



WORKING PAPER: POWERING A GENDER-JUST ENERGY TRANSITION

GGKP Expert Group on Gender

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March 2023

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The Green Growth Knowledge Partnership (GGKP) is a global community of organizations and experts committed to collaboratively generating, managing and sharing green growth knowledge. Led by the Global Green Growth Institute (GGGI), Organisation for Economic Co-operation and Development (OECD),

United Nations Environment Programme (UNEP), United Nations Industrial Development Organization (UNIDO) and World Bank Group, the GGKP draws together over 90 partner organizations. For more information, visit www.greengrowthknowledge.org.



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CONTENTS

Summary	3
Overview	5
Problem Statement	7
I. Achieving a Gender-Just Energy Transition	11
• Energy transition	15
• Energy justice	17
II. Supporting Participation of Women, Informal Workers and Displaced People in a Gender-Just Energy Transition	19
• Green recovery and a gender-just energy transition	20
• Informal work sector in a just energy transition	22
• Informal settlements and displaced populations	23
III. Powering a Gender-Just Energy Transition	25
• Gender transformative energy policy and regulation	27
• Leadership, entrepreneurship and resilience for women in the energy transition	29
• Generating and disseminating data and knowledge for gender-transformative renewable energy interventions	32
IV. Ways Forward for a Gender-Just Energy Transition	35
Annex 1 Gender-Just Transition Outcomes Framework	41
Annex 2 Gender-Just Energy Transition Outcomes Domains Examples	42
Annex 3 Gender-Just Energy Transition Outcomes Framework	43
List of References	45

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The Green Growth Knowledge Partnership (GGKP) convenes inter-institutional expert groups to identify and address critical knowledge gaps in green growth theory and practice. The neutral, collaborative expert groups focus on knowledge generation, synthesis and on-the-ground application by partners and in-country stakeholders.

This report was prepared under the guidance of the GGKP Gender Expert Group (herein after “Expert Group”). The Expert Group is comprised of global experts in green growth and gender to catalyze collective action towards gender equality and women’s empowerment in global green transitions. A collaboration among leading green growth organizations, the Expert Group provides research and capacity building to aid evidence-based policy development for gender equality. The group conducted a needs assessment and identified key knowledge and data gaps in gender equality outcomes for high ambition just transition processes. The Expert Group, with support from the GGKP Secretariat, prepared this report to fill this gap and identify practices to enhance and implement gender equality outcomes for transformative actions.

The report provides sectoral guidance for practitioners and policymakers to assess, identify and implement gender equality outcomes in the just energy transition process. Through the provision of action points for gender equality along the value chain, it aims to raise the level of ambition for transformative outcomes and strengthen the global energy sector’s impact in the transition to low-carbon and inclusive societies. This publication was produced by Sohna Ngum (Global Green Growth Institute) and Luisa Kim (Global Green Growth Institute) with Expert Group guidance.

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Summary



Guided by the principles of just transitions and energy justice, this working paper by the Gender Expert Group of the Green Growth Knowledge Partnership (GGKP) is an analysis of existing knowledge and strategies – research, policies, procedures and programmes aiming to ensure that no one is left behind during the energy transition. It examines challenges and opportunities for financing gender-just interventions supporting the energy transition. Best practice examples will highlight the role of various actors, including local and central governments, civil society, research institutions, donors, multilaterals, financial institutions and the private sector.

The paper also showcases how different actors have effectively worked together to design and implement gender-transformative actions. Building on the guiding model of the *Gender-Just Transition Outcomes Framework* and the review of existing models and best practices, the paper puts forward a *Gender-Just Energy Transition Outcomes Matrix*. The matrix identifies impact areas for enhanced gender equality and delineates relevant outcomes in gender equality along the value chain of the global energy transition.



The GGKP [Gender Expert Group](#) was established on 25 November 2021 to catalyse collective action towards gender equality and women's empowerment in the transition to green, low-emission economies. The aim is to build a platform for collaboration within and among leading policy, industry, and finance experts and institutions, including civil society and women's organizations, that are currently engaged in and defining green growth and green economy transformations.

The Expert Group provides research, capacity building and knowledge sharing to aid evidence-based policy development processes, specifically on integrating gender equality and women's empowerment in green growth approaches. A series of activities include research papers laying out the business case for placing gender at the heart of current and future green transition discourses and the development of the Gender-Just Transition Outcomes Framework. The aim is to ensure a gender-just approach to economic development and green growth as countries rebuild post-COVID-19 and address the climate crisis.

The group's first two working papers will:

- Provide a better understanding of gender equality impacts of green growth and just transitions across sectors dominated by informal value chains and markets.
- Identify entry points for powering a gender-just energy transition.

These papers will guide implementation of the Expert Group's work programme by providing viable pathways for gender-just actions supporting a green transition through research, capacity and partnership building, and knowledge sharing. The first working paper, developed by the Gender Expert Group under the lead of IIED, was published with the title *Gender equality and informality in low-carbon transitions: a review of evidence to identify transformative outcomes* (Anderson and Fisher (2022)). This second working paper – *Powering a Gender-Just Energy Transition* – is a test case linking the Gender-Just Transition Outcomes Framework and green finance to provide a clear rationale for recognizing that there can be no just energy transition without gender equality.

Gender Expert Group members include the:

- Circle Economy
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- ENERGIA International Network on Gender and Sustainable Energy
- Global Green Growth Institute (GGGI)
- Global Women's Network for the Energy Transition (GWNET)
- Green Economy Coalition (GEC)
- Green Growth Knowledge Partnership (GGKP)
- International Institute for Environment and Development (IIED)
- Organisation for Economic Co-operation and Development (OECD)
- UN Women
- United Nations Environment Programme (UNEP)
- United Nations Industrial Development Organization (UNIDO)
- World Bank Group

About GGKP

GGKP is a global network of international organizations, research institutes and experts leading the promotion of a green economy transition by:

- Generating knowledge – identifying and addressing gaps in green growth knowledge and data that directly contributes to policy change.
- Managing knowledge – compiling and managing green growth research, data, best practices, news and learning materials to provide easy access to the latest information.
- Sharing knowledge – drawing together the green growth community, strengthening cooperation, and empowering action through in-person and on-line knowledge sharing events.

Problem Statement

The widely used just transition concept lacks clear definitions of outcomes, especially when considering the energy transition. There is a need to better identify requisite levels of policy and financial innovations to address gender-just energy transition gaps within current systems.

Both historical and emerging studies of the distributional impacts of decarbonization reveal gendered socioeconomic effects and intersectional factors – such as race, ethnicity, class, caste, ability and age – have significant bearing on how these impacts are experienced (Lahiri Dutt, 2021). Energy transition interventions risk excluding women and other disadvantaged groups if they do not consider existing sociocultural, socioeconomic and institutional gaps. Limited sex-disaggregated data remains a key barrier to designing interventions and monitoring their impacts. Addressing gender equality gaps in the energy transition would yield positive impact for achieving the goals set for Agenda 2030 (as shown in Figure 2) and the Paris Agreement.

The GGKP Gender Expert Group prepared a needs assessment for members of leading organizations engaged in green growth to identify existing knowledge gaps and impact areas for transformative change in the gender-green growth nexus. The assessment found that efforts to integrate gender equality and empowerment of women tend to be undermined by limited human and financial resources. Providing organizations with a better understanding of the added value of the gender equality change process supports the move from old routines and habits. By building intra-organization networks and alliances, identification and sharing of best practices related to mainstreaming a gender perspective in all substantive programming areas will be achieved (UN, 1997).

How far on the gender integration spectrum are Gender Expert Group members addressing green growth and/or the environment?

Gender-sensitive: considers gender norms, roles and relations; does not address inequality generated by unequal norms, roles, or relations; often no remedial action is developed.

Gender-responsive: considers gender norms, roles and relations for women, men and marginalized groups, and how they affect access to and control over resources; considers specific needs of women, men and marginalized groups; intentionally targets and benefits a specific group of women, men and marginalized groups to achieve policy or programme goals, or meet certain needs.

Gender-transformative: considers gender norms, roles and relations for women, men and how these affect access to and control over resources; addresses harmful gender norms, roles and relations; includes strategies and implementations to foster progressive changes in power relationships between women, men and marginalized groups.

Following the assessment findings, the Expert Group conducted an evidence review that revealed the need for a comprehensive framework for setting gender-just transition outcomes. It was found that the widely used just transition concept still lacks clear definitions of outcomes in and for gender equality, which span a spectrum of ambitions, from gender sensitive and gender responsive to gender transformative.

Studies concluded to date highlight a further gap in understanding gender-just transitions in the context of informality, which constitute a large part of the sectors and value chains engaged in just transitions in developing countries and emerging economies. Preliminary research of the group has also

identified a lack of scale of existing “good practice”, and the need to better identify the level of further policy and financial innovations required to increase gender-just transition ambitions within the current financial system, while also establishing a vision for systemic changes that could bring gender-just sustainability into the mainstream of green growth/green economy interventions and the economy at large.

To close current identified gaps, the Expert Group designed and tested an evidence-based Gender-Just Transition Outcomes Framework (see Annex for more information), which can help bring leading green growth and green economy organizations towards a shared understanding of gender-just transitions.

Figure 1: Powering Agenda 2030 through access to affordable and clean energy.



Achieving a Gender-Just Energy Transition



This paper serves as a “test case” for applying and implementing the Gender-Just Transition Outcomes Framework to promote gender equality during the transition to low-carbon economies. Application of the framework through a sectoral lens will help identify and accelerate gender-equality outcomes in gender-just energy transitions.

A framework for a gender-just energy transition would help ensure the rights of disadvantaged groups are met by addressing the root causes of gender inequality within and along the transition to a resilient and sustainable global energy sector. This includes addressing the barriers faced by disadvantaged groups across the energy value chain – as consumers, suppliers and distributors of energy. It also ensures that the projected benefits of the energy transition are equitably shared and no one is left behind in the shift from fossil fuel reliance. The framework strives to function as a tool for centring gender-equality objectives in just energy transitions and enhancing ambitions for gender-transformative energy projects.

This working paper recognizes the various groups under the gender umbrella, but it will mainly focus on women’s roles in the gender-just energy transition. It intends to strengthen understanding of current approaches used to support gender equality in the just-energy transition. Entry points for scalability and sustainability for a gender-transformative energy transition will be identified as the sector transitions away from fossil-based technologies towards low-emission alternatives, including a mapping of key impact areas to support targeted, long-term interventions.

Guided by the principles of just transitions and energy justice, the paper is an analysis of existing knowledge and strategies – research, policies, procedures and programmes. It examines challenges and opportunities for financing gender-just interventions supporting the energy transition. Best practice examples will highlight the role of various actors, including local and central governments, civil society, research institutions, donors, multilaterals, financial institutions and the private sector.

It highlights how different actors have effectively worked together to design and implement gender-transformative actions.

Building on the guiding model of the Gender-Just Transition Outcomes Framework developed in the first Gender Expert Group working paper that reviews existing models and best practices, this paper puts forward a *Gender-Just Energy Transition Outcomes Framework* and corresponding matrix of outcome domains. The matrix identifies impact areas for enhanced gender-transformative interventions and delineates relevant outcomes in gender equality along the value chain of the global energy transition.

To highlight the global aim to build inclusive energy transition interventions and ensure sustainable development, the working paper showcases programmes and initiatives from leading energy and development organizations, including the United Nations Environment Programme (UNEP), Global Green Growth Institute (GGGI), United Nations Industrial Development Organization (UNIDO), Global Women’s Network for the Energy Transition (GWNET), Organisation for Economic Co-operation and Development (OECD), Climate Investment Funds (CIF), UN Women and ENERGIA International Network on Gender and Sustainable Energy.

Outcomes framework as a stepwise decision process: Prototype developed by the Gender Expert Group, GGKP

Step 1 —→

Characterisation of the just transition process

Set ambition & purpose

- Equality in economic development
- Decolonize
- System change

Sectorial focus

- Formal sectors only
- Formalization addressed
- Inclusive of informal sectors

Scale

- Project/local
- Sector/sub-national
- System/economy wide

Timescale

- Immediate
- Medium-term

Longer-term

- Funding and resources
- Fully resourced
- Partly resourced
- Pending resources

Step 2 —→

Gender equality ambition level

Gender sensitive
Acknowledges but does not address inequalities

Gender responsive
Acknowledges and considers women's and men's specific needs

Gender transformative
Addresses the causes of gender-based inequalities and works to transform harmful gender roles, norms and power relations

Step 3 —→

Choose outcome domains

- Engagement with women and women's agency
- Alignment and coherence across the policy agenda
- Centring Care
- Managing the local environment
- Social & economic empowerment
- Social safety nets
- Collective action
- Norms and discrimination
- Structural enablers

Step 4 —→

Focus areas for understanding changes in gender equality within outcome domains

- Social norms and gender discrimination no longer barriers to engagement and agency
- Policy agenda include international dimensions of GNDs and lifecycles of sectors
- Genuine redistribution of resources and recognition of the value created
- Just transitions regenerate natural environments with women's stewardship
- Women get equal economic security and empowerment
- Social protection minimizes risks to women of being part of just transitions to green economies
- Able to work together to challenge institutional barriers
- Norms promote gender equality and discrimination abandoned
- Green economies provide the structures and institutions for gender equality

Energy transition

Energy systems must be decarbonized to limit the global temperature rise to 1.5° Celsius and achieve universal access to basic services. Around 2.6 billion people still live without clean cooking and nearly 760 million people live without access to electricity (ESMAP, 2021). Last mile users, such as remote rural communities, are falling through the cracks, and poor and marginalized people are also struggling without reliable access to energy (UNEP and UN Women, 2020b).

Decentralized renewable energy technologies can be a game-changer to enhance access to reliable and affordable clean energy while clean cookstoves can provide access to safer cooking options, free up time of women and girls, improve indoor air quality and their health, and avoid deforestation. Moreover, renewable energy solutions and energy efficiency measures together can potentially achieve 90% of the energy-related carbon reductions by 2050 (UN, 2021a). Research found that in some regions, however, the slow transition to modern energy services is, in part, intertwined with a failure to address gender dimensions of energy poverty (Pachauri and Rao, 2013). Low-emission innovation along with strengthened enabling conditions can reinforce development benefits, which can, in turn, create feedbacks towards greater public support for policy (IPCC, 2022).

Around two-thirds of global greenhouse gas emissions can be attributed to the supply and use of energy from fossil fuels (IRENA, 2017). The International Energy Agency (IEA) estimates that to reach net-zero emissions by 2050, global annual investments in renewable energy will need to more than triple by 2030 to around \$4 trillion (IEA, 2021).

With the advent of the COVID-19 pandemic, past gains made in the transition from fossil fuels to renewables have been hindered by new and existing challenges. Sub-Saharan Africa, home to three-quarters of the global population without access to electricity, has been particularly hard hit, and recent progress is being reversed by the effects

of the pandemic: estimates found that the population without access to electricity increased in 2020 for the first time since 2013 (IEA, 2022b).

Renewable energy can power sustainable and inclusive development – from poverty eradication via advancements in health, education, water supply and industrialization to mitigating climate change (See Figure 2) (UNSTATS, 2022).

Gains have been made to increasing global electricity access rates; for example, 96% of developing Asia has access to electricity in 2019 compared with 67% in 2000 (IEA, 2022b). Electricity coverage in Latin America and the Caribbean also grew from about 50% to more than 90% in over slightly more than four decades (UNDP and IADB, 2018). Africa saw the number of people gaining access to electricity double from 9 million a year between 2000 and 2013 to 20 million people between 2014 and 2019, outpacing population growth (IEA, 2022b).

It has been estimated that Mexico could generate around 72% more jobs by meeting the renewable electricity targets delineated in its Nationally Determined Contribution (NDC) compared to business as usual by 2030. Similarly, analysis finds that if Indonesia were to meet its renewable energy targets of the National Electricity Plan, around 7.1 million direct, indirect and induced jobs could be created by 2030 (GGGI, 2020b).



Energy justice

The energy transition continues to feature more prominently in developed economies due to the funding gap faced by emerging economies (WEF, 2021). International development finance for energy projects with gender equality objectives has increased over the last decade, but continues to remain a small share of total finance, representing only 2-11% of total official development assistance (ODA) (SEforALL, 2020). A report by Sustainable Energy for All (SEforALL) tracked 2018 energy finance commitments in 20 high-impact countries with the largest energy access deficits. It found that finance for projects with a gender equality objective were concentrated among a few donors: 93% of total reported finance was from only 10 government agencies (SEforALL, 2020).

The same report found that finance for projects in South Asia* with a gender equality objective increased in 2018 to levels not reported since 2013; gender equality-marked flows were 9% of total development finance for energy projects in 2018 compared to previous years, in contrast to the 42% of total OECD Development Assistant Committee (DAC) member finance across sectors marked with gender-equality objectives (SEforALL, 2020). The quality and cost of access to services are critical to augment the potential of such investments in impacting low-income and marginalized groups whose members are disproportionately women (Pind, 2018).

The just transition seeks to ensure that significant benefits of a green economy transition are equitably shared while those who stand to lose economically – countries, industries, communities, workers, or consumers – are also supported (EBRD, 2020). Definitions of just transitions vary depending on the perspectives and priorities of various stakeholders; as such, it is important to recognize this spectrum and foster greater understanding within and across various stakeholder groups (CIF, 2021).

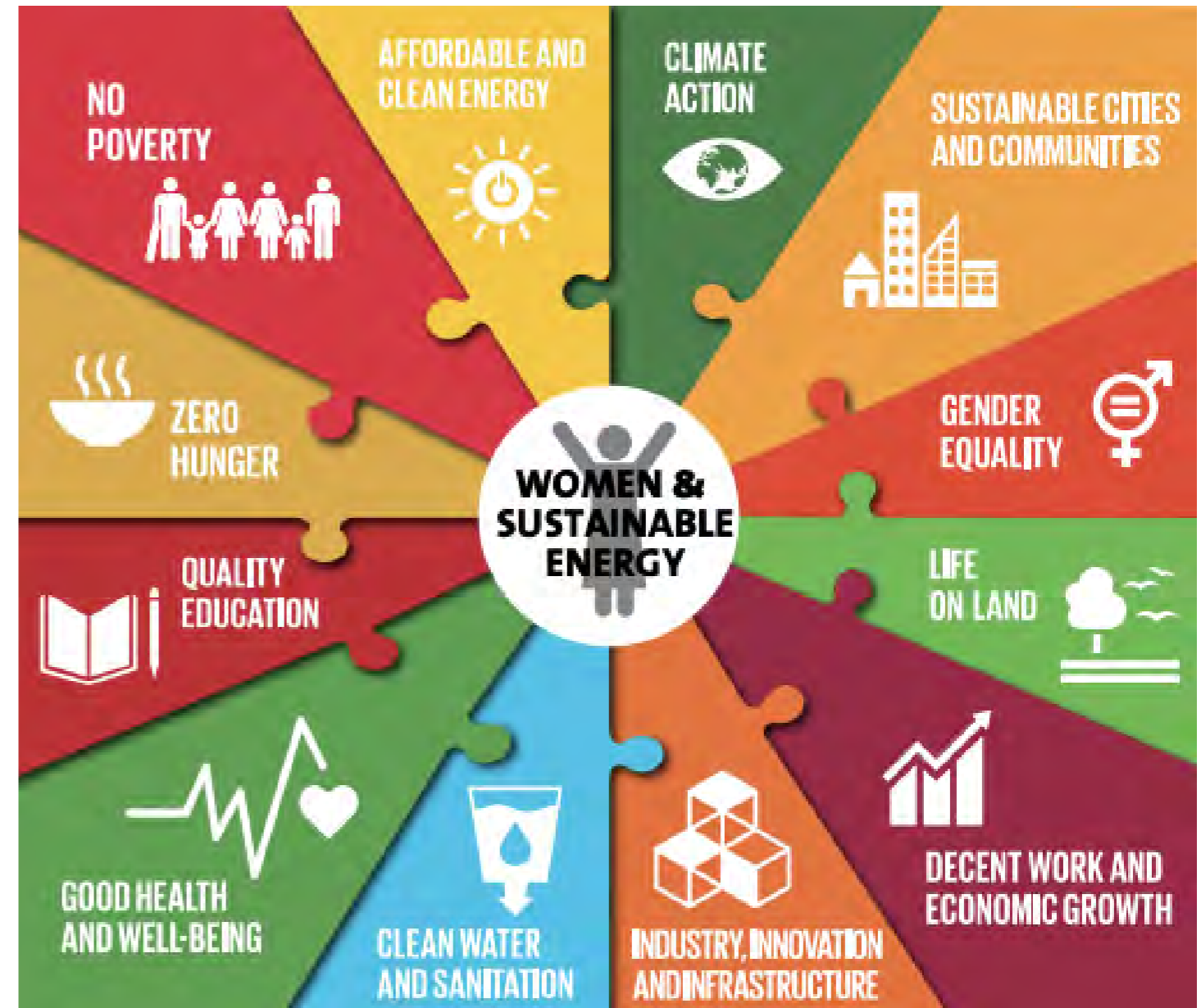
*High-impact South Asian countries: Afghanistan, Bangladesh, India, Nepal and Pakistan.

There are two leading definitions of the just transition:

- The idea that workers and communities whose livelihoods will be lost because of an intentional shift away from fossil fuel-related activities should receive support from the state.
- Justice and equity must form an integral part of the transition towards a low-carbon world with socioeconomic restructuring that addresses the roots of inequality. It emphasizes the importance of not continuing to sacrifice the well-being of vulnerable groups for the sake of advantaging others, as has been the norm in the fossil-fuel-driven economy (Pinker, 2020).

Energy justice adopts a bottom-up approach to increase energy access and access to newly created/emerging jobs and economic opportunities in sustainable energy while also contributing to poverty alleviation and livelihood improvement. This is done by understanding local contexts, linking income-generating activities and poverty alleviation, and inclusion of women (Tucho, 2019). Among the numerous approaches, energy justice underscores the need to consider social questions referring to access, affordability, distribution, or people's needs, which are inherent to energy politics, especially when addressing energy poverty (Muller et al, 2021). Energy justice thus seeks to identify and evaluate where injustice emerges, which affected sections of society are ignored, and which processes exist for their remediation to reveal and reduce such injustices (Jenkins et al, 2016).

Figure 3: Gender equality in sustainable energy – key to achieving the SDGs



Source: UN Women and UNEP (2015)

Supporting Participation of Women Informal Workers and Displaced People in a Gender-Just Energy Transition

Gender has a vast and complex influence on social interactions and relationships, opportunities, access and perceptions (GGGI, 2020a), as well as access to and control over resources and decision-making opportunities (UN Women, 2002). Gender is part of the broader sociocultural context (UN Women, 2002) and multiplies and intersects with other sociocultural criteria for social analysis such as social status, religion, ethnicity, age, sexual orientation and disability (UNIDO, 2021b). It refers to the relationships between women and men, the societal roles ascribed to women and men, respectively, and the often unconsciously held ideas of what is suitable for women and men in a particular societal context (UN Women, 2002).

Gender transformation accelerates gender equality by challenging and addressing unequal gender relations to ultimately promote shared power, control of resources, decision-making and support for women's empowerment (GGKP, 2022). A gender-transformative approach, therefore, not only focuses on the manifestations and symptoms of gender inequality (such as lack of access), but also tackles its root causes, such as sociocultural norms, discriminatory legal provisions and social systems (UNIDO, 2021b).

It is estimated that the global transition to renewable energy and the circular economy could generate over 100 million jobs by 2050 (OECD, 2021a). In 2019, there have been 11.5 million jobs in the renewable energy sector, with women accounting for 32% in contrast to 22% for the overall energy labour force (IRENA, 2020). As such, a just energy transition holds a significant role in bridging gendered gaps that have become systemized (UN, 2021b).

Energy poverty presents numerous barriers to achieving the global goals on sustainability and green growth, especially in the context of gender equality. Women in emerging economies are impacted by energy poverty in greater numbers than men, and as a result face many barriers to taking advantage of emerging opportunities that can help deliver energy access for marginalized populations (Pearl-Martinez, 2020).

The lack of access to modern energy services is a heavy burden on women and girls, as they are often the main household energy providers in many rural and urban settings and responsible for fetching water and cooking meals (GWNEN, 2019a). In considering these gendered allocations of labour, providing modern energy services will contribute to empowering women and enable them to take up remunerated economic activities, study, or rest for their own sake and for the benefit of their communities (Pind, 2018). A better understanding of various pathways for a just energy transition that absorbs women and men as active participants of the decarbonization process is required.

Green recovery and a gender-just energy transition

The COVID-19 pandemic has augmented pre-existing structural and experiential inequalities that women face in the energy sector. Pandemic measures have forced many businesses to close or severely restrict operations, leaving millions facing unemployment. Women working in the informal economy are overrepresented in sectors hardest hit by the crisis (42% compared to 32% of men) (UNIDO, 2020). Reactionary responses to the pandemic have largely been gender-blind worldwide; roughly one-third of COVID-19 responses being considered gender-sensitive (1,605 of 4,968 responses) with most of the measures targeting gender-based violence. According to the same review conducted by the United Nations Development Programme (UNDP) and UN Women on global gender responses to COVID-19, out of the 3,099 social protection and labour market measures adopted across 221 countries and territories, only 19.6% (606) measures address women's economic security or unpaid care (UNDP, 2021).

Roles in pandemic response planning and decision-making were also heavily male dominated – only 18 out of the 705 measures in the OECD's Green Recovery Database assessed for gender relevance and gender sensitivity (2.5%) are considered gender relevant; 13 of the gender-relevant measures

Gender-Just Energy Transition Framework

A framework for a gender-just energy transition ensures that the rights of disadvantaged groups are met by addressing the root causes of gender inequality within and along a gender-transformative transition to a resilient and sustainable global energy sector. As consumers, suppliers and distributors of energy, disadvantaged groups face barriers across the energy value chain, which in itself holds manifold implications for people of varying interests and needs. Such a framework would ensure that the projected and materialized benefits of the energy transition are distributed equitably and ultimately aim to strengthen the long-term participatory capacities of disadvantaged groups across the energy value chain.

Awareness-raising and introducing norms and regulatory measures promoting gender equality and enhancing transparency for equal representation of women and men across the sustainable energy value chain would also be required. No one is to be left behind in the shift from fossil fuel reliance, and a framework for a gender-just energy transition would bring together the interlinkages necessary in identifying entry points within and among the multiple dimensions of gender equality, the just transition and decarbonization.

are gender sensitive. These statistics correspond to finding from forthcoming research conducted by the GGGI and Vivid Economics, where 1.5% of all assessed GGGI member (developing) countries' recovery measures are specifically gender inclusive (GGGI, 2023).

Women leaders are calling for major opportunities to be included in COVID-19 recovery packages to address long-standing inequalities and promote women's empowerment in the energy sector (ENERGIA, 2020):

- Women and men should get equal opportunities to participate in and support the clean energy economy, as entrepreneurs and employees, and equal funding and investment for their businesses.
- The energy sector must mitigate gender-based vulnerabilities that have worsened with the pandemic, in healthcare, gender-based violence and the digital economy.
- Women need better energy access and suitable appliances to support their roles in the care economy; clean cooking is of special importance here.
- Women need to have a place at the table – or create their own tables – when strategies about energy transitions and post recovery strategies are planned and decided on. Recovery and stimulus plans that are gender-blind will be unable to achieve universal energy access.
- Women need leadership and participatory roles in designing risk-informed prevention and preparedness systems (UNEP and UN WOMEN, 2020a).

Despite growing traction for recovering sustainably, national agendas continue to facilitate carbon-intensive frameworks. As of 2021, green spending only constituted 21.5% of all global recovery spending (UNEMG, 2021). Countries have largely focused on the deployment of stimulus packages as part of their recovery plans. While these packages have included allocations for green recovery elements, such as investment in renewables or green technologies, there is little monitoring on whether these funds are properly embedded and the according climate conditionalities are met (OECD, 2021b). Moreover, a policy focus

on short-term stimulus risks exacerbating structural barriers marginalized groups encounter in accessing finance, resources and infrastructure.

To promote gender equality within the energy transition alongside the pandemic recovery, green recovery agendas will have to strengthen implementation of structural reforms that have long-term and impact-level implications. Structural measures would especially be pivotal in placing binding mechanisms and programmes for groups who are most vulnerable to disasters and/or lack access to appropriate services in preparing for future risks. In alignment with decarbonization commitments made through the Paris Agreement, reforms in fossil fuel subsidies and conditionalities should be accelerated through a just transition framework that prioritizes groups – such as informal workers – in national strategy and planning. This would, however, also have to include appropriate measures to ensure that fossil fuel-reliant communities and households are provided the necessary services to preclude unintended economic harm.

The International Monetary Fund (IMF) found that among developing countries, 92% of fossil fuel consumption subsidies were realized by the top four quintiles of society, and the resulting benefits were unevenly weighted to the top quintile as well (IISD, 2017a). In considering these inevitable yet entrenched hierarchies of socio-economic positionalities, phasing out coal would have to consider how productive resources are accessed, distributed, and utilized inclusively.

A move away from fossil fuels may not always guarantee inclusive growth, unless interventions ensure ensuing benefits are distributed equitably. Thorough feasibility studies would be necessary to carry out transition plans; for instance, while the United States has initiated clean energy job programmes, similar patterns of exclusion for women and black or African American workers that were found in the fossil fuel industry were perpetuated in clean energy (SEI, 2019). All aspects of recovery – from financial rescue packages, credit and unemployment benefits

to increased training for women in higher-skilled jobs – should be materialized for the transition to be inclusive and resilient (UNIDO, 2020).

The explicit targeting and embedding of gender dimensions will thus be necessary in national recovery plans as well as stimulus and structural packages. In response to the pandemic, the Hawai'i State Commission on the Status of Women developed a Feminist Economic Recovery Plan that identifies entry points for positing gender equality and Indigenous participation at the forefront of decision-making. The roadmap aims to implement green jobs for women (especially those in recovery from incarceration) in renewable energy, energy efficiency and construction jobs through stimulus programmes that promote equity for communities of colour, women and native Hawaiians. Pursuing an inclusive green recovery is pivotal in synergizing social dimensions such as protection mechanisms for informal workers, with green transition agendas in the energy sector.

Informal work sector in a just energy transition

Informal workers face higher levels of barriers to decent work and are more exposed to working poverty than those in formal employment. Globally, men are predominantly found working in the informal economy compared to women – 63% and 58%, respectively (OECD and ILO, 2019). Informal employment is characterized by low or lack of access to and coverage by social protection and labour rights, often poor and hazardous working conditions, and with low remuneration and productivity (ILO, 2017). Countries with larger informal sectors tend to have less access to finance for the private sector, lower labour productivity, slower physical and human capital accumulation, and smaller fiscal resources (World Bank, 2021).

In the Global South, women dominate the informal sector – around 92% of women in low-income countries are in informal employment, compared with 87% of men; in lower-middle

income countries, the proportions are 83% and 85% (ILO, 2018). The share of women in informal employment (55%) surpasses that of men in most of these countries (ILO, 2018).

A more discriminatory legal environment is associated with a greater probability that businesses led by women will commence operations in the informal sector (Hyland and Islam, 2021). International comparisons show that higher female presence in the informal sector is associated with, on average, larger gender gaps in education, fewer family planning needs being satisfied, and higher rates of early marriage (IMF, 2019). Women in the Global South face more barriers to entering formal employment due to their limited education levels compared to men. According to research, two-thirds of the world's illiterate population are women (UN Women, 2015).

There are a variety of workers or types of employment that workers might have in informal value chains and sectors in the just transition such as energy, waste or agriculture (Anderson and Fisher, 2022). Historical, social and cultural barriers have to be addressed in order to improve women's livelihoods in the energy sector (ENERGIA, 2019a). Transitioning women from the informal to the formal economy is hampered by their limited construction and engineering skills, occupational segregation by gender, and employer stereotyping (ESMAP, 2018).

Men are more likely to be targeted by, and benefit from, productive-use energy interventions. This is attributed to the typically smaller size of women-led businesses – smaller businesses are less attractive as clients for productive use interventions, as their electricity consumption is likely to be lower (ENERGIA, 2019a). Facilitating the transition of women into formal sector work requires better contextual understanding of how labour markets function, and of gender and wider constraints to these transitions (Hearle et al., 2019).

Informal settlements and displaced populations

Informal settlements are often concentrated in urban centres in low- and middle-income nations. Residents of such spaces work in the informal economy, and while they occupy a critical part of each country's economy, are often unable to access basic infrastructure and services (IIED, 2018). While definitions of informality vary in this context, internally displaced people and refugees also live in these urban areas as well as refugee camps. Limited long-term monitoring and evaluation of informal settlements and their positions within the gender-environment nexus pose challenges in implementing sustainable interventions for residents of informal spaces.

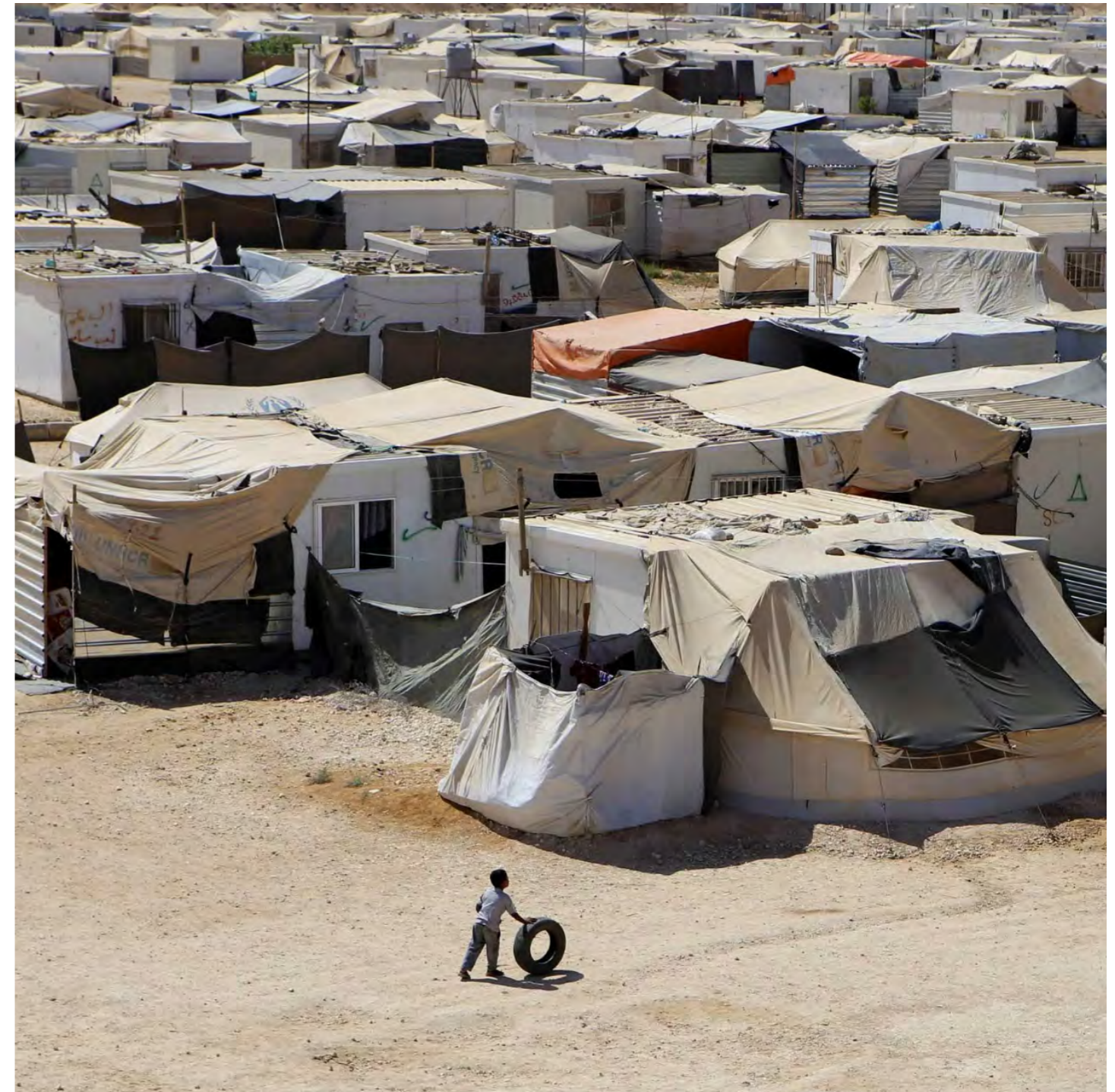
Energy practices in refugee camps are often unsafe and environmentally harmful. Humanitarian aid and interventions seek to address acute and immediate needs, and as such, long-term development issues like sustainable energy use are delayed in their implementation. Worldwide, 89% of refugees in camps lack access to adequate sources of energy and thus rely on firewood for cooking and heating (IISD, 2017b). As a result, the World Health Organization (WHO) estimates that over 3.8 million people – primarily women and children – die prematurely each year from illness attributable to indoor air pollution (WHO, 2021). Wood equalling around 49,000 football pitches worth of forest (64,700 acres) is burned by displaced families living in camps each year (EUEI PDF, 2017).

Despite challenges integrating climate measures within spaces that do not have “official” data, ensuring the well-being of residents and displaced populations is paramount for inducing a just transition. This also underscores the urgency for investment in advanced research in decentralized migration patterns and landscapes that can be made available to policymakers and practitioners.

In 2012, the United Nations High Commissioner for Refugees (UNHCR) and Electriciens Sans Frontières (ESF), with the assistance of a French manufacturing company, established an electrical network

in Zaatari Refugee Camp located in Jordan's Mafrq Governorate. The camp supports around 78,527 refugees; nearly 20% of who are under five years old and around 20% of the shelters are female-headed households (as of December 2018) (UNHCR, 2018). Solar streetlights with resistance to heat and extended durability were installed alongside the camp's pathways, specifically around the toilet and cooking facilities, where women and children were exposed to greater risk at night. The installations were able to contribute to reducing risks of sexual and gender-based violence as a result, enabling more community gatherings and activities as well (EUEI PDF, 2017).

Below: Zaatari Refugee Camp, Mafrq Governorate, Jordan.



Powering a Gender-Just Energy Transition



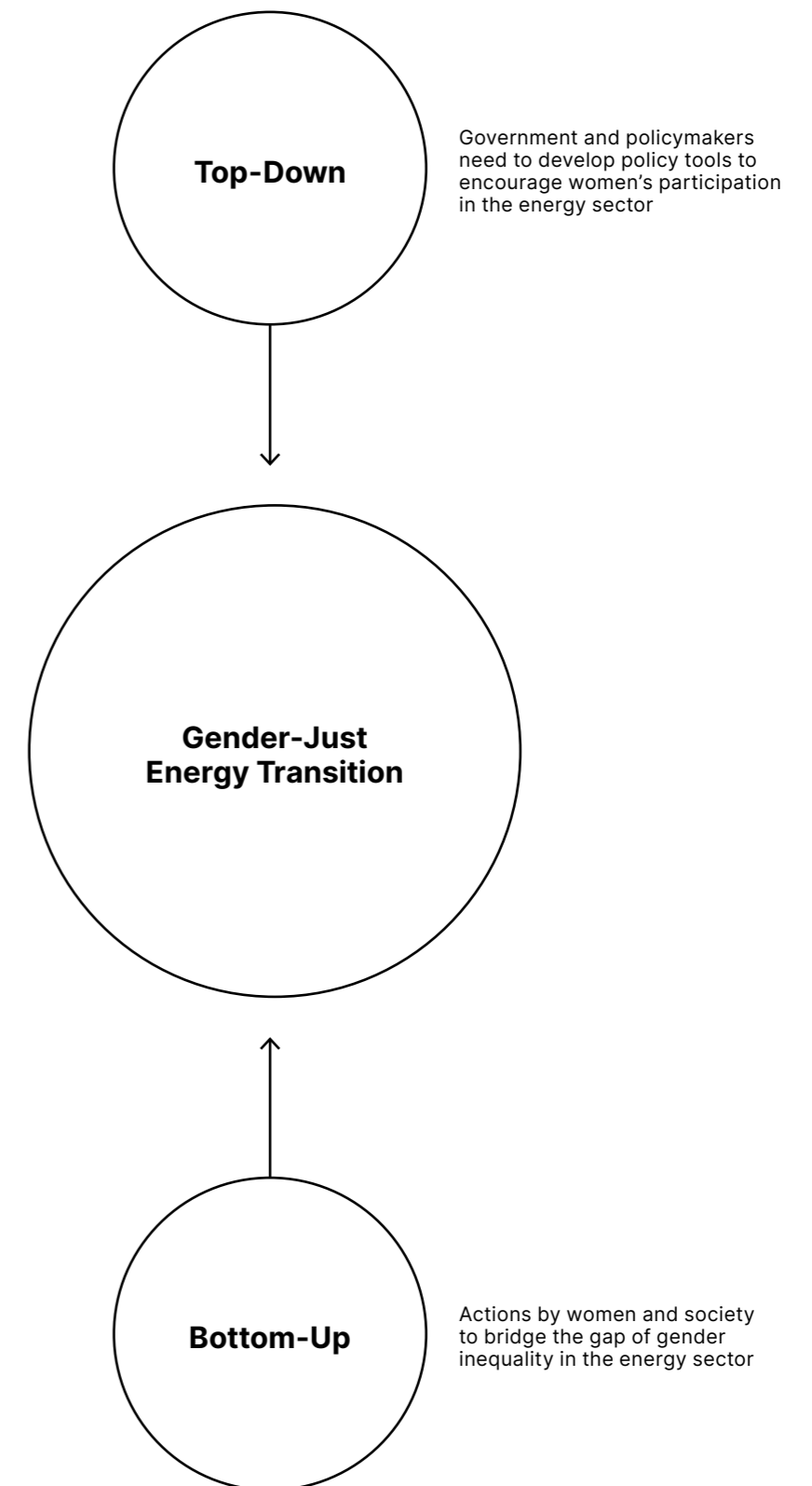
Gender and social equity are complex aspects of just transitions. As such, gender-responsive policies can help to address women's socioeconomic vulnerabilities and leverage their capacity to drive positive change (CIF, 2021). Shifting the energy sector mix can lead to new economic opportunities and strengthened livelihoods for women and men, as well as improved health, safety and quality of life (Nelson and Kuriakose, 2017).

Women are usually at the household nexus of water, food and energy and they often have first-hand knowledge about challenges and potential solutions in these areas – they are the most convincing advocates for the solutions they need (Pind, 2018). By reducing the time and energy spent on laborious tasks such as agricultural activities, women

can gain additional control over savings and time for new income generation (EmPower, 2020b). Positive effects include health, safety, education and a community's resilience to climate shocks (Wallgren, 2019).

Global employment in renewable energy was estimated at 12 million in 2020, with a third (4 million workers) of the total renewable energy workforce found in the solar PV industry (IRENA, 2021). Women are ideally placed to lead and support the delivery of energy solutions, especially in view of their role as primary energy users and their social networks (IRENA, 2019). An estimated 32% of renewable energy jobs are held by women, but their participation varies widely depending on country and industry (IRENA, 2021).

Figure 2: Two-pronged complementary approach for a gender-just energy transition.



Source: Adapted from recommendations of UNECE (2022)

Gender transformative energy policy and regulation

An enabling regulatory environment is required to support a gender-just energy transition. Energy policies must address gender-differentiated energy needs, and control over and access to energy resources for equitable access to energy services between women and men (ENERGIA, 2019a). Regulators play a key role in the electricity sector, but generally are not familiar with gender issues and how their decisions may have gender impacts (ESMAP, 2018). When national energy policies and plans promote gender mainstreaming, this sets the tone for accountability to gender equality targets in the energy sector as a whole (EmPower, 2020a).

A study examining 192 national energy frameworks from 137 countries discovered only around one-third of the frameworks included gender considerations. Nearly all gender-responsive frameworks came from developing countries (especially in sub-Saharan Africa) and addressed issues such as time poverty, energy access, and women's health and wellbeing (Prebble and Rojas, 2017). Energy frameworks from developed countries – where access is not an issue – focused on encouraging opportunities for women in energy technology and innovation.

The Nationally Determined Contributions (NDCs) submitted by many countries included efforts to increase energy access for implementation of the Paris Agreement. The share of States Parties referring to gender in the new or updated NDCs compared with previous submissions has significantly increased, and the share of those considering gender as a cross-cutting issue has also risen. Gender is referenced in 85% of updated NDCs compared to 29% of previous submissions; and gender and women's empowerment is recognized as a crosscutting issue in 22% of updated NDCs. But few include participation of women in energy decision-making and in sustainable energy programmes and training (UNDP, 2016). Implementation of the Paris Agreement, and its Gender Action Plan for all parties, provides an important opportunity to step up

the existing commitments to the transition to clean sustainable energy to focus on ways to integrate gender into policies and strategies that align with the global call of sustainable development for all (EmPower, 2020a).

In the process of gender mainstreaming any sectoral policy, it is important to draw on international and national policies and frameworks for precedent and guidance (Nelson and Kuriakose, 2017). The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), for example, is one of the most widely ratified human rights treaties, with most countries in Asia-Pacific, Africa and Latin America being signatories to the convention. Specific references to equal access to electricity (and modern energy services in general should be subsumed as intended by the convention as well) can be found under Article 14 on Rural Women of the Convention, which speaks about the unique inequalities rural women face (UN Women, 1979).

Considering the intersectional nature of electrification, it should be linked to wider national programmes on agriculture, health, education and small business support to leverage synergies and capture benefits across areas. Gender-neutral policies and regulation will continue if women are not in decision-making processes.

Various programmes and initiatives provide best practice examples of energy frameworks that aim to promote gender equality at the level of policy and national planning:

[ECOWAS Policy for Gender Mainstreaming in Energy Access](#) aims to accelerate responses to the gendered experience of energy poverty for the region. The policy was an outcome of the ECOWAS Programme on Gender Mainstreaming in Energy Access (ECOWGEN). It is funded by the World Bank, African Development Bank, Power Africa, the Austrian and Spanish development agencies, and supported by UNIDO.

[Kenya Gender in Energy Policy](#) was launched on 1 November 2019 by the Kenyan Ministry of Energy to raise the level of gender

awareness, change attitudes and inculcate an engendered work culture among staff in the energy sector. This policy is the first such legislative instrument on the African continent.

[Gender Integration in Renewable Energy Policy – A guideline for renewable energy policy and decision makers](#) provides practical ways to step up commitments in renewable energy policy in an inclusive and gender responsive manner. It introduces and improves the integration of gender issues in renewable energy policies, plans and strategies. The guide was developed under the EmPower project, which is a partnership between UNEP and UN Women, and is funded by the Swedish International Development Cooperation Agency (SIDA). To further inform policymaking, EmPower is also engaging key ministries in its project countries to build capacity of policymakers on developing and implementing gender-responsive climate policies and plans and fostering greater collaboration and dialogue among government stakeholders and civil society.

[Multi-Stakeholder Gender and Energy Compact](#) was launched in September 2021 at the UN High Level Dialogue on Energy (HLDE), which convened over 50 signatories including eight champion governments, private sector, academia, civil society, youth and international organizations. The undersigning parties commit to supporting and accelerating action for two main goals: that women have equal opportunity to lead, participate in and benefit from a just, sustainable and inclusive energy transition; and that women have equal access to and control over sustainable energy products and services.

To date, some 200 energy compacts have been formulated by governments, companies and other organizations (UN, 2022a). One of them is the Gender and Energy Compact, which aims to support and accelerate action towards a just, inclusive and gender-equal energy transition. The Compact – initiated and sponsored by UNIDO, ENERGIA and GWNET – brings together governments, including the governments of Canada, the Dominican Republic, Ecuador, Iceland, Kenya, Nepal

and Sweden, as well as USAID/Power Africa and more than 60 public and private sector entities and NGOs. The compact builds on the conviction that we need to come together as diverse actors to achieve meaningful change and overcome the greatest challenges of our time, including the climate crisis and gender inequalities (UN, 2022b).

[Practical Guide on Women in Energy Regulation](#) – developed by the National Association of Regulatory Utility Commissioners (NARUC) with support from the United States Agency for International Development (USAID) – is a tool for regulators outlining best practices for policy and regulatory reforms to enhance the inclusion of women in the energy regulator workforce, as well as developing gender inclusive policy considerations.

[Promoting Gender Equality in the African Power Sector seminar](#) – hosted by the African Development Bank Group, in partnership with the French Development Agency (AFD), Association of Power Utilities of Africa and African Network of Centers of Excellence (ANCEE) – took place in October 2018. Participants, including 50 human resource directors from 50 power utility companies, shared best practices, raised awareness about the interlinkages between gender and the power sector, and moved towards a consensus on advocacy for reform, policy implementation and regulations to ensure gender-equal access to energy services, as well as ways to increase women's representation in the sector.

[Gender and Energy Advocacy programme](#) has been a cornerstone of ENERGIA's activities with the aim to influence governments, donors and decision makers to integrate gender-responsive approaches in energy policies. ENERGIA has assisted energy ministries, agencies and local authorities in 12 countries to review their policies, and institutional practices through a gender lens, in Nepal, Kenya, Nigeria, Ghana, Botswana, Senegal, Lesotho, Tanzania, Benin, Liberia, Bangladesh and India. ENERGIA advocacy strategies include: generating and analysing evidence (both academic and on-the-ground) on the

links between gender, energy and poverty and translate this evidence into recommendations for energy policy; conducting global and national campaigns to raise awareness on specific issues related to gender and energy; building strategic partnerships and convening events with like-minded networks in order to influence key stakeholders; and monitoring and follow-up activities to ensure policy is put into practice (ENERGIA, 2021).

[Global Women’s Network for the Energy Transition-led mentoring programmes](#) have benefitted more than 400 women from over 70 countries active in sustainable energy in various capacities and institutions. They include a knowledge transfer component and networking opportunities, including through the Women Expert in Energy Platform (WEEP) on which more than 2,500 women have self-registered by 2022. GWNET’s first study, *Women for Sustainable Energy – Strategies to Foster Women’s Talent for Transformational Change,* contains an overview of women’s current participation in the sustainable energy workforce in developed and emerging economies, benefits of diversity and inclusion in the workplace, industry interviews, good practice examples and recommendations for a more gender-diverse sector. GWNET also works on improving the availability and quality of gender disaggregated data by co-authoring sectoral studies (e.g. on women participation in wind or hydro-power). A GWNET study on the potential for greater participation of women in renewable energy in Central Asia is forthcoming.

Leadership, entrepreneurship and resilience for women in the energy transition

A just energy transition maximizes benefits derived from the manufacturing, deployment, installation and maintenance of renewable technologies for women and men on equal terms (GGGI, 2020c). The sector is currently going through a process of transformation; clean energy transitions will require innovative solutions, business models to be adopted and greater participation from a diverse talent pool (IEA, 2022a). The primary goals of energy distribution programmes and services are to distribute energy products or services to the greatest number of people while maintaining sufficient profits to stay in business – not create women’s businesses or reinforce the gender system (ENERGIA, 2019b).

Research conducted by ENERGIA found published literature on women’s energy entrepreneurship to be at a very early stage of development with a focus on informal, subsistence-level business activity in emerging economies, low levels of methodological rigor, absence of theory development, murky use of key constructs, absence of control groups for counterfactual analysis, and few significant quantitative findings outside of programme impact reports (Johns Hopkins University, 2019).

A study finds correlation between executive level diversity and value creation and profitability. The companies with higher gender diversity were 27% more likely to outperform in economic profit when juxtaposed to the national industry average (McKinsey & Company, 2018). Globally, if women equally participated in the economy, an additional \$28 trillion in GDP could be generated by 2025 (McKinsey & Company, 2018).

The gaps in global education systems should be addressed to encourage young women to view STEM careers as viable options. A career test for high school students recommended that a girl become a hairdresser, when changing the gender in the test, she was advised to become an electrician (GWNET, 2019b).

Participation and power both have a strong gender dimension – since gender relations are prone to cause power asymmetries between women and men and their unequal participation (Feenstra and Özerol, 2021). Women are under-represented in the energy industry workforce, in ministerial positions in the field of energy and are rarely considered as key stakeholders for energy initiatives (UNIDO, 2019).

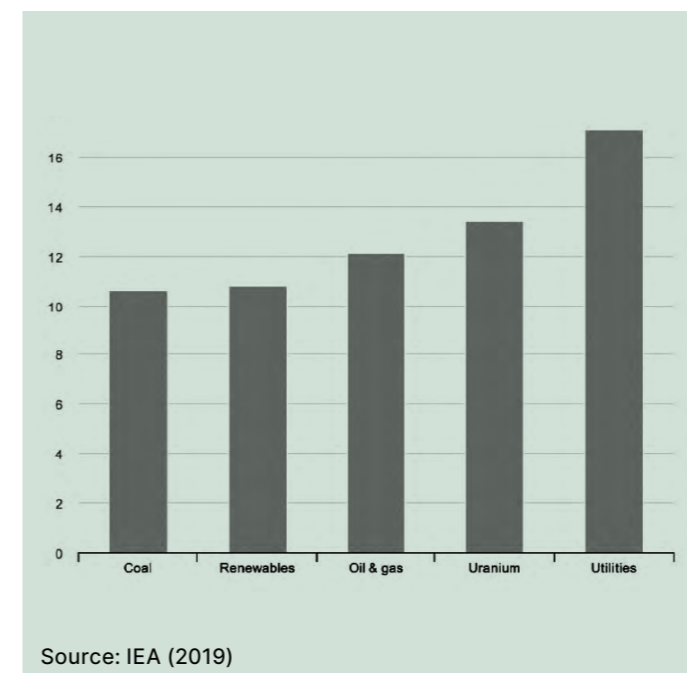
More women seem to work in technical positions and hold management positions in renewable companies, but the majority work in administrative positions (Baldinger, 2018). As highlighted by Figure 4, women are predominantly found in senior management roles at utility companies, interestingly their representation is very similar in coal and renewables. Despite making up 48% of the global labour force, women only account for 22% of the traditional energy sector (IEA, 2022a), and 32% in renewables (IRENA, 2019) – the numbers are even lower for management levels (Johns Hopkins University, 2019). The combined impact of women’s underrepresentation in STEM fields and their reduced access to knowledge and networks leads to unequal access to markets and procurement opportunities, especially early in the proof-of-concept and early market entry stages (UNIDO, 2021a).

The barriers women face in the energy transition are similar to those they face elsewhere in the economy. Investment in high-quality jobs in the care sectors – childcare, residential care and home healthcare – are necessary for equitable access to job opportunities in the clean energy sector; as a source of employment for those transitioning from the fossil fuel sectors; as green jobs themselves; and as a means to mitigate the inequities occurring as climate disasters hurt communities (Palladino and Gunn-Wright, 2021). The projects and programmes below showcase best practice examples of various organizations’ attempts at supporting leadership, entrepreneurship and resilience for women in the energy transition.

[EmPower Women for Climate Resilient Societies](#) is enabling women to use renewable energy as economic resources for resilient livelihoods in Cambodia, Viet Nam and Bangladesh. It works with various partners – public sector, private sector, civil society – by supporting policy, training and access to finance for female entrepreneurs and pilot renewable energy interventions that can augment their livelihoods and improve their lives. The programme is a partnership between UN Women and UNEP with the support of the Swedish International Development Cooperation Agency.

[ENERGIA Women Economic Empowerment programme](#) is enabling 8,000 women entrepreneurs to grow resilient renewable energy businesses and in productive use of energy in Kenya, Nepal, Nigeria, Senegal and Tanzania (ENERGIA, 2017). These entrepreneurs have created 6,000 jobs for other women and young people and have sold renewable energy products and services to 4 million people who previously did not have adequate and affordable energy services. The programme design mitigates the factors limiting women’s entrepreneurship that are manifold and intertwined and thus uses a comprehensive package, including capacity building on technical, managerial, marketing, leadership and empowerment aspects of energy businesses. An important part of the package is support from designated trained

Figure 4: Women in senior management roles by energy sector



business development services mentors who provide specific, customized and timely support to the entrepreneurs. The programme also facilitates access to capital for women entrepreneurs and supports partnership-building between various actors in renewable energy value chains supporting women-led renewable energy businesses.

[ENERGIA Gender Mainstreaming in Energy Programmes](#) aim to develop and implement gender action plans in the energy sector by working with more than 40 medium- and large-scale energy projects in Africa, Asia and the Pacific (including Sri Lanka, Nepal, India, the Philippines, Pakistan, Senegal, Botswana, Kenya, Tanzania, Uganda, Burkina Faso, Ethiopia, Zimbabwe, Cambodia and Mozambique) that have shown a commitment from management to a systematic process of gender mainstreaming. The actual development of the GAP plays an important part in taking mainstreaming gender approaches from being a one-off activity and embedding the approach into an organization's own practice. The ENERGIA publication "Mainstreaming Gender in Energy Projects: A Practical Handbook" describes developing a GAP as involving the need to: agree on a gender goal or objective; plan specific outcomes and activities to meet these gender goals; and design a monitoring and evaluation framework to track the performance of gender activities, including gender in project documents, such as logical frameworks and annual work plans.

[Global Cleantech Innovation Programme \(GCIP\) for small and medium-sized enterprises \(SMEs\)](#) implemented by UNIDO and funded by the Global Environment Facility (GEF) leverages the power of innovation and entrepreneurship to address the most pressing environmental challenges by empowering emerging cleantech start-ups and SMEs. GCIP promotes competition-based business acceleration for innovative cleantech SMEs, links enterprises to private sector investors and fosters enabling innovation and entrepreneurship ecosystems. A guiding principle of GCIP is that of equal opportunity for women and men to equally lead, participate in and benefit from GCIP

interventions. The programme strives to empower women entrepreneurs to develop products and services that support a greener future. Since 2013, GCIP has demonstrated higher levels of women's participation than other accelerator and incubator programmes, with approximately 25% of the 1,000 alumni being women-led enterprises.

[United Nations Economic and Social Commission for Western Asia \(ECSWA\) Regional Initiative for Promoting Small-Scale Renewable Energy Applications in Rural Areas of the Arab Region \(REGEND\)](#) aims to address energy poverty, water scarcity, vulnerability to climate change and other natural resource challenges by improving livelihoods, economic benefits, social inclusion and gender equality of rural Arab communities, in particular marginalized groups. Target countries of the Swedish International Development Cooperation Agency-funded project include Jordan, Lebanon and Tunisia. Gender equality and women's empowerment are a core part of programme activities and expected outputs and are considered a cross-cutting priority along the various phases of its implementation.

[ECOWAS Programme on Gender Mainstreaming in Energy Access \(ECOW-GEN\)](#) launched the Gender Responsive Investment Facility to promote gender-responsive investments and business development by transforming energy focused women-led business ideas into real, commercially viable enterprises. The facility provides technical and financial support to upscale the deployment of projects to promote gender equality and improve energy access in West Africa at the same time. It is meant to aid and contribute towards technology development and transfer, knowledge and skills acquisition, and establishment of sustainable energy businesses. Partners supporting the energy access facility include the Austrian Development Cooperation (ADC), Spanish Agency for International Development Cooperation (AECID), United States' National Renewable Energy Laboratory (NREL), United Nations Industrial Development Organization (UNIDO) and Climate Technology Centre and Network (CTCN).

[IFC Powered by Women](#) builds the business case for gender diversity for renewable energy companies. The programme promotes business growth, efficiency and enhanced sustainability by supporting the private sector to close gender gaps within their organization and the communities they work in. It assists member companies to achieve commitments in a range of different areas through access to relevant research, tools and resources. Powered by Women helps member companies with training and resources to put in place gender-smart workplace initiatives.

[E-Mujer, the Energy School for Women](#), is a pilot project in Peru funded by the Global Environment Facility (GEF) and implemented by the Peruvian Ministry of Energy and Mines and UNDP. The programme trains and builds capacity of rural women to use, install, maintain and commercialize clean energy systems. In Cusco and Cajamarca, women are mostly trained on improved cookstoves, while in Puno and Loreto, solar energy is mainly taught. The project's next phase will focus on supporting women to design and implement clean energy business models.

[Gender-Smart Community](#) consists of a network of financial advisers who focus on gender equality and the power of women making markets as well as have a commitment to issues such as the climate crisis, education, health, or human rights. These advisers act as agents of change to shape the behaviour of SMEs, start-ups and the ecosystem around them to make them more gender-responsive and gender balanced, hereby creating compelling investment opportunities and fuelling a just transition. Gender-smart businesses will be created to increase investment opportunities for investors that want to invest with a gender-lens in the gender-climate nexus in developing countries and fuelling a just transition. PFAN, GCIP and UNIDO are jointly developing an online gender-lens investing training, which is currently being launched (UNIDO, 2022).

[IFC Energy2Equal](#) works with large companies and small firms across sub-Saharan Africa to close gender gaps and increase women's participation in the renewable energy sector, which can help companies improve their business performance, foster innovation, attract more talent and engage better with communities. The Women in Renewable Energy in Africa (W-REA) aims to enhance women's participation in leadership and employment in the renewable energy sector through networking, mentoring, advocacy and leadership trainings. Programme partners include the Government of Canada, GWNET, SEforALL and Power Africa.

Generating and disseminating data and knowledge for gender-transformative renewable energy interventions

Building a strong research base on women's impact in clean energy initiatives is crucial to ensure informed decisions are made during planning and implementation. To pursue and achieve gender-transformative ambitions and evaluate impact-level outcomes – as well as the value-added of such evaluations – a foundational knowledge base will not only have to be available, but also accessible to precisely those that are in need of guidance and financial resources. A coordinated and comprehensive research base generates the evidence needed to gain long-term support and commitments from key stakeholders, including government, financiers, policy-makers, civil society, public institutions, private sector, consumers and the media (GWNET, 2018).

Underlying all key policy actions is the need for the generation, collection and use of sex-disaggregated quantitative and qualitative data that reflect all aspects of energy production, consumption and development impacts (UNIDO, 2019). Policymakers, researchers and relevant stakeholders need a better understanding of the gender-just energy transition nexus. There are clear gender differences relating to participation in clean energy technology research and development in academia and industry, as well as the nature of research undertaken (IEA, 2018).

Various programmes and initiatives provide best practice examples of energy interventions aimed at closing the gender data gap:

[EmPower Women for Climate Resilient Societies](#) supports the National Institutes of Statistics of Bangladesh, Viet Nam and Cambodia in the collection of sex, age, diversity disaggregated data to strengthen data systems, address bottlenecks, develop tools and guidelines, and building capacity among ministries to generate and use data for policymaking.

[The Pacific Energy Gender Network \(PEG\) Review on Gender Mainstreaming and Action Plans of the SIDS IUCN ORO Energy Projects – Managing the Ecosystems and Livelihood Implications of Energy Policies in the Pacific Island States – Palau, Samoa, Tonga, Tuvalu](#) aims to integrate gender-sensitive interventions into energy projects or gender mainstreaming. Funded by the International Union on Conservation of Nature Oceanic Regional Office (IUCN ORO) and ENERGIA, the research findings develop a common view on: gender-sensitive interventions within the energy sector(s); potential stakeholders and partners; and identified missed opportunities for gender mainstreaming in individual energy projects sub-sectors.

[IEA Gender-Diversity Initiative: Improving the Data to Find Policy Solutions](#) collects gender-related knowledge and data to develop policy recommendations supporting governments in their ambitions to improve gender-diversity in the energy sector. This includes collecting disaggregated gender and energy data related to areas such as employment, management, innovation and financing to track progress and release periodic updates to decision makers and developing policy recommendations for governments and industry.

[ENERGIA Gender and Energy Research Programme](#) works with nine teams of researchers in 12 countries. The research programme has built an evidence base to support informed policymaking to decrease gender inequalities in energy access and

benefits of energy access. It has contributed to the development of an evidence base for improving energy investment effectiveness by understanding and better addressing women's specific needs for modern energy services. The objective of the programme has been to generate and analyse empirical evidence on the links between gender, energy and poverty, and to inform policy and practice.

[Mozambique Women of Energy \(MWE\)](#) prepared a survey of women energy entrepreneurs in Mozambique's informal economy. The goal was to analyse the disproportionate number of women represented in the country's informal economy and identify possible solutions to transition them to the formal economy. Initial results found that more than 75% of respondents experience barriers transitioning to the formal economy due to limited information and guidance, financial constraints and resources, COVID-19 impacts, and unfair competition.



Ways Forward for a Gender-Just Energy Transition

Momentum is on the uptick regarding the gender-just energy transition, and opportunities need to be strategically seized when designing and implementing interventions. A gender-just energy transition would bring about changes that are multi-scalar, including shifts in practices, livelihoods and regimes aiming to preserve community interests through strengthened integration of women and community actors in governance structures. Addressing the root causes of gender inequality within and along the energy transition includes barriers faced by women as consumers, suppliers and distributors of energy. This would ensure that the projected benefits of the energy transition are equitably shared – with no one left behind in the shift from fossil fuel reliance.

There is a significant lack of financial support for gender-responsive energy initiatives. It is estimated that finance for energy projects with a gender equality objective holds only 2-11% share of total official development assistance (ODA) to the energy sector (SEforALL, 2020). This urgency for mobilization would be even more apparent when considering finance for stand-alone gender equality energy projects. Due to a lack of structured methodology for monitoring and evaluating outcomes of gender equality investment objectives in energy projects, potential donors often do not have enough tools or data to develop an investment plan for gender equality in energy transition (SEforALL, 2020). Provided the numerous challenges that emerge in the tangible implementation phases of a project, having a foundational point of reference for planning and strategizing would be critical to facilitate long-term impact in a gender-just energy transition.

However, positive trends are seen in markets towards renewable energy solutions at scale, which creates optimism for implementation of NDC mitigation targets focused on greenhouse gas emissions reduction. There is less evidence that finance is flowing towards the more complex and qualitative aspect of just transitions, and within that, gender-just transitions, which could effectively take advantage of the green transitions to create

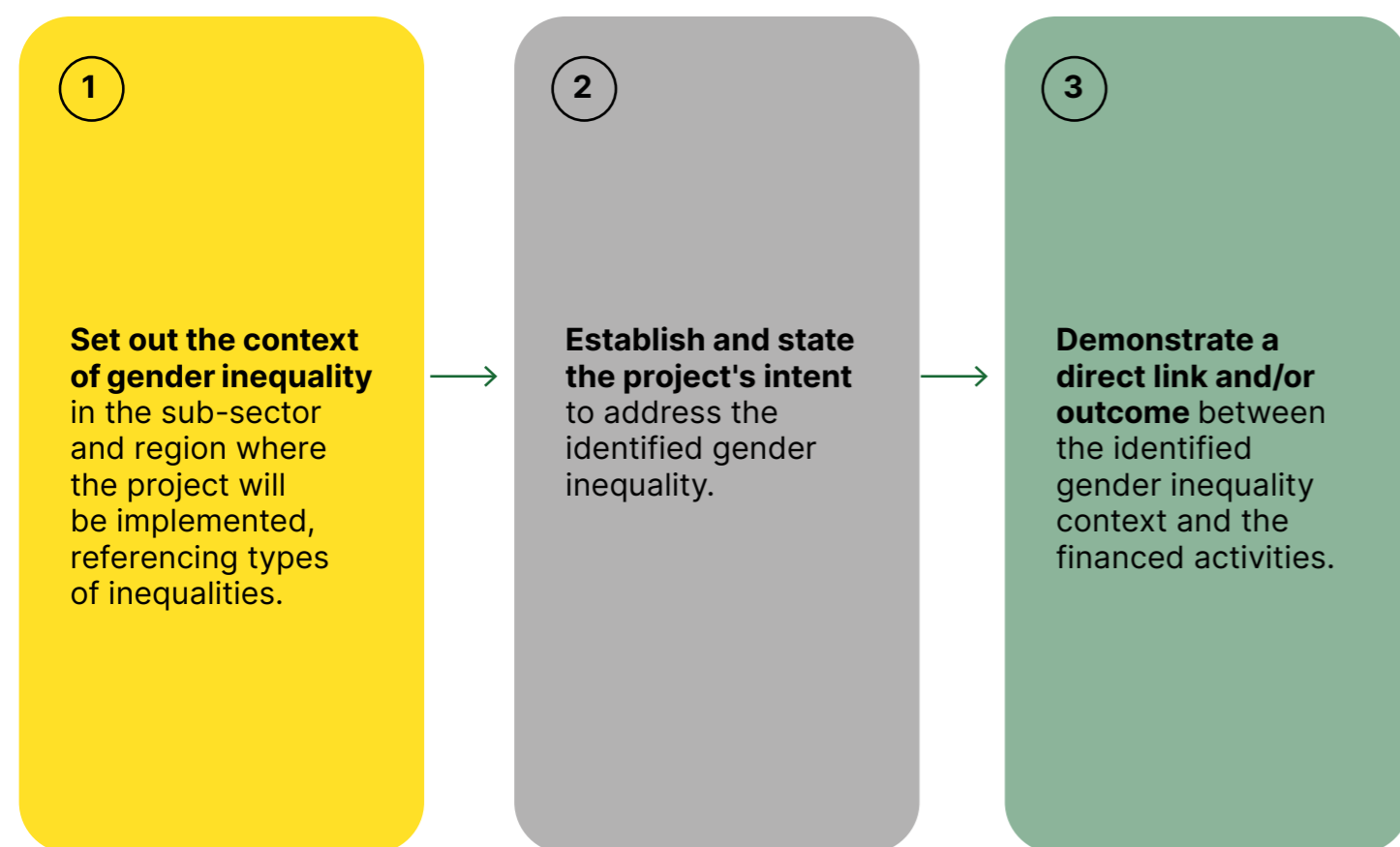
a more just and rights-based society and achieve the SDGs (GGKP, 2022). Inclusive climate financing for the energy transition can create opportunities to ensure that actions at the national and regional levels increase the participation of women and other disadvantaged groups at all stages of the programme lifecycle (WOW, 2021). To bridge the gaps in tracking and financing gender equality energy projects, SEforALL's three-step methodology delineates steps project implementers can take to scale financing of energy access projects with a gender equity objective (see opposite).

With an increasingly urgent demand for implementation and tangible actions, implementation has become a priority across various contexts for sustainable transitions. A linear treatment of implementation may in fact exacerbate existing conditions or engender unforeseen gendered risks and challenges – green growth does not necessarily imply brown growth divestment.

A study that evaluates the gendered implications of low-carbon technologies in traditional energy systems illustrates the importance of pre-empting and/or responding to the mixed consequences renewable energy projects often have. In the case studies reviewed for instance, the introduction of solar energy initially led to poverty reduction outcomes, but due to existing inequities in access to technologies and services and the unequal distribution of benefits, participants were burdened with deepened wealth gaps and debt (Johnson et al., 2020).

Certain projects may lead to long-term land loss, which would also manifest in other forms of vulnerabilities such as food insecurity and displacement. An examination of hydropower projects in Laos and Viet Nam reveals that the populations displaced as a result may resettle on lands that are unsuitable for cultivation, inducing them into informal labour like timber harvesting (Manorom, 2018). With severely limited options for sustaining their livelihoods, women may become more economically reliant, which also has significant implications of its own.

Figure 5: Methodology for financing gender-responsive energy access projects.



Source: SEforALL (2020)

Steps to consider for a gender-just energy transition:

- 1 Close the gender gap in the energy sector to contribute to improved economic opportunities for women in terms of access to the labour market and leadership roles.
- 2 Devise legal and policy tools that promote women and marginalized groups to participate in the decision-making process.
- 3 Improve gender responsiveness in climate, energy and disaster risk reduction policies.
- 4 Generate, analyse and disseminate sex, age and diversity disaggregated data to inform policy.
- 5 Combat gender-blind planning, financing, execution and implementation of projects, increase investment and implement programmes that integrate gender mainstreaming in a cross-cutting manner.

To hold gender transformation as a guiding roadmap for change, the implementation of renewable energy projects in a just energy transition would have to, by design, address complex dimensions of inequalities that take place after implementation has occurred. Gendered risks and their varying degrees should be pre-emptively assessed and embedded in strategies, so that long-term consequences are managed and monitored

in relation to the context-specific needs of all participants. This would include concrete analytical tools and legal frameworks that ensure benefits reaped are distributed and accessed equally. A just energy transition would bring about consequences that are multi-scalar; shifts in practices, livelihoods and regimes must aim to preserve community interests through strengthened integration of women and community actors in governance structures.

Partnerships are required for faster and gender-responsive access to sustainable energy. Good partnerships are necessary, including both local and international collaborations that help to expand scale and scope (IEA, 2019a). A strategic and sustainable development agenda requires inclusive partnerships built upon principles and values, and upon a shared vision and shared goals centering people and the environment. Multi-stakeholder partnerships will be crucial to leverage the interlinkages between the SDGs to enhance their effectiveness and impact and accelerate progress in achieving the goals (UN, 2020). Existing opportunities and processes should be leveraged to build political commitment in support of transformative financing for gender equality and women's rights (OECD, 2015).

Recommendations for gender-equality outcomes in just energy transitions

As a sectoral adaptation of Annex 3, the Gender-Just Energy Transition (GJET) Outcomes Framework (Annex 1) outlines a stepwise process to guide practitioners, policymakers, and relevant stakeholders in assessing the processes' gender equality ambitions. When applied, the Framework identifies gender equality outcome domains most relevant to the process, among those listed in Annex 2. The outcomes domains represent areas for potential opportunities to be integrated, scaled, or mitigated.

Founded upon the guidance of the GJET Outcomes Framework and proposed gender equality outcome domains, this paper puts forth a prototype of potential gender equality outcome categories as well as according examples to concretely apply the GJET Outcomes Framework. The *Gender Equality Outcomes for a Gender-Just Energy Transition* proposes specific arenas of gender equality along the value chain and recommends potential needs and action points to raise the level of ambition and strengthen the global renewable energy sector's impact for a transition to low-carbon and inclusive societies.

Shared knowledge and resources on how to promote and embed practical and tangible gender equality actions in energy transitions would ultimately provide grounds for long-term tracking and evaluation of stand-alone gender-equality projects in the renewable energy sector. Such an achievement would be fundamental in creating a knowledge base of best practices, toolkits and test cases to incentivize financial institutions, donors and relevant stakeholders in not only including gender-equality objectives, but actively promoting gender-transformative energy projects.

The gender and energy compact

To close the gender-energy gap for women and enhance gender equality and women's empowerment in energy, UNIDO, ENERGIA and GWNET, supported by the governments of Canada, Dominican Republic, Ecuador, Iceland, Kenya, Nepal, Sweden and the United States (PowerAfrica/USAID) have formed a coalition to catalyse action towards gender equality and women's empowerment to accelerate a just, inclusive and sustainable energy transition under the Gender and Energy Compact. This compact brings together eight governments and more than 60 stakeholders from the public and private sector, academia and civil society. Signatories are making commitments to reduce energy poverty, enhance gender responsiveness of energy policies, promote women's entrepreneurship, women in the energy workforce and their involvement in decision-making as well as knowledge generation and generation of gender-disaggregated data.

These commitments need to fit contexts according to the country or organization for optimal environments and opportunities for women in the just energy transition. Sustainable energy technologies hold enormous potential to catalyse a gender-just energy transition. The ways in which energy technology interplays with existing sociocultural, socioeconomic and institutional contexts will determine the outcome of the energy transition.

Gender Equality Outcomes for a Gender-Just Energy Transition*

Gender-Just Transition Outcome Domains	Gender-Just Energy Transition Outcome Domains	Implications for Gender-Just Energy Transition	Outcomes
Engagement and agency	Women leadership in the energy sector	Interventions to address women's underrepresentation in leadership and political roles at every level across the energy sector, especially in light of the growing evidence base of good performance in multiple aspects of leadership. ¹	<ul style="list-style-type: none"> • Increase in the number of women in senior political positions in relevant energy ministries, national agencies and relevant entities. • Increase in the number of women in managerial positions and proportion of women in senior and middle management positions in the energy sector.
	Partnerships for a gender-just energy transition	Inclusive partnerships at the global, regional, national and local levels for a gender-just energy transition encourages pooling of resources and avoiding working in silos.	<ul style="list-style-type: none"> • Government engagement with civil society, private sector and academia for gender-responsive interventions. • Creation of national and local communities of practice mobilizing stakeholders working in the gender-just energy transition. • Engage and sensitize men and other relevant groups for equal distribution of accountability.
Policy agenda	Green recovery	Recovery policies considering inevitable yet entrenched hierarchies of socioeconomic issues – how productive resources are inclusively accessed, distributed and utilised. Recovery policies/agendas that center gender equality outcomes in energy projects/policies.	<ul style="list-style-type: none"> • Social protection measures addressing women's unpaid care. • Labour market measures addressing women's economic security. • Meaningful participation of women in pandemic response planning and decision-making. • Gender-responsive stimulus packages with explicit indicators or targets.
	Improvements in gender-blind energy policies and strategies	Traditionally gender-blind - concretizing mechanisms and legal frameworks to ensure benefits reaped in the energy transition are distributed and accessed equally.	<ul style="list-style-type: none"> • Adoption and reformulation and implementation of gender-responsive energy policies and strategies. • Accountability measures in place to monitor implementation of gender-responsive policies and strategies. • Accountability measures in place to assess and manage immediate and long-term potential risks. • Existence of wider gender-specific goals or targets and pro-women social policies that can optimize performance and success. • Legal frameworks addressing barriers faced by women energy entrepreneurs in accessing finance, property and legal status. • Legal frameworks removing barriers to women's participation in the energy sector - revision of public procurement policies. • Gender-responsive policies for off-grid and mini-grid energy access solutions.
	Urbanization	Recognizing the role women play in urban settlements and addressing the gender gaps would lead to socioeconomic development of urban settlements.	<ul style="list-style-type: none"> • Reliable electricity and clean cooking access for women living in slums and peri-urban areas. • Mobile money and other digital innovations increasing access to off-grid and clean cooking solutions for women. • Affordable on-and-off grid energy solutions for women-led households and enterprises.
	Transport	Recognizing the needs and roles women play in (sustainable and green) transport and addressing the gender gaps would lead to more equitable access to safe transport.	<ul style="list-style-type: none"> • Access to sustainable, reliable, safe and suitable transport for women and girls, including those living in slums and peri-urban areas. • Digital innovations to make transport greener and safer for women and girls.

¹ IEA. 2022. Energy and Gender: A Critical Issue in Energy Sector Employment and Energy Access, https://www.iea.org/topics/energy-and-gender?utm_content=buffer0e8f5&utm_medium=social&utm_source=linkedin.com&utm_campaign=buffer.

Economic empowerment	Women's employment in the energy sector	Career advancement, decent and productive employment, enabling workplaces and decision-making power for women in the energy field to support their active participation in the energy transition.	<ul style="list-style-type: none"> • Existence of education policies encouraging girls to enter the STEM field. • Creation of employment policies to make the STEM sector a viable option for women – maternity and paternity leave, flexitime, equal pay. • Mentoring networks to support women's leadership. • Equal opportunity policies providing a level playing field. • Revision of outdated legislation barring women working in certain sectors. • Increased number of women in the energy industry workforce (technical and managerial) and ministerial positions.
	Women energy entrepreneurs	Interventions addressing women's unique needs and challenges and supporting their interests and engagement as active participants and innovators in society and the economy. This will remove barriers women entrepreneurs face in maintaining and scaling their businesses.	<ul style="list-style-type: none"> • Increased access of women-owned and -led businesses to productive resources. • Increased access to finance for women-owned and women-led businesses (gender-lens investing). • Increased access to entrepreneurship and business development services for women-owned and women-led businesses. • Increased access to coaches, mentors and networks for women-owned and women-led businesses. • Interventions supporting women's transition from the informal to the formal sector. • Labor market interventions addressing barriers faced by women entrepreneurs. • Enhanced utilization of gender responsive procurement practices.
Structural enablers	Financing a gender-just energy transition	Significant financing is required to strengthen knowledge and capacity and support design, implementation and monitoring of gender-just energy interventions.	<ul style="list-style-type: none"> • Available and targeted funding for a gender-just energy transition – local and national. • Available and targeted funding from development partners for a gender-just energy transition. • Financing actions eliminating barriers faced by women entrepreneurs in accessing energy supply chains. • Gender lens investing, gender responsive procurement, etc.
	Data and knowledge for a gender-just energy transition	A strong research base on women's impact in clean energy initiatives will lead to informed decision-making during planning, financing and implementation of energy transition interventions.	<ul style="list-style-type: none"> • Generation and accessibility of high-quality knowledge, mechanisms, tools and sex-disaggregated data reflecting all aspects of energy production, consumption and development impacts. • Generation and accessibility of long-term monitoring of projects throughout entire project cycle to produce impact-level evaluations. • Gender-responsive research and development investments in climate change, disaster risk reduction, human rights.

* Using data from: Gender and Energy Compact, IADB. 2019. Gender and Energy: The Balance of Power. https://publications.iadb.org/publications/english/document/Gender_and_Energy_the_balance_of_power_en.pdf; ENERGIA. 2019. Gender in the Transition to Sustainable Energy for All: From Evidence to Inclusive Policies, https://energia.org/assets/2019/04/Gender-in-the-transition-to-sustainable-energy-for-all-From-evidence-to-inclusive-policies_FINAL.pdf; GWNET. 2019. Women in Clean Energy: Knowledge, Gaps and Opportunities https://www.globalwomensnet.org/wp-content/uploads/2019/02/C3E_Pamphlet_WEB.pdf. IEA. 2019. Seven Women Entrepreneurs of Solar Energy, <https://www.iea.org/reports/seven-women-entrepreneurs-of-solar-energy>; Pearl-Martinez. 2020. Global Trends Impacting Gender Equality in Energy Access. Gender and Energy: Opportunities for All, https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/15115/IDSB51.1_10.190881968-2020.100.pdf?sequence=1&isAllowed=y.

Annex 1: Gender-Just Energy Transition Outcomes Framework

Step I. Characterization of the just transition process

	Criteria	Response
Set ambition & purpose • Inclusive sustainable development • Decolonize economic development • Economic system change	<ul style="list-style-type: none"> What is the range of ambition/purpose that best describes the current energy transition process? To what extent is the process an explicit part of purpose level statements for energy transitions? 	
Sectorial focus • Formal sectors only • Formalization addressed • Inclusive of informal sectors	<ul style="list-style-type: none"> Do the energy sector transitions only focus on formal sectors? Do the process include activities towards formalization of informal actors, organizations, etc.? Are informal sectors included in energy transition strategies? If so, how are they engaged and included? 	
Scale • Project/local • Sector/sub-national • System/economy-wide	<ul style="list-style-type: none"> What is the range of scales of the gender-just energy transition process? Will the scale change over the duration of the process (out-scaling, up-scaling)? If so, how? 	
Timescale • Immediate • Medium term • Transformative	<ul style="list-style-type: none"> Over what timeframe will the process operate? At what stage will outcomes be identified and assessed? 	
Funding and resources • Fully resourced • Partly resourced • Pending resources	<ul style="list-style-type: none"> Does the process have sufficient resources to be able to carry out the activities toward gender equality outcomes? 	

Step II. Set gender equality ambition level

	Criteria	Response
Gender sensitive	Does the process acknowledge but not address gender inequalities? How does it do this?	
Gender responsive	Does the process acknowledge, consider and address women's and men's specific needs? If so, how does it do this?	
Gender transformative	Does the process address the causes of gender-based inequalities and does it work to transform harmful gender roles, norms and power relations? If so, how does it do this?	

Step III. Choose relevant outcome domains and timeframes

	Criteria	Response
Outcome domains	In which domains does the energy transition process seek to achieve gender equality outcomes (i.e. improvements in gender equality)?	
Timeframes	Over what timescale does the process seek to achieve the gender equality outcomes?	

Step IV. Identify focus areas for understanding changes in gender equality

	Criteria	Response
Most relevant outcomes domains	Of the outcome domains identified in Step III, which are most indicative of the energy transition process's achievements on gender equality?	
Focus areas within outcomes domains	What are the key aspects within the prioritized outcomes domains that are important to understand changes in gender equality?	

Annex 2: Gender-Just Energy Transition Outcomes Domains Examples

Gender-Just Energy Transition Outcomes Domains Examples

Domains of outcome	Immediate	Medium term	Transformative
Engagement and agency	Women in informal sectors participate in diagnostics and design of energy transition.	Lived experience of women affected by energy transition prioritized in reviews and evaluations.	Social norms and gender discrimination no longer barriers to engagement and agency in energy transition.
Policy agenda	<ul style="list-style-type: none"> Gender equality included as policy objective of energy transition. Formalization supports women. 	<ul style="list-style-type: none"> Regional approach to employment and agenda. Impact of growth vs de-growth on women assessed. Women able to choose to formalize or not. 	Policy agenda include international dimensions of GNDs and lifecycles of sectors.
Centering care	Recognized as crucial to the equity of energy transition.	Modalities for shifting burden of care and rewarding activities incorporated into energy transition strategies.	Genuine redistribution of resources and recognition of the value created.
Local environment	Women's stewardship of natural resources the basis for energy transition strategies.	Negative impacts of relationship between nature and society on women recognized.	Energy transition regenerates natural environments and women's stewardship incorporated.
Economic empowerment	<ul style="list-style-type: none"> What types of informal workers are affected by the energy transition and in what ways? How is the relationship between the formal and the informal sector understood and how does this affect women? 	<ul style="list-style-type: none"> Formalized into economy with attention to specific gendered needs. To what extent do women benefit from the skills development and productivity support for renewable energy enterprise? 	Women get equal economic security and empowerment.
Safety nets	<ul style="list-style-type: none"> Equal access to benefits/entitlements. Adequate responses to gender-specific needs. 	Social protection measures support different groups of women equally.	Social protection minimizes risks to women of being part of energy transition.
Collective action	Building inclusive coalitions for designing energy transition.	Enhanced women's and girls' empowerment.	Able to work together to challenge institutional barriers.
Norms and discrimination	Extent to which social and cultural norms support/inhibit better working conditions and roles for women known.	Improved psychosocial well-being and greater protection afforded through enhanced voice and agency for women.	Norms promote gender equality and discrimination abandoned.
Structural enablers	Women have access to the assets they need to benefit from energy transition (i.e. land, financial systems).	Women get greater economic security and empowerment.	Green economies provide the structures and institutions for gender equality.

The table above proposes a framework for ensuring that the projected benefits of the energy transition are equitably shared and no one is left behind in the shift from fossil fuel reliance.

Annex 3: Gender-Just Transition Outcomes Framework

Step I. Characterization of the just transition process

	Criteria	Response
Set ambition & purpose <ul style="list-style-type: none"> Inclusive sustainable development Decolonize economic development Economic system change 	<ul style="list-style-type: none"> Which ambition/purpose describes best the process you are considering? Is this ambition explicit in the purpose level statements? 	
Sectorial focus <ul style="list-style-type: none"> Formal sectors only Formalisation addressed Inclusive of informal sectors 	<ul style="list-style-type: none"> Does the process only focus on formal sectors? Does the process include activities toward formalization of informal actors, organizations, etc.? Are informal sectors included in the transition strategies? If so, how are they engaged and included? 	
Scale <ul style="list-style-type: none"> Project/local Sector/sub-national System/economy-wide 	<ul style="list-style-type: none"> What is the scale of the process? Will the scale change over the duration of the process (out-scaling, up-scaling)? If so, how? 	
Timescale <ul style="list-style-type: none"> Immediate Medium term Transformative 	<ul style="list-style-type: none"> Over what timeframe will the process operate? At what stage will outcomes be identified and assessed? 	
Funding and resources <ul style="list-style-type: none"> Fully resourced Partly resourced Pending resources 	Does the process have sufficient resources to be able to carry out the activities toward gender equality outcomes?	

Step II. Set gender equality ambition level

	Criteria	Response
Gender sensitive	Does the process acknowledge but not address gender inequalities? How does it do this?	
Gender responsive	Does the process acknowledge, consider and address women's and men's specific needs? If so, how does it do this?	
Gender transformative	Does the process address the causes of gender-based inequalities and does it work to transform harmful gender roles, norms and power relations? If so, how does it do this?	

Step III. Choose relevant outcome domains and timeframes

	Criteria	Response
Outcome domains	In which domains do the just transition process seek to achieve gender equality outcomes (i.e. improvements in gender equality)?	
Timeframes	Over what timescale does the process seek to achieve the gender equality outcomes?	

Step IV. Identify focus areas for understanding changes in gender equality

	Criteria	Response
Most relevant outcomes domains	Of the outcome domains identified in Step III, which are most indicative of the just transition process's achievements on gender equality?	
Focus areas within outcomes domains	What are the key aspects within the prioritized outcomes domains that are important to understand changes in gender equality?	



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