were small companies that did not rely on debt finance); and b) did not pilot the proposed approach. The design also foresaw major stakeholders working through a powerful National Project Steering Committee (NPSC) but this was never established by the Federal Government despite lobbying by the Ministry of Environment and UNDP.

**Moldova, Transforming the market for urban energy efficiency in Moldova by introducing Energy Service Companies.** The objectives of the ESCO Moldova Project among others included: (i) Development and adoption of The Chisinau Green Urban Development Plan (UGDP); (ii) Development and operationalization of the ESCO Business Model in Moldova; (iii) Implementation of demonstration projects (retrofitted public buildings by the ESCOs through the EPC modality); and (iv) Creation of the Financial Mechanism available to ESCOs. Across the EE TEs reviewed, this was the only project given an “unsuccessful” rating. The TE found that the proposed model for ESCO market development was too innovative for the country. The premature level of the market, lack of knowledge on EPC as well as limited financial and technical capacities of the Energy Service Providing companies, combined with bank scandals, political instability and corruption scandals in both the Energy Efficiency Fund and the City of



Chisinau, made it impossible to achieve the identified goals and achieve targets. In addition, incentives to adopt EE were limited by lack of a supportive regulatory environment

## ANNEX 9. UNDP COUNTRY RESPONSES TO ENERGY<sup>5</sup>

Country	Project title	Access	Efficiency	Renewables	Crisis / Fragile	Upstream / Downstream	Change Pathway	Gender marker
Afghanistan	SALAM Project	Y	N	N	Y	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN1
Armenia	De-risking Investment in Energy Efficient Retrofits	N	Y	N	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN2
Armenia	Green Urban Lighting	N	Y	N	N	D	2- Provide access and efficiency measures	GEN2
Azerbaijan	Nationally Appropriate Mitigation Actions	Y	Y	Y	N	Both	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN1
Bangladesh	SREPGEN	Y	N	N	N	Both	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN1
Barbados	Derisking the Transition from Fossil Fuels to Renewables	Y	Y	Y	N	Both	3- Demonstrate viable options	N/A
Barbados	Disaster Risk and Energy Access Management	Y	Y	Y	Y	Both	3- Demonstrate viable options	N/A
Belarus, Republic of	WIND POWER DEVELOPMENT IN BELARUS	N	N	Y	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN2
Bosnia and Herzegovina	Scaling-up Investment in Low-Carbon Public Buildings	N	Y	Y	N	Both	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN2
Bosnia and Herzegovina	Low Carbon Urban Development	N	Y	N	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	
Brazil	BRA/09/G31 - Energy Efficiency in Buildings	N	Y	N	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	

<sup>5</sup> From a sample of projects reviewed

Burkina Faso	PIMS 4227 CC Jatropha BF	N	Y	N	N	Both	3- Demonstrate viable options	GEN2
Cuba	Resiliencia Energetica post Irma	N	N	Y	Y	D	2- Provide access and efficiency measures	GEN1
Cuba	BIOENERGIA	N	N	Y	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	
Egypt	BioEnergy for Sustainable Rural Development: FSP	Y	N	Y	N	Both	3- Demonstrate viable options	GEN2
Egypt	Grid Connected Small-Scale Photovoltaic Systems (PVs)	Y	N	Y	N	D	2- Provide access and efficiency measures	GEN2
Egypt	Improving Energy Efficiency of Lighting & Building Appliances	N	Y	N	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN0
Ethiopia	Sustainable Energy China	N	N	Y	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN2
Gambia	Investing in Grid Connected Solar PV in The Gambia	N	N	Y	N	D	2- Provide access and efficiency measures	GEN1
Guinea	PIMS:4780- Promouvoir un marché pour la ressource Biogaz	Y	N	Y	N	Both	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	
Guyana	Mainstreaming Low-emission Energy Technologies to build	N	N	Y	N	D	3- Demonstrate viable options	N/A
Haiti	Electrification Rurale et Autonomisation des Femmes	Y	N	Y	N	D	2- Provide access and efficiency measures	GEN2
India	Access to Clean Energy	Y	Y	Y	N	D	3- Demonstrate viable options	N/A
India	GEF-Thermal Comfort	N	Y	N	N	D	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	

Jamaica	Deployment of Renewable Energy and Energy Efficiency	N	Y	Y	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN1
Kazakhstan	De-risking Renewable Energy Investment	N	N	Y	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN2
Kazakhstan	Low-Carbon Urban Development	N	Y	N	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN2
Kazakhstan	Energy Efficient Standards and Labelling	N	Y	N	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	
Lebanon	Lebanon's LECB programme	N	Y	N	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN2
Lebanon	Renewable energy programme	Y	Y	Y	N	D	2- Provide access and efficiency measures	GEN0
Lebanon	Small Decentralized RE Power Generation	Y	Y	Y	N	D	2- Provide access and efficiency measures	GEN0
Lesotho	Sustainable Energy for All (SE4ALL)	Y	N	Y	N	Both	3- Demonstrate viable options	N/A
Malawi	Access to Clean and Renewable Energy	Y	N	Y	N	D	2- Provide access and efficiency measures	GEN1
Malawi	Increasing Access to Affordable Energy Services_PIMS5270	Y	N	Y	N	Both	3- Demonstrate viable options	GEN1
Mauritania	Promotion des mini réseaux hybrides en Mauritanie	N	N	Y	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN2
Mauritius	Energy Efficiency in buildings and industry	N	Y	N	N		1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN2
Mauritius	Removal of Barriers to Solar PV Power Generation MRU	N	N	Y	N	D	2- Provide access and efficiency measures	GEN2
Moldova, Republic of	Moldova Energy and Biomass Project	Y	N	Y	N	D	3- Demonstrate viable options	GEN2
Morocco	Climate change Transport	N	Y	N	N	Both	3- Demonstrate viable options	GEN2
Morocco	Centrale solaire PV BRT Marrakech	Y	N	Y	N	D	3- Demonstrate viable options	N/A

Nigeria	PIMS 5243: De-risking Renewable Energy (NAMA)	N	N	Y	N	Both	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN2
Prog for Palestinian People	Renewable energy for All – Gaza Strip	Y	N	Y	N	D	2- Provide access and efficiency measures	GEN1
Serbia	Biomass Markets in Serbia	N	N	Y	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN1
Serbia	Support Energy Management Systems in Municipalities	N	Y	N	N	Both	3- Demonstrate viable options	N/A
Sierra Leone	Efficient Energy Production and Utilization of Cookstove	Y	Y	N	N	Both	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN2
Somalia	Accelerating and Scaling up Investments in the Somalia S	Y	N	N	N	Both	3- Demonstrate viable options	GEN2
Somalia	Alternative Livelihoods to Piracy	N	N	N	N	D	3- Demonstrate viable options	GEN2
Somalia	Shifting the Energy Paradigm in Somalia (STEPS)	N	Y	Y	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN1
South Africa	South African Wind Energy Project Phase II	Y	N	Y	N	Both	3- Demonstrate viable options	N/A
Sri Lanka	GCS intervention on environment (Biomass)	Y	Y	Y	N	Both	2- Provide access and efficiency measures	GEN2
Sri Lanka	Transitioning to sustainable energy uses for the agro-in	N	Y	Y	N	D	2- Provide access and efficiency measures	GEN1
Sri Lanka	Biomass Energy Production	N	Y	N	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	N/A
St. Vincent and the Grenadines	Promoting Access to Clean Energy Services	N	Y	Y	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	N/A

Sudan, Republic of the	Promoting the use of electric water pumps for irrigation	Y	N	Y	N	D	2- Provide access and efficiency measures	GEN3
Sudan, Republic of the	Promoting Utility Scale Power Generation from Wind Energy	Y	N	Y	N	D	2- Provide access and efficiency measures	GEN1
Sudan, Republic of the	Solar Revolution for Transforming Lives	N	N	Y	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN1
Sudan, Republic of the	Leapfrogging Sudan's markets to efficient appliances	Y	Y	N	N	Both	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	N/A
Sudan, Republic of the	Promoting the use of electric water pumps for irrigation	Y	N	Y	N	Both	3- Demonstrate viable options	N/A
Tajikistan	Energy Access SMEs Development Project	Y	N	Y	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN2
Tajikistan	Technology Transfer for Small-Hydropower in Tajikistan	N	N	Y	N	Both	3- Demonstrate viable options	N/A
Thailand	Low Emission Capacity Building Project in Thailand	N	Y	N	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN1
Thailand	Low Carbon Growth in Cities through Sustainable	N	Y	Y	N	Both	3- Demonstrate viable options	N/A
Turkey	Sustainable Energy Financing Mechanism for Solar PV	Y	N	Y	N	Both	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	N/A
Turkmenistan	Energy Efficiency and Renewable Energy for Sustainable W	N	Y	Y	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	
Turkmenistan	Sustainable cities	N	Y	N	N	U	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	

Uganda	Improved Charcoal Production Technologies	Y	Y	N	N	U	3- Demonstrate viable options	GEN1
Ukraine	Bioenergy Technologies	N	N	Y	N	U	3- Demonstrate viable options	N/A
Ukraine	Energy Efficiency in Public Buildings in Ukraine	Y	Y	N	N	Both	3- Demonstrate viable options	N/A
Yemen	Enhanced Rural Resilience in Yemen II	Y	N	Y	N	D	2- Provide access and efficiency measures	GEN2
Yemen	SDG Climate Facility: Climate Action for Human Security	Y	Y	Y	N	Both	1- Increase the interest and ability of governments and private sector to adopt, scale and sustain universal access	GEN2
Zambia	China-Zambia South-South Cooperation on Renewable Energy	Y	N	Y	N	D	2- Provide access and efficiency measures	GEN0