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**Evaluation**

**Evaluation of UNDP support to energy access and transition**

**Executive summary**

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## I. Introduction

1. This evaluation is the first comprehensive attempt to gather and analyse evidence about the UNDP contribution to energy access and transition. Presented to the Executive Board at the first regular session of 2022, it aims to provide UNDP management and programme stakeholders with an independent assessment of the effectiveness of UNDP work in this area in the period 2018-2021. The evaluation promotes accountability by assessing to what extent the energy objectives of UNDP are being met and whether the organization's interventions remain relevant to the global efforts to meet Sustainable Development Goal 7, ensure access to affordable, reliable, sustainable and modern energy for all. The evaluation is also forward-looking, considering the strategic position of the UNDP energy portfolio for 2022-2030 and covering pipeline initiatives. It is expected to inform the positioning of UNDP vis-à-vis the United Nations system-wide strategic document to support implementation of the 2030 Agenda for Sustainable Development; the operationalization of the UNDP Strategic Plan, 2022-2025; and the planning and implementation of country programmes. Furthermore, it is intended to inform the UNDP response to the United Nations High-level Dialogue on Energy, through which Member States and other stakeholders renewed their commitment to reach Goal 7 by 2030.

2. The evaluation provides an overarching set of findings and conclusions on UNDP support for energy access, promoting renewable energy and enhancing energy efficiency. The findings suggest that UNDP offers important support for many national partners to move towards achieving the Goal 7 targets, but there remains significant room for improvement. It includes recommendations to strengthen the work of UNDP, to build on successes and improve its unique contribution in service to global sustainable development.

## II. Context

3. Although significant progress has been made in the past decade, 759 million people still lack access to electricity – three quarters of whom are in sub-Saharan Africa – with sharp differences in access between urban and rural areas. The global coronavirus disease (COVID-19) pandemic has placed greater stress on energy supplies, particularly in health systems, reversing several years of progress in expanding energy access and hampering the affordability of basic electricity services for more than 100 million people with energy connections worldwide.

4. In low-income countries, where cooking accounts for over 80 per cent of household energy needs, 2.6 billion people remain without affordable means of clean cooking. If the current trends continue, 2.3 billion individuals – 30 per cent of the global population, mostly split between Asia and sub-Saharan Africa – will remain reliant on harmful cooking practices in 2030.

5. Public funding for energy access and transition has increased significantly over the past decade, from \$265 billion in 2011 to \$304 billion in 2020. However, reaching universal access by 2030, and climate mitigation goals by 2050, still requires a step change in funding. Funding flows are concentrated in a small number of developing countries and achieving the Goal 7 targets on energy access will require annual investments between now and 2030 of around \$35 billion for electricity access and \$4.5 billion for clean cooking.

6. The private sector provides the greatest source of investment in renewable energy globally, but many developing countries do not yet offer the conditions to attract such investment or guide it towards sustainable and equitable development. A significant objective of the development-energy agenda is therefore to use public resources in a way that encourages private sector investment.

7. Over the past decade, global energy consumption has risen by 12 per cent and the energy sector remains the dominant contributor to global warming, producing approximately 60 per cent of total global greenhouse gas emissions. The majority of these emissions come from

countries in which universal access has long been achieved, though largely via high-emitting forms of combustion and inefficient usage.

8. Some progress has been achieved in reducing the cost of renewable energy sources, and advances have been made in the energy efficiency of buildings, transportation, appliances and other technologies. The contributions of solar and wind power to total energy supply have increased by an annual growth rate of 18.5 per cent and are increasingly viable options for producing renewable energy in developing countries. In 2019, the share of renewables in global energy supply reached 27 per cent owing to rapid growth in solar, wind and hydropower.

9. However, even with these advances, the world is still far from the emission-reduction trajectories required to limit global warming to 1.5 degrees above pre-industrial levels, as stipulated in the Paris Agreement. Although the trajectory of technology development is positive, several cost and practical hurdles remain in developing countries: operating rural off-grid energy systems remains expensive, as do the storage technologies for home solar systems. Developing and operating energy services in very remote areas and in island communities is still highly challenging. Furthermore, new technologies are often produced and patented outside the countries with the greatest access challenges, and their adoption must compete with the cost of fossil fuels held artificially low by subsidies or locally sourced biomass. Thus, for their adoption and maintenance, policy measures are required to accommodate the intellectual property systems and trade and tax agreements.

10. Energy is a major part of the “whole of society” response required to address climate change. The breadth of the challenge calls for a cross-government response and the involvement of other line ministries, such as those in charge of the health, environmental, food production, livelihood and employment portfolios, in an all-encompassing approach to achieving the Sustainable Development Goals. Many countries are currently formalizing these connections as they update their nationally determined contributions under the Paris Agreement. Over 60 per cent of the nationally determined contributions prepared for the twenty-sixth Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) in November 2021 contain a focus on energy supply.

11. Developing countries are not required to sign binding emission reductions under the UNFCCC. Nevertheless, the Paris Agreement encouraged voluntary pledges from emerging economies and developing countries, supported by financial and technological assistance from historically high-emitting countries. The most recent report of the Intergovernmental Panel on Climate Change demonstrates the necessity of curbing emissions as soon as possible, which creates a political and economic dilemma surrounding developing countries with national reserves of coal, oil or gas that may support energy access and development. Although commitments to move away from polluting forms of energy are positive for the global environment, they have not yet been matched by a commensurate level of assistance to support countries to transition away from fossil fuels.

### **The UNDP response**

12. As part of the Strategic Plan, 2018-2021, UNDP launched signature solution 5, which positioned the organization’s work on energy in line with the Sustainable Development Goals and the Paris Agreement. The signature solution focuses on three objectives: increasing energy access; the transition to renewable energy and energy efficiency; and restoring energy access in post-crisis contexts.

13. In contexts where energy did not reach everybody, UNDP aimed to support innovative private and public solutions to increase energy access and delivery. In contexts where energy was already available to most people, UNDP would focus on transitioning to renewable energy and energy-efficiency measures and policies. In crisis and post-crisis situations, UNDP would focus on re-establishing energy access where it has been lost and strengthening risk-informed, zero-carbon development.

14. The UNDP energy offer analysed for the purposes of this evaluation covers all projects between 2018 and 2021 with a significant energy component and budget expenditures. This included a sample of 200 projects, with a total budget of \$391.5 million and total expenditure of \$254.5 million, constituting just under 2 per cent of total UNDP programming of \$13.52 billion in 2018-2020.

15. The UNDP energy portfolio comprises two large subportfolios: the vertical funds, consisting of Global Environment Facility (GEF) and Green Climate Fund projects; and non-vertical funds consisting of all other sources of funding. The total budget was marginally higher for vertical funds than for non-vertical funds (51 per cent compared to 49 per cent respectively). The greatest divergence in spending between the vertical funds and non-vertical funds is for supporting the transition to renewable sources of energy, for which the total budget is \$56 million higher in the vertical funds.

16. To deliver the signatures solution, UNDP collaborates with other agencies under the UN-Energy framework, the Global Platform for Action on Sustainable Energy in Displacement Settings and the Sustainable Energy for All initiative. UNDP is also working with the World Health Organization, the World Bank and other organizations under the Health and Energy Platform for Action.

17. UNDP has recommitted its support for energy through the Strategic Plan, 2022-2025. It retains the core focus areas of increasing energy access for those furthest behind and aims to expand the use of renewable sources and energy-efficiency measures. Working through partnerships, UNDP intends to speed up investment in distributed renewable energy solutions, especially for those hardest to reach and in crisis contexts and aims to increase access to clean and affordable energy for 500 million people.

### III. Findings

#### **Finding 1. The positioning of UNDP in the energy sector**

18. UNDP is delivering relevant energy initiatives where they are needed and in alignment with national energy priorities. Its neutrality and impartiality are of particular value because of the national importance of energy security, the geopolitical dimensions surrounding energy supply and the global trade in technology and knowledge.

19. The distribution of UNDP resources is well aligned with contexts in which energy access is low, such as in Burkina Faso, Burundi, the Democratic Republic of the Congo and Malawi, or disrupted, as in Afghanistan, Cuba, Iraq, Lebanon, Somalia, Sudan, the Syrian Arab Republic, Yemen and the State of Palestine. Importantly, the UNDP energy portfolio has avoided concentrating its resources in the countries that have already attracted the most funding from other partners. At the subnational level, UNDP has channelled its resources to off-grid solutions, which require less infrastructure investment than grid expansion and are therefore more appropriate for reaching the poorest groups sooner and with a range of local benefits. All UNDP grid-tied support falls under its transition objectives and a small number of power plant restoration projects in crisis contexts.

20. There are few countries in which UNDP is the principal adviser to the government on energy policies, and in almost all areas of the energy-development nexus UNDP is one among many active organizations. UNDP is most likely to take the lead in roles of direct support to government policymaking or in technical assistance, but it is one of many actors working across a spectrum of support.

21. UNDP projects concentrate on the initial steps of technology adoption and developing the surrounding policy framework. This remains a valid focus for supporting energy access in least developed countries and encouraging the use of energy-efficiency measures. The relevance of UNDP support for larger-scale renewables, which increasingly can be adopted through public and private investment, is dependent on its ability to manage a multi-stakeholder pilot project in contexts where innovations may be held back because the institutional relationships are not

in place. The UNDP approach to technology and policy adoption is, however, inconsistent across the portfolio. The access and larger-scale renewables portfolios have not benefited from a systematic use of analytical tools and approaches to key activities such as barrier analysis, private sector engagement and deciding the most effective deployment of upstream versus downstream support. UNDP efficiency programming is more coherent, as it adopts elements of a common approach.

### **Finding 2. Global to national engagement**

22. UNDP has not successfully leveraged its country presence to provide the knowledge and coordination that could offer more coherence to a disparate United Nations energy offer.

23. Stakeholders appreciate the historical role of UNDP in the development of action plans for Sustainable Development Goal 7 and Sustainable Energy for All; in global discussions on energy and gender and on the energy-humanitarian nexus; and in helping to make decentralized energy a mainstream option at a time when the development banks had reservations. They also recognize a comparatively quiet period in the UNDP global voice on energy during the years preceding the United Nations High-level Dialogue on Energy. In the intervening period, UNDP has supported technical collaborations, but external stakeholders recognized a missed opportunity to enrich the energy-development and investment sectors with the unique breadth of ground level-experience of UNDP.

24. UNDP is an active co-chair of UN-Energy, but this platform does not provide a model for coordinated delivery at the regional or national levels that would enable Governments to apply the most advanced approaches to expand access and transition their economies away from fossil fuel dependency. In reflecting on the remaining challenges of reaching Goal 7, external stakeholders suggested that UNDP could support the facilitation of national energy and development initiatives across ministries, the United Nations and development partners, similar to the way in which its climate teams helped UNDP to develop nationally determined contributions. Stakeholders saw a role for UNDP as an “anchor” for energy access and efficiency within the public sector, building on its field presence to share and amplify the expertise developed in agencies that are more specialized but have a smaller global reach.

### **Finding 3. Crisis contexts**

25. Supporting energy in crisis and post-crisis contexts is still underdeveloped as a focus area for UNDP. The organization has managed to deliver effective renewable solutions but lacks operational guidelines for managing energy challenges in such contexts.

26. UNDP has delivered renewable solutions through its crisis/post-crisis programming. In 2012, it restored a power plant in Iraq, albeit with limited consideration of alternative models. The restoration of power plants in the Syrian Arab Republic in 2018 was combined with a solar streetlight programme, renewable energy for essential services and capacity-building for engineers and technicians in the planning and financing of renewable energy technologies. The work in Yemen is driven through renewable solutions aimed at transforming the fuel options in the country, and smaller steps have been taken to move beyond response operations to energy transitions in Somalia.

27. Across this programming UNDP has faced several challenges, such as unclear governance models for energy and natural resources, the effects of climate change, equipment supply and servicing and balancing national and international expertise. UNDP has yet to process its experience in crisis and fragile contexts into lessons on what does and does not work.

### **Finding 4. The risks of low-carbon transition**

28. UNDP frames its transition work as an opportunity for countries, but the organization is active in countries that are unprepared for the economic implications of moving away from investments in unclean energy sources. In these cases, UNDP has had minimal influence in

pushing through more integrated energy and governance strategies and systems to support transition.

29. Recent analysis identifies countries that are likely to face significant impacts as part of a global transition to a low-carbon future because of their high level of dependency on fossil fuel reserves for their gross domestic product, manufacturing, exports and energy production. These include Guyana, Iraq, Kazakhstan, Libya and Nigeria. The analysis, however, does not cover effects on the informal economy, so there may be additional impacts on groups that depend on fossil fuel by-products or serving certain industries.

30. UNDP projects in these countries tend to be largely sector-focused, either within the supply/production of renewable energy or concentrated on a specific energy-efficiency measure. Notwithstanding successful projects, UNDP efficiency and renewable measures can be considered additional rather than transitional, and most efforts towards fuel transition focus on imported fuels rather than national reserves. Some UNDP offices have taken initial steps towards supporting a broader transition, and the risks to poorer groups are recognized by staff.

#### **Finding 5. Energy access**

31. UNDP has contributed to the provision of clean fuels and equipment to households, and the provision of electricity to a range of facilities, services and businesses. The scale of any signal initiative is in line with the organization's intention to demonstrate models of access, rather than to provide substantial levels of access in contexts where the government cannot.

32. In the 22 completed projects reviewed, UNDP and its partners reached over 120,000 households (more than 600,000 people) with clean forms of energy. These projects cover all five UNDP regions, with a slightly higher number in Africa and Asia-Pacific. Projects were more effective in encouraging the adoption of energy access technologies when they found an appropriate cost model for households and small businesses, balanced with the cost of locally available alternatives. UNDP has not done enough to understand cost and payment models at the household/community level and has had mixed success in this area. It has encouraged quick uptake when initiatives displaced the cost for households and facilities, but has seen slower adoption where communities prefer to wait for grid expansion or have available firewood.

33. UNDP bioenergy projects have faced major challenges in reaching their goals. Most biomass projects did not reach the quantitative targets and their sustainability remains an issue even when quantitative targets have been exceeded during the project lifetime. The design and implementation of bioenergy is particularly challenging because of the complexity of the biomass value chain and the logistics.

#### **Finding 6. Clean cooking**

34. UNDP support for clean cooking is fragmented, limited in scale and not embedded within a coherent and long-term strategy.

35. Many UNDP clean cooking-fuel initiatives did not continue beyond the lifetime of their projects and created limited results and impact. In almost all cases, the UNDP quantitative result was that people have access to improved cooking stoves rather than the clean cooking fuels required to power them. It is common for people who have access to improved stoves to still rely on traditional firewood or charcoal. The organization has neither put in place the planning and policy-level support, product development, dissemination approach, marketing and financing that are key to deployment of improved stoves on a large scale, nor the commercial approach required to achieving long-term sustainability.

#### **Finding 7. Enabling environment**

36. UNDP has contributed to translating national priorities and strategies for energy access into policy frameworks and guidelines, sectoral strategies and the capacities required for uptake. A lack of guidance to contextualize and leverage demonstration sites has undermined efforts to encourage scaling-up and broader adoption of enabling environment successes.

37. In a number of countries, UNDP has helped Governments develop their national renewable energy strategies. In most countries, it has worked in close partnership with the relevant ministries to develop sub-initiatives to the national strategy. In Yemen, for example, UNDP is researching innovations such as solar microgrids and waste-to-energy solutions and has conducted a macro-level assessment of the country's potential for utilizing other renewable sources. Across a broad range of countries, UNDP has helped to develop analytical products designed to support expansion of energy access initiatives, such as feasibility studies, barrier analyses and natural resource mapping. In Bosnia and Herzegovina, UNDP developed databases and maps of the potential of wood and agricultural biomass. The Sudan country office plans to assess wind patterns in the country to identify other sites for turbines. In all projects, UNDP had a strong focus on capacity-building, encouraging knowledge and skills that are preconditions for policy adoption or supporting the operation of energy access initiatives.

38. The utility of the policies, capacities and technologies is heavily dependent on the ability of a demonstration project to convince policymakers to develop the regulations and financial incentives that promote wider adoption. In most cases, the decisions regarding follow-on and scale-up fail to materialize. The reasons relate to the underdevelopment of the value chains, the private sector and financing options for the equipment and energy technology in their surrounding contexts. UNDP does not have a systematic approach for developing access initiatives that match local capacities and markets. Several project evaluations describe UNDP initiatives as being too advanced for subnational governments, local supply chains and institutions.

#### **Finding 8. Renewable energy**

39. UNDP has supported energy transitions with subnational partners in challenging contexts. However, multi-country and national-level projects, while broadly successful, have not yet delivered transformational change at scale. Projects that aim to encourage further investment by building capacity, demonstrating viability and securing policy change typically require more years to show results.

40. The energy projects assessed in this evaluation cover industrial and municipal sustainable biomass generation, de-risking the transition to renewables, capacity-building for low-carbon development and photovoltaic generation, and capacity-building to start transforming public transport systems. Most of the initiatives assessed have been successful, introducing viable technologies and improving the enabling environments that are important for wider adoption.

41. All highly successful projects in this area had effective financing arrangements and benefited from UNDP project management experience, often convening partnerships, including with the private sector and municipalities, in complex institutional environments that may be too risky for others. However, project time frames are the major limiting factor to realizing the demonstration effect. Projects that aimed to encourage further investment by building capacity, demonstrating viability and securing policy change in a period of three to five years typically failed to do so. A period of seven to eight years is more realistic for these processes. UNDP has been more successful where it or others have helped to develop market readiness over a longer period.

#### **Finding 9. Energy efficiency**

42. UNDP has helped to deploy successful energy-saving measures through projects that demonstrate an ability to work in complex partnerships and across sectors. Despite project success, the sustainability of the efficiency measures is dependent on financing that only in a few instances arrived within the project lifetime.

43. UNDP has been instrumental in managing projects that deliver changes in efficiency regulations or legislation, in driving improved compliance in particular sectors – ranging from public buildings to specific industries – and in building earlier stage capacity, awareness and monitoring, for nationally appropriate mitigation actions, in support of the UNFCCC processes.

Compliance and regulations for energy efficiency can be challenging to achieve because they often do not lead to new market opportunities as quickly as, for instance, renewable policies.

44. The difference between successful and highly successful energy-efficiency projects often depends on finding an appropriate finance model, and this is a key factor determining whether projects scaled up beyond demonstration. For the same reason, the chances of sustainability are only moderately likely even when the projects were successful in delivering project outcomes. Projects have built capacity and piloted interventions, but the additional step of securing legislation for energy efficiency proved too ambitious for the typical lifetime of any single project. Investors are often uncertain whether energy-efficiency measures will lead to cost savings that are sufficient to reward their investments, typically because they lack confidence in the equipment and the personnel in charge, e.g., energy planners and auditors.

#### **Finding 10. Alignment of energy to other Sustainable Development Goals**

45. UNDP has successfully used its high-level engagement to help countries align energy into their Sustainable Development Goal planning, nationally determined contributions and other international frameworks. However, improved service delivery, not just an energy supply, is required to ensure that energy accelerates progress towards the Goals. UNDP energy projects have faced sustainability challenges that undermine this linkage.

46. The [United Nations policy brief on leveraging energy action for advancing the Sustainable Development Goals](#) sets out clearly the expected impact pathways from Goal 7 to the other Goals. This builds on the notion of energy as a “golden thread” connecting economic growth, social equity and environmental sustainability, as put forward by the Secretary-General in 2012. The UNDP country offices that have delivered energy projects under the signature solution are effectively delivering the planning frameworks to guide these impact pathways.

47. At a practical level, surveyed country offices reported that they have provided several forms of connection, including for households, health facilities, businesses, administrative offices, food value chains, weather information services and early warning systems. However, UNDP often does not plan well for sustainability of the connection, which limited the success of notable cross-sectoral projects in health and disaster risk reduction. This problem is recognized by external and internal interviewees, and programmes have started to improve their designs in response.

#### **Finding 11. Measuring progress towards the Sustainable Development Goals**

48. UNDP does not conduct the types of assessments that would allow it to plan for and promote sustainability in energy project designs and track whether its initiatives are leading to greater development and environmental benefits.

49. UNDP projects have not adequately sought to develop an understanding of the energy user’s experience and capacity, which are key considerations for designing interventions that are affordable, convenient to use and promote local maintenance of the equipment. Post-design, country offices collect a set of binary data on access numbers and disaggregate between households, services and income-generating activities. This is a cost-efficient way to collect data on a large scale; however, it limits the ability of UNDP to understand the reliability, affordability and other qualities of the energy used by men and women. These qualitative factors can be used to tailor designs to encourage adoption and improve service and are a key component of Goal 7.

#### **Finding 12. Gender equality and women’s empowerment through energy**

50. The energy portfolio has integrated positive elements of gender equality and women’s economic empowerment in the design of initiatives, but the majority of energy initiatives are too reliant on assumptions that women will automatically benefit if they are simply included in the initiatives.



51. UNDP often targets women specifically to increase their access to energy. However, decision-making over household energy and budgeting has been mostly overlooked by UNDP, and women continue to face challenges in converting energy access into changes to their economic status, often because initiatives failed to consider or address social norms regarding female livelihoods and financial control.

52. Just over half of the total UNDP energy budget goes towards project outputs that were expected to benefit women's equality and economic empowerment. This low number is disappointing since the UNDP gender equality strategy encourages projects to adopt outputs that are at least gender-responsive, meaning results address the differential needs of women and focus on equitable distribution of benefits, resources, status and rights. There are good reasons to do so for the energy sector: evaluations demonstrate that UNDP energy initiatives operate in a male-dominated sector, and evidence from outside UNDP suggests that a gender-responsive strategy should be considered a minimum to avoid a detrimental impact on women's equality.

### **Finding 13. Access to energy for people with disabilities**

53. UNDP does not take sufficient measures to understand the experience with energy of persons with disabilities, leaving a sizeable population reliant on energy access models that may be inappropriate for their circumstances. Disability is mentioned in the UNDP strategy note on sustainable energy,<sup>1</sup> but not linked to practical measures.

54. Global awareness of how persons living with disabilities experience energy access and economic development has risen gradually since 2018. However, the UNDP energy portfolio does not contain outputs specifically focused on supporting persons with disabilities. Some projects are supplying electricity to facilities and services accessed by people with disabilities, but this is often a product of broader targeting rather than a concerted approach tailored to their needs. This reflects a general challenge in the energy sector, in which approaches to disability are still nascent, but is nevertheless concerning because only 27 per cent of the country offices surveyed reported that persons with disabilities can easily access UNDP energy projects, and only 7 per cent believed that persons with disabilities can convert energy access into long-term changes in their economic status.

### **Finding 14. De-risking renewable energy investment**

55. The “de-risking renewable energy investment” framework has provided UNDP with an analytical tool for demonstrating the financial benefits of renewable energy to government stakeholders and investors. It expanded the UNDP offer beyond its core policy and capacity-building work and has given government partners an important tool to help achieve market readiness.

56. UNDP developed the methodology in response to the observation that in many developing countries, the financing costs for renewable energy remain high even as hardware costs fall, because of the higher risks of investing in these contexts. The framework provides a clear financial analysis to supplement UNDP support to improve policies and capacities and is relevant in situations where there is no market uptake yet and there is a lack of clarity regarding the financial options. The institutional benefits of the approach to UNDP renewable energy initiatives are clear. Prior to the adoption of the approach, UNDP was engaged in at least one energy project in which donor requirements for financial leverage exceeded the organization's ability to deliver an appropriate response. Staff now report stronger investment-oriented thinking and foster more systematic project planning and targeting. The analysis is said to have promoted greater awareness within UNDP of the relationship between policies and finance sector activities.

<sup>1</sup> UNDP, Delivering Sustainable Energy in a Changing Climate: Strategy Note on Sustaining Energy, 2017-2021.

**Finding 15. Post-analysis financial de-risking activities**

57. The lack of follow-on tools to the de-risking renewable energy investment framework has so far limited the ability of UNDP to leverage its investment and claim an organizational strength in mobilizing energy finance. UNDP does not yet have a suite of standardized financial instruments for the post-analysis de-risking activities, which require that development banks and Governments transfer risk and that UNDP formalize the engagement of the local financial sector or private investors.

58. UNDP has good relationships with some energy financiers. International financial institutions in Latin America and Africa saw an opportunity to connect the downstream, grant-delivered approaches of UNDP to their investment approaches, and discussions around this issue are under way through the new Africa Mini-grid Programme. In many regions, however, successful cooperation depends on the capacities of individuals rather than a set of shared operating procedures for blending financing from different sources.

59. The lack of follow-on tools for the framework also limits the ability of UNDP to strategically deploy its own downstream investments. Although these investments allow UNDP projects to introduce innovations and directly provide access, they also absorb capacity and funds which might be more effective in realizing the objectives of UNDP if spent on greater and more longer-term policy and financial de-risking activities. By shifting the focus away from having to implement pilot projects on the ground towards working on the enabling environment more consistently, it is conceivable that the first pilot projects could be implemented by other stakeholders (investors, financiers, communities). The demonstration effect may be stronger as it would indicate that a better political, regulatory or financial framework or conditions had supported the installation of the clean energy system, rather than a donor-driven initiative.

**Finding 16. Funding**

60. The volume of funding for the UNDP energy portfolio has been steadily decreasing since 2018, and it has received the smallest contribution from regular (core) resources of the signature solutions. Combined with its geographic spread, this downward trend reduces the ability of UNDP to commit energy expertise and hardware for sufficient time to make a sustained contribution to national energy challenges.

61. Since the launch of the signature solution, total budget amounts for energy have decreased by 30 per cent, from just under \$126 million in 2018 to just under \$88.5 million in 2020, matched by a commensurate drop in expenditure. Funding sources remain one of the most significant challenges facing country offices in their attempt to retain a stable energy portfolio, or to integrate energy issues more deeply into their country programme. Despite the downward trend, new types of funding have been developed in the areas of energy access and post-crisis restoration of energy access. The wider organization has innovated new models of finance that could be applied to energy, and government savings from renewables and efficiency measures could be further leveraged for cost sharing.

**Finding 17. Lack of a programmatic approach**

62. UNDP is overly reliant on projects as the modality for delivering its energy offer. This makes its contribution to Sustainable Development Goal 7 highly susceptible to implementation challenges and breaks in continuity and constrains the ability of UNDP to capitalize on the advantages of pursuing a longer-term vision and larger-scale planning and management.

63. UNDP operates in contexts where energy policy requires careful and long-term consideration of social, financial and environmental factors prior to investment in technology and infrastructure. Certain country offices have reached a position where over the course of decades, energy has been recognized as an organizational strength and the government consults with UNDP on its sectoral strategies, policy and project ideas that can implement the national plans. However, the broader trend is for emerging relationships to be developed on a project basis and weakened or broken by implementation challenges and project cycles.

64. The fact that almost 90 per cent of energy funds are project-funded, rather than from UNDP regular resources, implies that UNDP spends a considerable amount of staff time and financial resources on repeat fundraising activities, i.e., project design, review and approval as well as other transaction costs. UNDP holds a good track record in securing and delivering GEF funding, and these projects involve design and management processes that are more robust than those covering other donor funding. However, the approval process delays projects significantly. The organization has not put in place the longer-term vision for its energy offer that would allow it to overcome these changes and take advantage of larger-scale planning and management for knowledge-sharing, cost efficiencies and energy procurement.

#### IV. Conclusions

**Conclusion 1. The multi-faceted support provided by UNDP, covering energy access, promoting renewable energy and enhancing energy efficiency, offers important support for many national partners. UNDP has used its neutrality, impartiality and long-standing presence in countries to provide highly relevant implementation support towards achieving the targets of Sustainable Development Goal 7.**

65. Globally, the UNDP role and focus to sustainable energy is significant among international development partners, with broad country reach, coverage of a wide range of energy topics and linkages to national strategy settings on the Sustainable Development Goals. The long-standing UNDP presence in countries has helped to broaden and implement stakeholder commitment. UNDP has significantly helped countries create enabling frameworks that are crucial for expanding sustainable access and transforming national energy systems. The best results are seen where national leaders have recognized the urgency for action and possess the financial capacity to adopt and advance renewable energy and energy-efficiency actions.

66. UNDP has demonstrated that it can build and manage projects that convene multiple actors to advance new renewable energy technology and energy-efficiency initiatives. Yet its application of energy expertise from other providers has been inconsistent. Its past work in this sector underscores the need for a partnership model that can effectively coordinate and deliver more integrated packages of support to government partners.

**Conclusion 2. UNDP provides a valuable contribution to the global effort of expanding access to energy. It operates in contexts where there are major hurdles for promoting sustainable energy services, and its initiatives need to navigate these and promote adoption and scaling.**

67. UNDP support has helped countries to launch electricity access programmes and expand the availability of clean cooking fuels and technologies. UNDP projects demonstrate that despite advancements, significant implementation challenges remain in developing countries, particularly in sub-Saharan Africa, with energy initiatives held back by the scale of improvements still needed in areas such as institutional capacity, financial services and private sector engagement. UNDP has combined upstream support and downstream projects to fill perceived gaps in government capacity, to prove or disprove innovations and to prepare the ground for future investments. However, UNDP has not consistently provided guidance for making the most effective use of these strategies. Its higher-end access figures come from the

number of people who use facilities and streetlights and the households that receive cookstoves. These areas have shown the greatest sustainability risks in the UNDP portfolio, often because projects overlook how the equipment supplied and related maintenance requirements fit within institutional, household and community budgets. Similar challenges are found where UNDP is supporting new forms of power or technology for productive use, stemming from project designs that have limited assessment of user experience and monitoring processes that count basic metrics rather than qualitative experience.

**Conclusion 3. UNDP programme time frames are often too short to achieve the intended level of progress and sustainability in the energy sector. Furthermore, the organization has not systematically developed a pipeline of follow-on downstream projects to implement its energy strategy.**

68. UNDP has succeeded in developing projects that establish the vision and crucial steps for transformational change in the energy sector. In only a limited number of cases has it engaged early enough in the process to ensure that national actors have the means to continue these initiatives at the end of short-term project cycles. Underdeveloped sectors require a longer gestation than is typically funded through donor- and vertical fund-supported projects. In a few contexts, UNDP has been able to articulate and then help implement longer-term strategies that include sequenced projects and bridging funds. The urgency of energy access and transition, and the availability of private sector options for technical and financial support, suggest that taking a “business as usual” approach to project preparation will not be sufficient for UNDP and partner countries to achieve their Sustainable Development Goal 7 targets.

**Conclusion 4. UNDP energy programming tends to be insular, project-based and country-specific, with missed opportunities for replication of best practices and innovative techniques. UNDP has not established the level of integration and knowledge management required to develop advanced integrated energy solutions to contextual challenges.**

69. The UNDP country-specific approach increases countries’ receptivity, but there is too much reliance on a small cadre of internal energy experts and not enough cross-referencing of solutions and project experiences elsewhere in the UNDP global programme portfolio or from outside of UNDP. Across the portfolio, it is possible to see country offices promoting technologies, addressing contextual barriers and engaging the private sector in ways that could be improved by better information exchange and learning. The exception is UNDP strategic advice on energy efficiency, which is well considered for utilizing widely applied global approaches – especially through the GEF project development requirements – and leveraging learning and experience. Still, the energy-efficiency offer draws on the experience of a relatively small number of country offices that would need to be expanded and draw on the long-standing UNDP presence in countries to shorten project lead times and broaden and sustain stakeholder commitment.

**Conclusion 5. The UNDP energy offer now has the opportunity to strategically repositioning its capacities for energy transition and sustainability measures to provide Governments with a consistent level of support commensurate with the national importance of energy policies that can be sustainable and pro-poor oriented.**

70. Energy cuts across all economic sectors and involves sensitive policy decisions on investments, infrastructure, jobs and natural resources. UNDP energy support has been sector-focused, dependent on the expertise and relationships formed on a project basis and often limited by the narrow objectives of pilot projects. Since the development of the UNDP energy strategy in 2017, the urgency of transitioning away from fossil fuels has become obvious, and more is known about the potential benefits but also the economic risks for many developing countries in the global shift to a carbon-neutral future. The transition in certain economies will

require significant levels of disinvestment, asset diversification, job replacement and livelihood support. It is also likely to raise national interest in other areas of energy policy, such as land use for renewable production and the use of natural gas as a transitional fuel, which require context-sensitive planning to ensure that national needs are met in ways that still conform to international commitments.

**Conclusion 6. UNDP has struggled to diversify its funding sources for energy support, remaining mostly GEF-funded, and current funding is far below what is needed to achieve set targets. The organization has not yet launched new and innovative funding models to address the persistent low levels of global official development assistance (ODA) for Sustainable Development Goal 7 and energy transformation.**

71. UNDP achievements in securing GEF funding have vaulted the organization to a prominent position in energy support among United Nations agencies and encouraged greater consistency in management processes. However, this does not alleviate the need to diversify funding sources. In addition, the environmental focus of GEF funding that relates directly to the energy sector, especially focused on climate mitigation, has in some cases constrained UNDP from giving attention to human development concerns.

72. New funds leveraged during the past five years have often focused on energy access in crisis and recovery, or on national capacity-building and institution-building activities, in several instances funded by the countries themselves. These projects have tended to address specific deficiencies in the energy sector and do not apply holistic integrated approaches. The new developments through Sustainable Development Goal bonds and other innovative financial models, have not yet been applied to energy objectives. These have the potential to help diversify funding sources and to increase the persistent low levels of ODA for Goal 7.

**Conclusion 7. Gender equality and women's empowerment are not sufficiently and adequately considered in UNDP energy work. Women are targeted to increase their access to energy. However, decision-making over household energy and budgeting has been mostly overlooked by UNDP, and women continue to face challenges in converting energy access into changes to their social and economic status.**

73. UNDP has supported gender parity in its energy initiatives, aiming for equal participation of men and women, but has not done enough to increase the number of projects designed to tackle gender issues connected to energy as the principal objective, or with significant contributions that could contribute to better addressing the differential needs of men and women. The greatest risk is the prevalent assumption that women would automatically benefit from energy access and are not subject to further discrimination in new technologies, business models or institutional positions that accompany renewable energy. A similar lack of attention is found in the design of initiatives that fail to consult with persons with disabilities, a particular group left behind in energy matters.

## V. Recommendations

**Recommendation 1. UNDP should detail its strategic and programmatic approach to energy in an action plan that clearly articulates how it will support national Governments to achieve their Sustainable Development Goal 7 targets.**

74. The plan should focus on ensuring that energy initiatives launched over the next eight years lead to sustainable results through national ownership, better connection between upstream advice and downstream opportunities and new models of consistent engagement with public and private entities. UNDP should retain its focus on context specificity but with greater guidance and instruments that allow country offices to: (a) design initiatives that systematically address the enablers and barriers to scaling up energy initiatives; and (b) build project pipelines

that sequence these activities over the time frames in which energy sectors and markets typically reach readiness for the wider adoption of policies and technologies.

75. Areas that merit greater attention include: (a) the promotion of uptake models of energy technology and systems in geographic areas which the energy grid is unlikely to reach in the next three to five years; (b) the potential to leverage UNDP energy procurement; (c) mitigating the impact of climate change on renewable production and infrastructure; and (d) the UNDP position on, and engagement with, the digitalization of energy services. The action plan should clearly distinguish UNDP from other players, detailing its updated value proposition and subsequent partnership strategy. Additional staff with deep energy sector expertise and skills will be needed at regional and country levels.

**Recommendation 2. UNDP should update its value proposition on access to energy and transition to low-carbon technologies, expanding its role as a convenor and delivery agent for complex energy project initiatives that incubate innovations and put in place sustainable pro-poor energy policies.**

76. UNDP should systematically identify underdeveloped contexts and countries that would benefit from its capacity as a facilitator, working across government, donor partners, the private sector and subnational entities. In framing this facilitator role, UNDP should support Governments to create plans for long-term barrier removal, investment and capacity development, aiming for far-reaching transformations of the energy sector. It should encourage “leap frogging” to more advanced access and efficiency measures, improvement to and delivery of the nationally determined contributions and helping Governments to access and translate appropriate sources of funding into downstream projects.

77. UNDP should focus greater attention on its work of advising on policy development, especially the economic policies that affect the cost and marketability of renewables and the assessment and regulations that ensure that the groups farthest behind benefit from increased energy investments. To do so, the organization should consider developing the post-analysis de-risking tools itself or form closer partnerships with organizations that offer these mechanisms (see also recommendation 7).

**Recommendation 3. UNDP energy access initiatives should contain formal design components that respond to the user and local experience of energy initiatives, and it should monitor how its energy services lead to sustainable and pro-poor benefits.**

78. The UNDP commitment to increase access to clean and affordable energy for 500 million people is bold and provocative. Its attainment will require practical steps, focused on technology preference, cost and payment models, local value chains, productive usage and ownership and maintenance models. In developing this design component, UNDP should incorporate the perspectives of households, local businesses, facilities and subnational entities, which are key to the success and sustainability of energy initiatives. The assessment should lead to improved energy delivery, which should be monitored over the course of the project and beyond with a tool to capture user experiences and key indications of service quality. Improving the energy service and development benefits should build on impact assessments where UNDP projects have provided a more comprehensive energy service.

**Recommendation 4. UNDP should establish itself as a global thought leader in sustainable pro-poor energy and transition approaches, adopting a step change in ambition and targeting support to the least developed and middle-income economies that are highly exposed to a global transition to low-carbon energy.**

79. UNDP should strengthen its advisory role to Governments with guidance to encourage faster uptake of clean energy and abandonment of unclean sources, based on a national vulnerability rationale as much as a climate change or energy capacity contribution. For that, UNDP energy strategy support to countries will need a broad lens that considers the wider

economy, including energy switches within key sectors, job creation/replacement needs, the potential effects on particularly vulnerable groups and the risk to and from vested interests. This role should draw on the strengths of UNDP in governance and poverty reduction in combination with its energy expertise.

80. Given the top-down nature of global energy policy and investment decisions, the on-the-ground experience of UNDP should have an important role to play in driving appropriate responses to the complex energy transitions now at hand. UNDP should build on its in-country knowledge to ensure that the perspectives of the poorest and farthest behind groups are factored into global and national transition agendas. This requires investment in bottom-up knowledge generation.

**Recommendation 5. UNDP should review its approaches to supporting energy access in crisis and fragile settings and develop formal principles and guidelines for addressing immediate energy needs within a more comprehensive plan for recovery and green transition.**

81. UNDP should design a specific action plan on how it supports energy interventions before, during and after any crisis response, and wherever possible aim to ensure that interventions expand local capacities for adopting and governing cleaner sources of energy. It should build on the experience of countries and bureaux that operate in these contexts and incorporate wider research and deep case studies of national/transnational energy contexts. The objective should be to increase the application of more advanced interventions at the country level while retaining flexibility to respond to contextual differences.

82. In developing this action plan, UNDP should consider: (a) supporting governance models for energy initiatives and natural resource management; (b) the potential for supporting local supply chains through energy procurement and capacity-building; and (c) models for expanding the focus on renewables and efficiency measures during power plant rehabilitations.

**Recommendation 6. UNDP should promote a greater integration of gender considerations and more targeted gender guidance for its energy programming, and move away from the assumption that women will automatically benefit if they are simply included in energy initiatives.**

83. Attention is needed to move beyond the pursuit of gender parity and greater participation to a next echelon of programming that also addresses the social norms that prevent women from fully and equally benefiting from improved energy outcomes. UNDP should work towards converting energy access into real changes to women's economic status by adequately considering and to the extent possible addressing the associated social norms and impediments that limit female livelihoods and financial control, and prevent them from taking full advantage of the opportunities offered by improved access to safe and clean energy.

84. Although very different intervention strategies are required to support men and women of different ages and abilities, living in different settings, UNDP should increase the level of consultation with users and ensure that they are conducted by specialists with an understanding of gender aspects. This will require guidance on the minimum steps needed in each project formulation and implementation, to recognize the perspectives of men and women and provide prompts to overcome resistance and counter false assumptions that people automatically benefit from their involvement in an energy project or within a facility that has improved electrical supply.

**Recommendation 7. UNDP should map where energy investments are needed, by region, to a develop holistic strategy of support to match the most appropriate funding model and resource mobilization strategy for the context.**

85. UNDP should identify opportunities where Governments are open to new financing modalities for energy access and transformation, and seek to expand engagement with international, regional and national financial institutions to help these countries achieve their aims. UNDP, together with the international financial institutions, should classify contexts on a scale of readiness for investment and set out where and how it can help lay the governance foundations for greater investment. In this role, UNDP should emphasize poverty reduction, productive use and equal access to energy to ensure that successful investments do not deepen inequality. Where investment finance is not feasible, UNDP should work to expand funding options through other channels, such as the vertical funds, other donors and its Sustainable Development Goal bonds.

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