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Achieving a just energy transition in Kenya's electricity sector: exploring the role of policy coherence

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Key messages

- **A just energy transition in Kenya that enables the country to transition to a low-carbon, climate-resilient development pathway requires coherence between policies and action on energy, climate, poverty and inequality reduction.**
- **Our analysis of interaction between policy objectives in Kenya's just energy transition found that prioritizing investments in renewable energy is the goal with the highest synergetic potential and contributes to economic growth, energy access, and reductions in poverty, inequality and greenhouse gas emissions.**
- **The equity goals related to industrialization and job creation highly conflict with greenhouse gas emission reduction in the industry and transport sectors.**
- **Despite the current transition towards increased renewable electricity generation, conflicts remain between deployment of renewable energy and affordability of electricity. Thus, this transition has not necessarily led to equitable outcomes.**
- **Institutional barriers are key drivers of incoherence, hindering progress on economic growth, poverty and inequality reduction and subsequently greenhouse gas emission reduction in energy demand sectors.**
- **Interests and power dynamics in the electricity market influence the affordability of electricity and are drivers of incoherence and exacerbate inequality.**

1. Introduction

This SEI report presents insights on the role of policy coherence in the Kenyan government's efforts to achieve a just energy transition in Kenya. It discusses the drivers and outcomes of policy coherence. The findings are based on an analysis of the policy landscape and interactions between key policy objectives, as well as a set of interviews. The results and recommendations from this analysis were discussed and validated in a workshop with 25 experts and decision-makers on 7 June 2023 in Nairobi, Kenya.

Kenya is a lower middle-income country committed to becoming a middle-income country, with the ambition to provide "high quality of life to all its citizens in a clean and secure environment by 2030" (Government of Kenya, 2007). In 2022, Kenya's gross domestic product (GDP) was USD 113 630 million, and GDP per capita was USD 2240 (Government of Kenya, 2024, p. 6; KNBS, 2023a, p. 28). Although Kenya has made strides to reduce poverty and inequality, it still faces significant development challenges. For example, 38.6% of the population were still living in overall poverty in 2021; there is high youth unemployment (with people between 18–34 years representing 63% of the total population seeking work in 2019), and inter-province and intra-province disparities in development and availability of opportunities (with a national Gini coefficient of 0.389 in 2021) (Government of Kenya, 2020a; KNBS, 2019, p. 240; KNBS, 2023b, p. 50, 68).

Universal access to modern energy remains a challenge. In 2021, 76.49 % of the population had access to electricity, with wide inequalities between urban and rural areas (EPRA, 2021, p. 19). More than 70% of the population still relies on charcoal and wood for cooking (Government of Kenya, 2022a, p. 28). At the same time, the government of Kenya recognizes that the energy sector is a key driver of economic growth, employment and industrial development. To meet growing electricity demand, the government aims to increase electricity generation capacity and electricity access through the development of renewable energy sources and the exploitation of coal, from both local resources and imports (Government of Kenya, 2018a, p. 40, 2018b, p. 48)

Meanwhile, the national long-term development blueprint, Kenya Vision 2030, recognizes that climate change could negatively impact the country's ambitions to achieve sustainable economic growth. The government of Kenya has therefore prioritized climate action by developing mechanisms to achieve low-carbon and climate-resilient development. Kenya has identified priority climate actions for reducing greenhouse gas emissions in several sectors, including expansion of renewable energy. In addition, Kenya's commitments under the Paris Agreement set an emission reduction target of 32% relative to the business-as-usual scenario by 2030 (Government of Kenya, 2020b).

To achieve Kenya's sustainable development goals and meet its commitments under the Paris Agreement requires coherent policies and policy processes across multiple sectors that minimize trade-offs and contradictions and maximize synergies. The growth of the energy sector is expected to drive Kenya's goal of attaining middle-income status by 2030. At the same time, the government aims to achieve a just energy transition. To align these aims, policymakers need to consider the trade-offs in the energy mix, balancing targets for economic growth, climate mitigation and poverty and inequality reduction.

1.1. Background

Kenya's overall goal for its energy sector is the provision of affordable, competitive, sustainable and reliable energy at the least cost to achieve national development needs, while protecting the environment. The sector aims to achieve universal access to electricity by 2030 and to clean cooking technologies by 2028 (Government of Kenya, 2020a; 2022). Kenya is now recognized as a leader in renewable energy investments in East Africa (IRENA & AfDB, 2022, p. 95). In recent years, public and private investments have been geared towards geothermal, wind and hydropower generation, which represented 87% of electricity generation mix in 2022 (EPRA, 2023a, p. 6). Kenya attracted USD 5.6 billion of renewable energy investments between 2010 and 2020, accounting for 58% of investments in East Africa, which were mainly public investments coming from bilateral and multilateral development finance institutions (IRENA & AfDB, 2022). In 2021, the Ministry of Energy also invested about 0.1% of the country's GDP (around USD 123 million), in geothermal power generation (Government of Kenya, 2021, p. 98; KNBS, 2022, p. 25). However, while the electricity sector has transitioned to almost full renewable electricity generation, the energy sector still faces critical energy challenges of energy equity and security.

Expansion of the electricity sector is deemed critical to achieve the country's economic development goal of attaining middle-income status by 2030. The Energy Policy 2018 and Energy Act 2019 promote coal exploitation for electricity generation, emphasizing the affordability, competitiveness, reliability and accessibility of coal as an energy source. The government argues that coal development will increase energy security, electricity access and foreign investments, as well as create jobs, therefore helping to reduce poverty (Mutunga & Elmawi, 2021). A key concern of current energy policy is ensuring that the transition addresses socio-economic inequalities by ensuring equal access to modern energy for all, including associated socio-economic benefits.

At the same time, scaling up renewable energy is key to achieving Kenya's climate mitigation targets. But the promotion of coal for electricity generation contradicts the government's ambitions to reduce greenhouse gas emissions and meet its nationally determined contributions (i.e. climate action plans) under the Paris Agreement. Coal burning also leads to adverse health and socio-economic impacts in affected communities. The issue of coal development has received a lot of public attention in recent years. Controversial planned coal development projects, including the 1050 MW coal-fired power plant project in Lamu County and the 960 MW coal plant in Mui Basin and coal mining project in Kitui County, were contested locally and halted in 2019 due to environmental and social concerns (Boulle, 2019).

2. Methods

Our analysis of policy coherence to achieve a just energy transition in Kenya was based on an assessment of interaction of key climate, energy, and poverty and inequality policy objectives (Table 1). The analysis of synergies and trade-offs draws on the SDG Synergies approach (Weitz et al., 2019). The outcome from this assessment gave insights on the most relevant synergies and trade-offs, which were further analysed.

The insights on the manifestation of the synergies and trade-offs are based on 20 interviews (conducted between May 2022 and February 2023) with government officials, civil society, and private sector representatives, in addition to a literature review. The interviews focused on the political and institutional drivers of policy coherence and which outcomes these efforts led to in terms of how progress is made on the just energy transition, including focusing on inequality reduction (Browne et al., 2023; Shawoo et al., 2023).

Table 1: Policies analysed in this study

Policy area	Selected policy objectives*
Climate policies: Environmental Management and Coordination (Air Quality) Regulations (2014) Climate Change Act (2016) Nationally Determined Contribution (2020) Green Economy Strategy and Implementation Plan (GESIP) (2016–2030) National Climate Change Action Plan (2018–2022)	1A. Reducing greenhouse gas emissions – economy wide 2A. Reducing greenhouse gas emissions in the manufacturing sector 3A. Reducing greenhouse gas emissions in the energy sector 4A. Reducing greenhouse gas emissions in the transport sector 5A. Reducing greenhouse gas emissions through enforcement of emission and air quality standards
Energy policies: National Energy Policy (2018) Energy Act (2019) Ministry of Energy and Petroleum Strategic Plan (2018–2022)	6B. Increasing share of renewable energy in the electricity generation mix 7B. Increasing access to electricity 8B. Increasing access to clean and alternative cooking technologies and fuels 9B. Increase power generation through coal 10B. Improving reliability of power supply 11B. Increasing energy efficiency
Policies for poverty and inequality reduction: Vision 2030 Vision 2030 Third Medium Term Plan (2018–2022) National Industrialization Policy (2012) Kenya National Social Protection Policy (2011) Equalization Fund (2011) (established under Article 204 of Constitution of Kenya, 2010) Mining and Minerals Policy (2016) Mining Act (2016) Second Policy and Criteria for Sharing Revenue Among Marginalised Areas (2018) Kenya National Social Protection Policy (2011)	12C. Accelerating job creation for youth 13C. Accelerating industrialization 14C. Reducing economic and social inequalities in marginalized areas 15C. Reducing economic and social inequalities in coal mining regions 16C. Reducing inequalities of participation in coal mining sector 17C. Reducing economic and social inequalities in energy projects 18C. Reducing inequality of affordability and accessibility to modern energy services – vulnerable groups (women, youth and persons with special needs) 19C. Reducing inequalities of participation in energy sector – vulnerable groups (gender, youth and persons with special needs)

* The codes for the policy objectives refer to those used in the analysis for this paper, illustrated in Figure 1.

3. Policy interaction in Kenya’s just energy transition

Our analysis of synergies and trade-offs in policy formulation and implementation shows that there are potential synergies between policies that define Kenya’s just energy transition, but they are not sufficiently realized in implementation.

3.1 Policy formulation and content

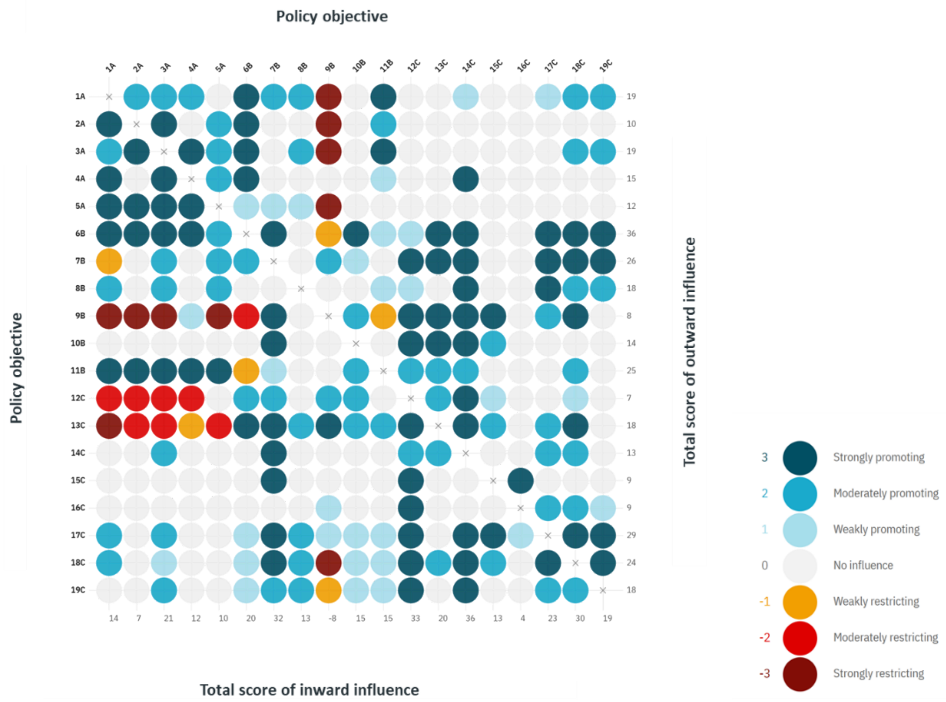
Our analysis found that the policy objective with the highest synergetic potential is prioritizing investments in grid and off-grid renewable power generation (see Figure 1). For example, scaling up renewable energy investments would help reduce emissions in multiple sectors, accelerate industrialization, create jobs, reduce economic and social inequalities in marginalized areas and among vulnerable groups (i.e. women, elderly, people with disabilities, children, youth), and increase energy access and reliability of supply (McCollum et al., 2018). However, because of the intermittent nature of renewable energy sources, further investments in battery storage and in upgrading ageing electricity transmission and distribution infrastructure will be required to improve renewable power reliability (Government of Kenya, 2022b).

Our analysis also found that reducing economic and social inequalities in energy projects has a high synergetic potential. For example, regional energy investments can bring benefits for local communities by promoting affordable and accessible modern energy for vulnerable groups. It could also reduce greenhouse gas emissions in the residential sector through adoption of clean cooking with electricity (Government of Kenya, 2022b). These investments can also contribute to job creation and reduced inequality in marginalized areas and enhance participation of vulnerable groups in decision-making in the energy sector. This synergetic potential implies that as policymakers prioritize investments in renewable energy, they should ensure that local communities have equal access to the socio-economic benefits generated from these investments, including ensuring that modern energy services are accessible and affordable especially to the most vulnerable groups and poorest. Conversely, a lack of progress or regression on reducing inequality will hold back progress towards a just energy transition in Kenya.

The key trade-off in the energy sector is between the goal to increase coal power generation (9B), which strongly conflicts with reducing greenhouse gas emissions in the energy and manufacturing sectors (Kehbila et al., 2021). At the same time, this objective could increase electricity generation capacity, electricity access and reliability, industrialization for economic growth, job creation and reduced poverty and inequality especially in coal mining regions. This suggests that trade-offs need to be considered during implementation.

Lastly, equity goals related to industrialization and job creation for youth might highly conflict with climate mitigation goals, because increased economic growth, per capita GDP growth and associated increased motorized transport will drive increased fossil fuel consumption, mainly in the industry and transport sectors. This means that as Kenya industrializes, measures to reduce greenhouse gas emissions in the manufacturing and transport sectors must be implemented simultaneously to achieve by 2030 the emission reduction target of 32% relative to the business-as-usual (BAU) scenario.

Figure 1: A cross-impact matrix of interactions across 19 policy goals pertaining to the just energy transition in Kenya.



Note: The cross-impact matrix shows interactions across 19 policy objectives pertaining to the just energy transition in Kenya. Overall influence that one policy objective has on the others is shown as sum of the rows (outward influence). The sum of the columns shows the degree to which all others influence one policy objective (inward influence). For example, progress on policy objective 6B (Increasing share of renewable energy in the electricity generation mix) is scored as having a strong influence (+3) on policy objective 3A (reducing greenhouse gas emissions in the energy sector).

4. Policy implementation and outcomes

We observed several interesting interactions in implementation of policies on energy, economic growth, climate mitigation targets and inequality reduction.

For instance, the government's prioritization of investments in renewable power generation has resulted in coherent implementation of climate mitigation and electricity sector goals. The increased renewable electricity generation (from 75% in 2017 to 87% in 2022) (EPRA, 2023a, p. 9; KNBS, 2018, p. 158), coupled with an upgrade of the transmission and distribution network, has enabled increased access to electricity, from 73% in 2017 to 76% in 2021, and improved reliability of electricity supply (EPRA, 2021, pp. 18–19, 2023a, p. 18; Government of Kenya, 2018b, p. 60, 2023, p. 74). The increased installed renewable energy capacity (e.g. geothermal and wind) has in recent years also reduced the electricity sector's heavy dependency on imported fossil fuels (Government of Kenya, 2022b, p. 59). This shift to renewable energy has reduced emissions in the electricity generation sector.

However, a key trade-off linked to the deployment of renewable energy is the high cost of the electricity for consumers, which restricts progress on equity and climate mitigation goals on the energy demand side. For instance, the current residential electricity tariff is KES 31.75 per KWh (roughly USD 0.21 per KWh) for domestic ordinary consumers (i.e. consumption >100 KWh/month) and has gradually increased over the years (in 2018 it was KES 27.92 per KWh) (EPRA, 2023b). Government actors in the electricity sector indicated that the high tariff was driven by substantial investments in renewable electricity generation and the need for thermal backup generation and battery storage for grid stability.

Yet the promotion of universal access to modern energy has not been matched with adequate subsidies to reduce the prohibitive cost of electricity, which has restricted its uptake and sustained use. Several interviewees noted that low income and vulnerable groups in informal urban settlements and rural areas still rely on kerosene and traditional biomass for lighting and cooking. One proposal to improve this situation, suggested by interviewees and in the literature, would be to redirect fossil fuel subsidies towards the provision of pro-poor electricity subsidies. This could bridge the affordability gap by reducing the upfront connection and recurring costs of electricity (Government of Kenya, 2022a; Sokona et al., 2023).

In the manufacturing sector, the high cost of electricity – tariffs for industries vary between KES 21.47 and 27.62 per KWh (roughly USD 0.14 and USD 0.18 per KWh) – limits investments in highly productive and energy-intensive sectors and increases the cost of production of locally manufactured products, limiting the country's competitiveness. For example, the Kenya Association of Manufacturers has raised concerns over how high tariff costs restrict industrial development (KAM, 2023). The high cost of electricity has recently been a factor in the relocation of some businesses (e.g. Eveready and Cadbury) from Kenya to other East African countries, leading to job losses (Munda, 2023).

Another consequence of high tariff costs has been a gradual increase in large industrial and commercial users (e.g. cement, sugar and tea factories, and flower farms) generating "captive" power, using their own facilities run on fossil fuels, renewable energy sources and bioenergy, because of its low cost and reliability compared to grid electricity (Bhamidipati & Gregersen, 2020; EPRA, 2023a). Between 2018 and 2022, the total licensed captive power capacity increased from 133.5 MW to 349.8 MW (KNBS, 2023a, p. 220). Meanwhile, for micro, small and medium enterprises (MSMEs) electricity becomes unaffordable, which constrains socio-economic development because the MSMEs sector contributes about 34% of GDP, while the informal MSME sector accounts for more than two-thirds of all MSMEs in Kenya (Government of Kenya, 2022a, p. 18).

While efforts have been made to increase renewable power generation, they have not been matched with adequate resources to increase electricity demand. The Vision 2030 flagship programs that are intended to stimulate socio-economic growth (e.g. creating special economic zones and formal employment, and electrification of the transport sector) are lagging. Consequently, increase electricity demand and renewable energy expansion is lagging, subsequently limiting the reduction of greenhouse gas emissions in energy intensive sectors.

It should be noted that, although reducing economic and social inequalities in energy projects contributes to economic development and local employment, in practice, lack of careful consideration of trade-offs and impacts of energy projects on local communities, including negotiations on benefits sharing, can be a source of conflict and potentially cancel out the intended economic benefits of such investments by further worsening local socio-economic inequalities. For example, in both planned coal projects, which are expected to boost socio-economic development, the affected communities raised concerns about potential adverse socio-economic and environmental impacts, such as large-scale displacement (particularly for women with informal land tenure rights), loss of land and existing livelihoods, and health effects associated with air pollution, which were not adequately addressed in the Environmental Impact Assessments (Boulle, 2019; Kenya Law, 2019).

5. Enablers and barriers to a just energy transition

In Kenya, coherence between policies on energy, climate change, and inequality reduction is influenced by two competing ideas: balancing the ambition to scale up renewable energy to achieve climate goals with the "right to development" via fossil fuel expansion.

On one hand, the government has prioritized climate change action and seeks to achieve a low-carbon, climate-resilient development pathway to keep its global commitments. This pathway recognizes that Kenya's growing population and economy, coupled with urbanization, will increase greenhouse gas emissions. Climate policy is promoted to ensure that "Kenya remains a low emitter as the country develops and takes steps to reduce vulnerability to climate change" (Government of Kenya, 2013, p. 26). The current transition towards renewable energy in the electricity sector is driven by the discourse of low-carbon and climate-resilient development, as highlighted in the National Climate Change Action Plans (2013–2017, 2018–2022).

On the other hand, the national government's ambition to exploit coal resources to drive industrialization and economic growth was promoted by the administration of former President Uhuru Kenyatta, beginning in 2013. This policy track is based on Kenya's development rights as a lower middle-income country with limited resources, seeking to exploit abundant fossil fuel resources to achieve its development goals while at the same time addressing climate change. The idea of coal power to drive economic growth has, however, waned since 2019, and the focus has shifted towards achieving 100% renewable electricity generation by 2030, a commitment reaffirmed by former President Kenyatta during the COP26 meeting in Glasgow (PSCU, 2021). The shift in policy focus from coal can be observed in recent energy policies and plans (Government of Kenya, 2022a).

Institutionally, despite a well-established policy and legal framework in Kenya, there are barriers to coherent policy and progress towards a just energy transition. For example, a lack of resources for policy implementation is a key driver of policy incoherence, which is attributed to the national government's limited resources coupled with an increasing public debt. Because of resource constraints and competing demands for national government revenues, resource allocation is unequal among ministries and agencies and is based on government priorities and institutional mandates.

Insufficient funding from the government goes to key issues such as social equity and gender mainstreaming, adoption of clean cooking technologies, stakeholder capacity building for climate change, and SDGs coordination. This has negative implications for creating more equal participation in decision-making, given that a key barrier to the adoption of renewable energy technologies is limited awareness and capacity among vulnerable and marginalized groups to participate in decision-making. Limited funds, and delays in releasing funds that have been allocated for planned and ongoing flagship development projects, also delay project completion and therefore progress towards goals.

Additionally, high levels of corruption across important sectors and levels of government are a significant barrier to coherent policy implementation. Kenya is among the bottom third on Transparency International's index, with a corruption perception index of 31 out of 100 in 2023 (Transparency International, 2024, p. 3). Misuse and misappropriation of allocated resources hold back progress on economic growth and on reducing poverty and inequality. For instance, based on interviews, our research revealed that, due to corruption, funds allocated for social protection do not reach the targeted vulnerable groups. Persistent poverty and inequality undermine efforts to achieve a just energy transition by limiting the ability of the most vulnerable and marginalized groups to get access to, adopt and use renewable energy technologies. Corruption in the electricity sector is also highlighted in literature (Boamah et al., 2021).

Conflicting interests of key stakeholders influence Kenyan policy towards achieving a just transition. For example, the shifts in discourse away from support for coal can be ascribed to international development actors pushing for a policy shift and to coal becoming riskier and less competitive than renewables, due to increasing environmental and social concerns (Ayhan & Jacob, 2022; IRENA & AfDB, 2022; SEforALL & CPI, 2021). Kenya relies heavily on external financial support for its large energy infrastructure projects; therefore, international development partners have significant influence over decision-making regarding investments in renewable or fossil-based energy (Ayhan & Jacob, 2022).

The commitments of donors and development partners to promote renewable energy deployment and halt coal financing overseas, including in Africa (IRENA & AfDB, 2022), have promoted coherence between climate change mitigation and electricity sector goals. The shift away from coal in Kenya was influenced by the global decline in coal financing and the withdrawal of financial support for the Lamu Coal project by financial institutions such as the Africa Development Bank and the Industrial and Commercial Bank of China (ICBC), following local contestation. At the same time, investments in renewable energy projects were enabled by increasing international financial and technical support for clean energy deployment and climate action.

Kenya's vibrant civil society advocates for universal access to affordable clean energy and influences policy coherence through participation in policy formulation processes and advocacy and capacity building of local communities. In the case of coal development, community-based organizations and environmental and social justice organizations opposed the government's coal development plans and played an instrumental role in halting the two projects. Civil society's influence also highly depends on external technical support and funding from international advocacy organizations and NGOs.

Although the Constitution of Kenya (2010) provides for public participation and stakeholder engagement in decision-making processes, in practice, the representation in decision-making in the energy sector is highly skewed towards those who have access to information, resources and engagement platforms, leading to further marginalization and exclusion of vulnerable groups. Furthermore, the impact of the energy transition on job losses in fossil fuel industries and associated sectors and in the biomass sector has received little attention in decision-making, neglecting how affected workers (e.g. kerosene and charcoal vendors, petrol station attendants) can be integrated into the low-carbon climate-resilient development transition. Addressing these institutional and interest-based barriers is crucial for promoting coherent policy implementation and a just energy transition.

With regard to the deployment of renewable energy, the issue of affordability of electricity is shaped by interests and power dynamics in the electricity market. Despite the liberalization of electricity generation and distribution through the Energy Act (2006, 2019), Kenya Power Lighting Company (which is 50.1% state-owned) is the only power distributor in the country with limited market driven incentives for cost and operational efficiency. The company buys bulk electricity from all generators through "take or pay" Power Purchase Agreements (PPAs). Yet system losses due to its ageing transmission and distribution infrastructure and technical losses (corruption, theft, tolerated illegal connections) contribute to high system costs recovered through the electricity tariff. Kenya Power's monopoly creates resistance to competition and limits the potential emergence of new distribution companies and distribution models that could reduce the electricity cost. The interests of independent investors in thermal power plants for backup generation also contribute to the high electricity tariff due to various surcharges, including fuel energy costs. Despite the decline in thermal generation, except for grid stability, the fuel cost is still paid to independent power producers, whether they generate electricity or not, as stipulated in their long-term PPAs (Ogeya et al., 2021).

6. Recommendations for policy and implementation measures

- Ensure modern energy services are accessible, reliable and affordable to achieve an equitable and sustainable energy transition. To safeguard continued industrial development and increase energy access to vulnerable communities, the National Treasury, in close collaboration and coordination with relevant ministries (energy, environment, social protection, industrialization), civil society and industrial stakeholders, should provide adequate electricity subsidies and incentives to reduce the costs of electricity and spur innovation in energy storage technologies, transmission and distribution for integrating intermittent renewables into the national electricity grid.

- To reduce inefficiency in the electricity distribution monopoly, policymakers and regulators in the energy sector must work closely with other relevant agencies (such as market authorities), industrial stakeholders and civil society, to devise options for increasing competition that also consider that vulnerable communities benefit.

- Accelerate the implementation of poverty and inequality reduction measures by prioritizing public investments in the Vision 3030 flagship programs for industrial development and decent job creation and social protection programs, especially in marginalized areas, to empower citizens to transition to modern energy services. Providing incentives (such as preferential electricity tariffs for industrial consumers and fiscal incentives such as investment deductions or tax exemptions) to facilitate industrial development will not contribute to job creation, but it will spur electricity demand growth and thus contribute to the expansion of renewable electrification.

- Reduce inequality of participation in decision-making by increasing public awareness about the benefits of renewable energy technologies and the capacity of local communities; this is essential for promoting public acceptance, equal access to benefits and reducing potential trade-offs. The National Treasury, with increased support from international partners, should increase resource allocation for stakeholder capacity building.

- Policymakers in the energy sector should enhance collaboration with educational and training institutions, labour representatives, affected communities and industrial stakeholders to formulate policy measures to cushion and protect the most vulnerable groups including workers in the fossil fuel and biomass sectors from negative impacts of energy transition, such as: involving the affected workers in decision-making, awareness creation and reskilling through green jobs integration in education and training programs.

- To reduce corruption, the relevant government anti-corruption agencies should enforce effectively existing anti-corruption laws to significantly enhance coherent policy implementation. This could entail enhancing transparency and accountability in national and county government procurement processes and strengthening monitoring and evaluation of government programs.

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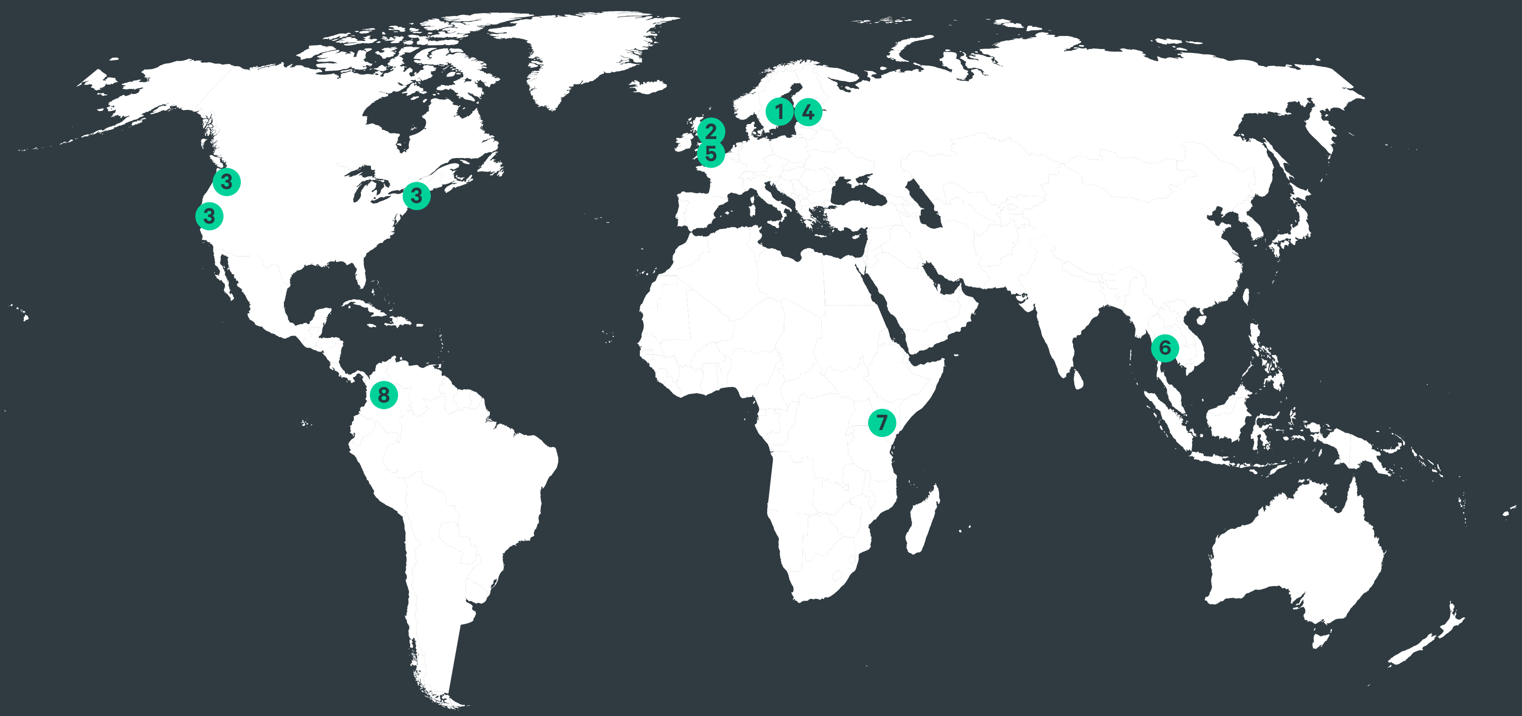

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