



Irene Giner-Reichl and Maria van Veldhuizen

# Europe's Energy Transition: Women's Power in Solving the Labour Bottleneck

Employment Opportunities and Requirements  
for Low-carbon Job Markets

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### About the authors

**Irene Giner-Reichl** is a former Austrian Director General at the UN Industrial Development Organisation (UNIDO) and Ambassador to China and Brazil. She has a longtime interest in energy and sustainability and, as a co-founder of the Global Women's Network for the Energy Transition (GWNENET), advocates passionately for the inclusion of women in energy transitions.

**Maria van Veldhuizen** is a project manager at the Global Women's Network for the Energy Transition (GWNENET). As a consultant, she supports governments, international organisations and NGOs in the development of climate change and just energy transition strategies.

Further information on GWNENET can be found here:

<https://www.globalwomennet.org/>

### Responsible for this publication

**Claudia Detsch** is the Director of FES Just Climate. Previously, she was editor-in-chief of the IPG Journal in Berlin and editor of the Buenos Aires-based journal Nueva Sociedad. From 2008 to 2012, she headed the FES office in Ecuador and the Foundation's regional energy and climate project in Latin America. She is a sociologist and studied in Hamburg and Barcelona.

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## EXECUTIVE SUMMARY

This paper outlines the **opportunities and challenges** for increasing the participation of women in the energy sector within the European Union and in selected Eastern Neighbourhood countries.

Globally, the energy sector is characterised by a **severe under-representation of women** at all levels, but most markedly in STEM professions and at leadership levels. This is due to a range of barriers, which all are based on pervasive and often unconscious gender bias and the ensuing systemic discrimination of women.

This paper argues that bringing **more women into the energy sector** is necessary to ensure the required momentum and acceptance of energy transitions, since energy transitions are deep societal transformations that demand the mobilisation of all available talent. Forecasts project that **energy transitions will create numerous new jobs**, not only where traditional energy jobs are lost, but also in other regions and new fields. To prevent that **skills shortages delay the transition**, a major effort is required to map the skills needed and offer commensurate training – especially to women and young people who are not currently employed in the sector.

In addition to merely filling projected skills gaps, **the energy sector generally will benefit at large from greater participation of women**; gender diversity in companies has been linked to enhanced financial and environmental sustainability, and ultimately higher profits. Companies that offer accommodations to allow women to balance work and home life also become more attractive places to work for men. Finally, women should be empowered to play key roles in the energy sector, because they have the right to benefit from the energy transition in equal measure to men.

To provide an **additional Eastern Neighbourhood perspective**, this paper explores the situation of women in the energy sectors of Georgia, Moldova, and Ukraine. For this purpose, interviews were conducted with experts and stakeholders from the region. It finds that widespread sector-specific gender stereotypes and societal expectations about female responsibilities in the home have largely kept women out of the sustainable energy sector, though the lack of disaggregated data makes it difficult to get an accurate overview. All three case-study countries face a renewed imperative to accelerate the energy transition given the current en-

ergy crisis caused by the Russian invasion of Ukraine; however, opportunities to build a climate-neutral energy system while promoting gender equality could be seized more systematically.

This paper also looks at **opportunities within the EU** resulting from the major policy initiatives of the European Green Deal and subsequent decisions to phase out imports of Russian oil and gas. It finds that the Green Deal, the EU Council Recommendations on Ensuring a Fair Transition towards Climate Neutrality, and the REPowerEU Plan contain few explicit references to the need to enhance women's participation in sustainable energy. This deficit is further explored by reviewing a dedicated study commissioned by the European Parliament. Its conclusions lead to a final section with **recommendations** addressed to key stakeholders.

## 1

## INTRODUCTION

The energy sector workforce worldwide is characterised by a greater gender gap than most other sectors. As stated in the report “Renewable Energy: A Gender Perspective” by the International Renewable Energy Agency (IRENA)<sup>1</sup>, **the energy industry is far from gender-balanced**, with only 22% women in the oil and gas sector workforce, and 32% in the renewable-energy workforce globally. According to Ernst & Young’s Women in Power and Utilities Index, only 5% of board executives and 16% of board members of the top 200 utilities globally are women.

In the Global Roadmap for Accelerated SDG7 (on sustainable energy for all) Action in Support of the 2030 Agenda for Sustainable Development and the Paris Agreement on Climate Change, published in early November 2021,<sup>2</sup> UN Secretary-General Guterres emphasises that “**gender equality and women’s empowerment must be prioritised**, including empowering women in the design, production and distribution of modern energy services, including for productive uses, as well as equal representation of women in decision-making processes in the area of energy”. **The Gender and Energy Compact**<sup>3</sup> is an attempt by more than 70 multi-stakeholder parties to raise the ambition and improve equality between women and men in five key areas, ranging from energy poverty to women entrepreneurship.

The imperative to integrate women more equally in the energy sector derives not only from human rights considerations and the UN 2030 Agenda principle to “leave no-one behind”; it is heightened by the need to embark on transitions to low-carbon energy systems that are compatible with climate goals. The geopolitical context – dramatically changed since February 2022 when Russia invaded Ukraine and the EU responded with an unprecedented package of sanctions – further increases the urgency to speed up the energy transitions. Shortages in the labour force and lack of skills needed are severe obstacles to the speed and depth required in the energy transformations. **Integrating more women into the sustainable energy sector is an excellent option to address these shortages.**

This report investigates the situation in the EU, as well as in selected Eastern Neighbourhood countries where the EU has an interest in seeing the acceleration of energy transitions and is in a position to contribute towards steering such transitions. It also provides recommendations for more ambitious action.

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<sup>1</sup> IRENA, Renewable Energy: A Gender Perspective (2019).

<sup>2</sup> United Nations (2021). Global Roadmap for Accelerated SDG7 Action in Support of the 2030 Agenda for Sustainable Development and the Paris Agreement on Climate Change. [https://www.un.org/sites/un2.un.org/files/2021/11/hlde\\_outcome\\_-\\_sdg7\\_global\\_roadmap.pdf](https://www.un.org/sites/un2.un.org/files/2021/11/hlde_outcome_-_sdg7_global_roadmap.pdf)

<sup>3</sup> <https://genderenergycompact.org/>

# 2

## LABOUR MARKETS IN TRANSITION: SKILLS, WORKERS, AND GENDER GAPS

One of the most widely touted projected benefits of the energy transition, besides its contribution to climate change mitigation, is the **creation of millions of high-quality jobs** worldwide. However, this benefit can also be a risk, if the skilled workforce to fill those positions is not available. In Europe, this **lack of skills** for the energy transition is now viewed as a **bottleneck** in the development of the sector, a barrier to investment and “one of the most serious concerns” of the industry.<sup>4</sup>

### 2.1 SKILLS REQUIRED FOR THE ENERGY TRANSITION AND PROJECTED GAPS

IRENA anticipates that the global renewable-energy workforce will grow from 12 million today to about 42 million in 2050.<sup>5</sup> Estimates of the number of positions to be filled in Europe vary: EU legislators and industry estimate **1.5 mil-**

**lion people** will need to be trained;<sup>6</sup> SolarPower Europe states that the REPowerEU package adopted in 2022 to wean the EU off Russian fossil fuels will create **over 500,000 jobs in the solar sector** alone by 2030.<sup>7</sup> IRENA has estimated that the European geothermal sector may grow eightfold between 2020 and 2050, which would create hundreds of thousands of jobs. The skills required for geothermal energy generation are available, but largely tied up in the oil and gas sectors; expansion in this sector could therefore ensure continued employment of fossil fuel workers.<sup>8</sup> However, it should be noted that the traditional energy sector also struggles with a lack of skilled workers and an aging workforce. In the United Kingdom (UK), 20% of people currently in the oil and gas sector will have retired by 2030.<sup>9</sup> More detailed job creation figures per subsector can be found in the table below.

4 Clean Energy Industrial Forum (2022). Joint Declaration on Skills in the Clean Energy Sector, p. 2.  
 5 IRENA, Renewable Energy and Jobs – Annual Review 2021, October 2021. See also subsequent editions.

6 Ibidem.  
 7 SolarPower Europe (2022). EU Solar Jobs Report 2022.  
 8 Taylor, K. (2021). Industry: Geothermal energy requires European policy solutions. *Euractiv*. <https://www.euractiv.com/section/energy/interview/industry-geothermal-energy-requires-european-policy-solutions/>  
 9 PWC (2022). The Energy Transition and Jobs: Can people transition to new green jobs?

Table 1  
**Job creation projections for the EU in different sectors relevant to the energy transition**

Sector	Current jobs	Job projections	Recruitment needs	Source
<b>Solar PV</b>	357,000 (2020)	584,000 (2025) 1.1 million (2030)	227,000 (2025) 644,000 (2030)	EU
<b>Wind</b>	300,000 (2022)	450,000 (2030)	150,000 (2030)	Wind Europe
<b>Hydropower</b>	80,000 (2016)	107,000–116,000 (2030)	27,000–36,000 (2030)	Statkraft
<b>Biogas and biomethane</b>	210,000	420,000 (2030) > 1 million (2050)	210,000 (2030) > 790,000 (2050)	European Biogas Association
<b>Geothermal</b>	60,000 (2021)	480,000 (2050)	420,000 (2050)	IRENA 1/2
<b>Heat pumps</b>	117,000 (2023)	500,000 (2030)	387,000 (2030)	European Heat Pump Association
<b>Retrofitting</b>	Unknown (part of construction sector)	160,000 additional jobs in the construction sector (2030)	160,000 (2030)	EU

Note: comparability of data is limited as some projections are based on current trends and others on EU commitments. In addition, there may be overlap between e.g. heat pump installers and retrofitting experts.

The skills required in a renewables-based energy sector are varied. European countries will not only need to train more electricians and engineers, but also, civil servants who specialise in renewable energy permitting.<sup>10</sup> In addition, **significant reskilling will be required in the construction sector** for energy efficiency retrofitting, energy auditing, renewable-energy installation design and installation, and the application of circularity principles. The sector struggles to attract young talent but could promote its crucial role in the energy transition to attract more workers.<sup>11</sup>

Addressing these skills gaps is clearly a significant challenge, but it also presents a **major opportunity** to create an energy workforce that is more diverse. A study in the UK found that both women and men wanted jobs with “environmental purpose”: “More than eight in 10 women and seven in 10 men say they want to play a role in tackling climate change.”<sup>12</sup>

When planning the transformation of labour markets, it is crucial to engage with workers’ representatives, usually unions, as well as with employers’ representatives. In the context of IRENA’s Coalition for Action, a dedicated multi-stake-

holder Sustainable Energy Jobs Platform<sup>13</sup> has held several consultations with representatives of labour unions and employers’ organisations as it attempts to promote the concept of “just transitions”. In a just transition, benefits are shared widely and equitably, and burdens of adjustment are minimised. A key challenge is to **create decent jobs in a low-carbon economy while protecting workers moving out of fossil fuel industries**. Looking at issues from a gender perspective, it is imperative to avoid carrying forward current misalignments, such as the lack of diversity in the energy sector. A particular effort should be made to reach out to women and other groups that are currently under-represented in consultation processes, so that they get a real chance to contribute to the emerging low-carbon energy sector, which in turn will benefit hugely from the opportunity to draw on all available talent.

## 2.2 WOMEN’S PARTICIPATION IN THE EU (ENERGY) WORKFORCE

While female participation in the current labour force is above 45% on average in the EU, there is a **significant disparity** when it comes to **leadership positions** – managers, board members, executives, and CEOs – as can be seen in Figure 1, below.

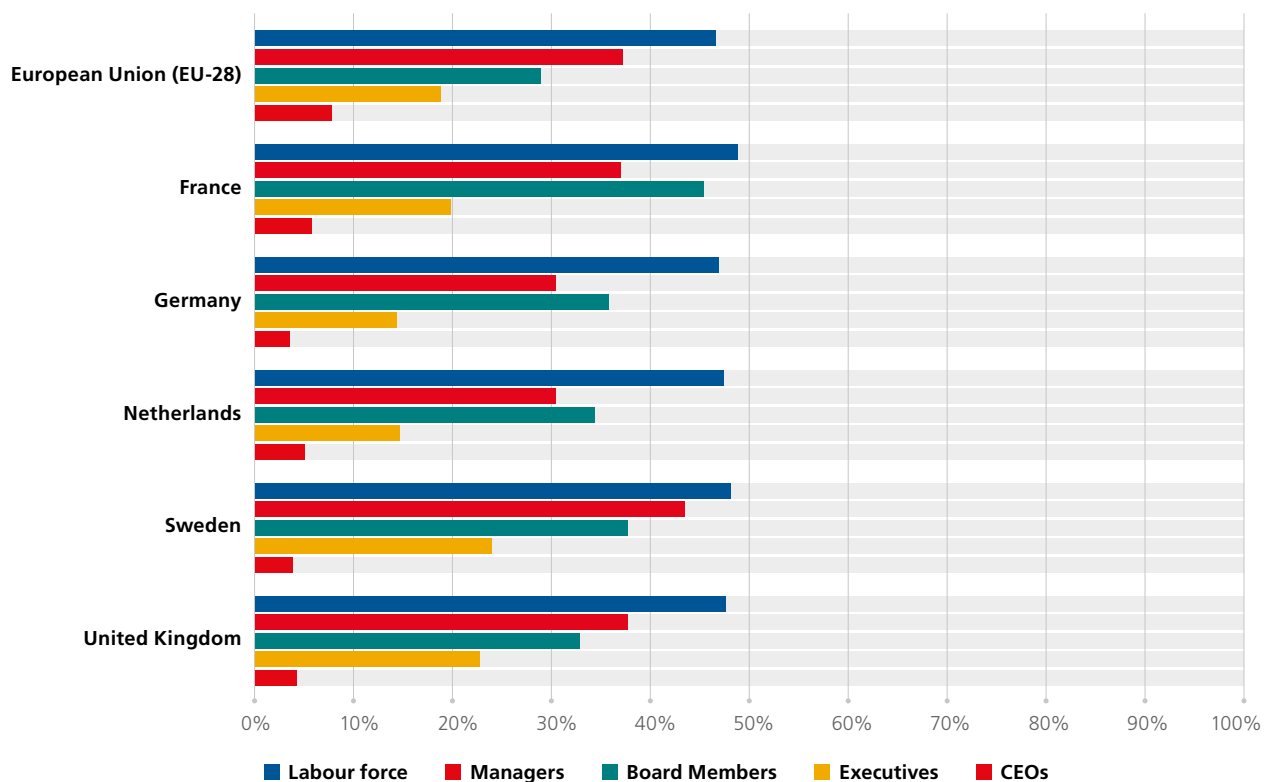
10 Clean Energy Industrial Forum (2022).

11 European Union (2020). European Skills Agenda for Sustainable Competitiveness, Social Fairness and Resilience.

12 Accenture (2020). Reinventing the Energy Workforce for a Net-Zero World.

13 <http://sejplatform.org/>. In addition to the resources available on the website, a briefing note is forthcoming.

Figure 1  
Women in the EU labour force (2019)

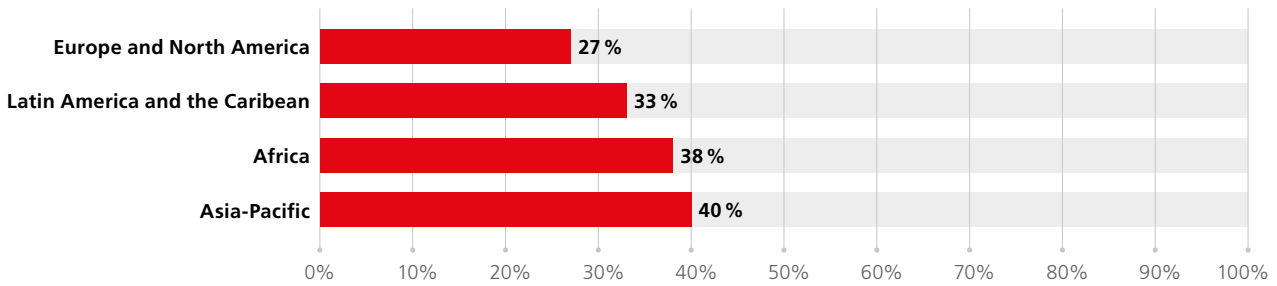


Source: Catalyst.org; Catalyst, 2020. Women in the Workforce: Europe (Quick Take). <https://www.catalyst.org/research/women-in-the-workforce-europe/>

To determine the exact female participation in the sustainable energy labour force in different EU Member States is rendered difficult to impossible by the lack of gender-disaggregated data. IRENA’s figures for various sub-sectors – compiled for a region IRENA calls “Europe and North

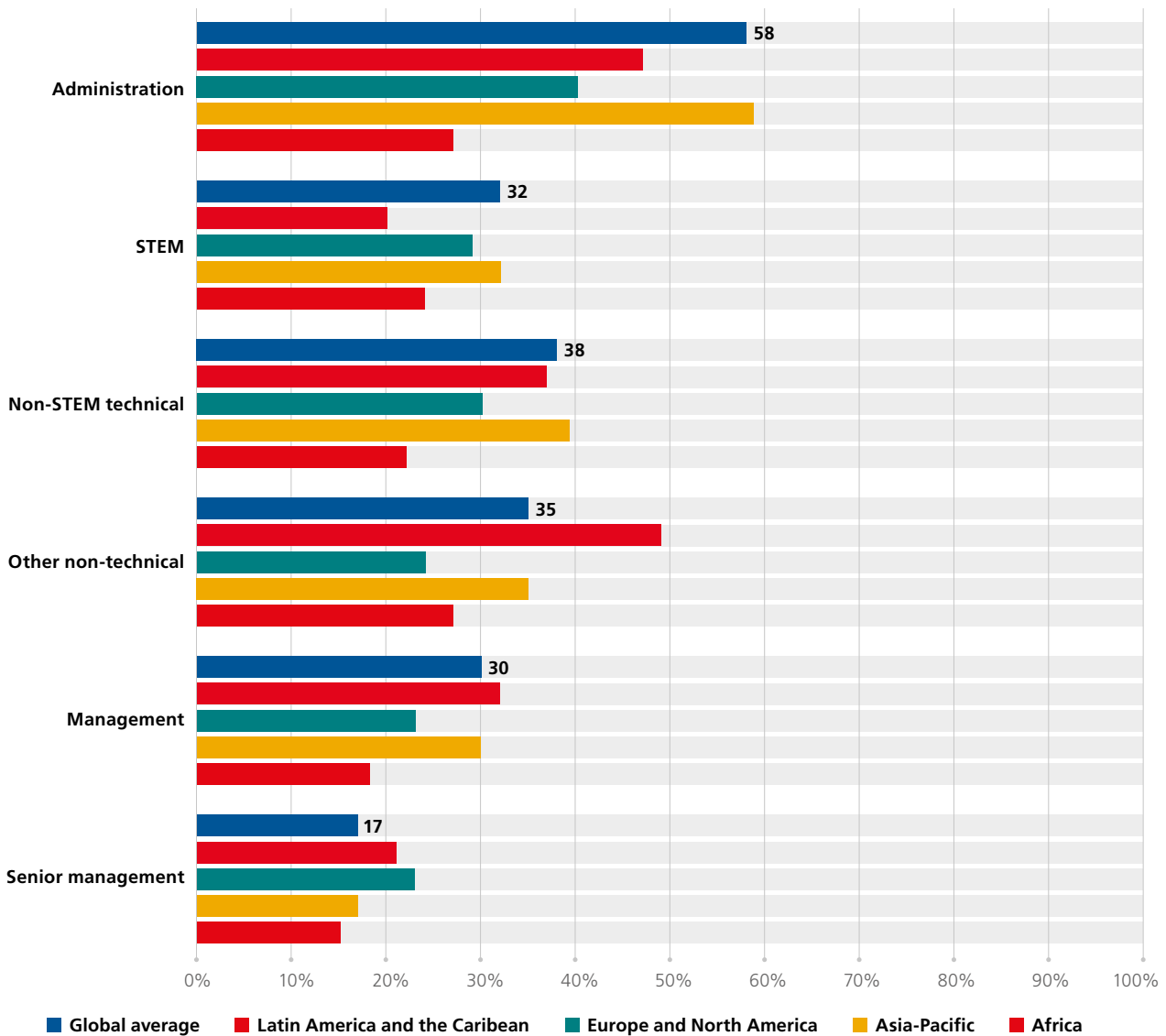
America” – confirm that female participation is at best close to a third, but often much lower, especially in STEM- and leadership-related positions. Figures 2 and 3 below are taken from IRENA’s latest sectoral gender report, focusing on the solar PV sector.

Figure 2  
Women in the solar PV workforce, by region



Source: IRENA, 2022. Solar PV: A Gender Perspective.

Figure 3  
Women in the solar PV workforce, by activity and region



Source: IRENA, 2022. Solar PV: A Gender Perspective.

## 2.3 WHY INSIST ON THE EQUAL PARTICIPATION OF WOMEN IN ENERGY TRANSITIONS?

The equal participation of women and men in any sector of the economy is, first and foremost, a **human right**. Countries that adhere to the universal human rights and fundamental freedoms have to protect the full enjoyment of all human rights by both women and men. The EU has to do so within its area of jurisdiction. In its relations with neighbouring countries and countries that aspire to join the EU, the EU is compelled to advocate and insist as much as possible that women fully participate in all political, economic, and societal activities.

There are also strong **economic arguments**. Women have a lot to offer to the sustainable energy sector. Numerous studies have documented that a **diverse workforce** delivers better results for the national economy,<sup>14</sup> including desirable secondary societal effects, such as better health and education levels in the population overall. Studies have also found that at the company or organisation level, the participation of women in the labour force increases creativity and innovation, improves decision-making, and generates **greater profit**. Initial research findings seem to suggest that companies with more women on their board of directors are more likely to invest in renewable power generation, mitigate climate change effectively, and proactively address environmental concerns.<sup>15</sup>

This abundant evidence has yet to translate into a substantially narrower gender gap in the energy sector, despite there now being many opportunities to do so.

According to IRENA projections, approximately **30 million jobs will be created** in renewable energy in the next 30 years. It will be challenging enough to fill those positions, let alone if half of the world's population is excluded. Women should be supported to become part of this growth; attracting female talent is crucial to ensure a thriving sector.

Furthermore, renewable-energy jobs require a **wider set of skills** than those needed in conventional energy sectors; at the same time, automation and digitalisation have reduced or even eliminated many traditional obstacles to the equal participation of women in the energy sector, such as the need to perform heavy manual labour or reside in remote locations for prolonged periods of time. This opens up new opportunities for women, but for women to take up those opportunities, schooling, skilling, reskilling, and professional training must engage them more successfully than in the past.

<sup>14</sup> World Bank (2011). World Development Report 2011.

<sup>15</sup> McElhaney, K. A. and Mobasser S. (2012). Women create a sustainable future, UC Berkeley Haas School of Business, [https://www.eticanews.it/wp-content/uploads/2012/11/Report-Women\\_Create\\_Sustainable\\_Value.pdf](https://www.eticanews.it/wp-content/uploads/2012/11/Report-Women_Create_Sustainable_Value.pdf)

A joint UNIDO and UN Women guidance note "Gender Equality in the Sustainable Energy Transition"<sup>16</sup> from 2019 outlines the opportunities and challenges in the areas of climate and energy, energy infrastructure, agriculture, technology, water, health & safety, employment, and policy & data.

## 2.4 BARRIERS TO EQUAL PARTICIPATION OF WOMEN IN ENERGY TRANSITIONS

There are multiple impediments to the full participation of women in sustainable energy and – as various studies have documented – they are quite similar from one energy sub-sector to the next and from one region to another.<sup>17</sup>

Mostly they are grounded in often **unconscious gender bias** and societal ideas about what kind of work is suitable or desirable for women and for men. Given the current under-representation of women in the sector, male supervisors tend to hire male applicants, unless gender-sensitive recruitment is introduced, implemented, and monitored. Companies that have traditionally employed mostly men are less likely to offer accommodations that facilitate a work-life balance, which makes it more difficult for women to succeed. Furthermore, **workplace cultures** in male-dominated sectors are often hostile to women, and many women in these sectors report **discrimination and harassment**.

Since STEM programmes, by and large, do not attract women in equal numbers as men, the pipeline of technically qualified women is not sufficiently filled. Therefore, particular attention needs to be paid to attracting more women to sustainable energy and to **supporting and encouraging them throughout their education**. When investigating ways to narrow the persistent gender gap in sustainable energy, it might be warranted to look at the area of **digitalisation**, where the gender gap by and large closed rapidly over the last years and parity has been (almost) achieved in high-income countries and low/middle-income regions on all continents, with the exception of the most disadvantaged and least developed countries. At the same time, a study by the World Wide Web Foundation found that women often experience second-class connectivity as an enduring legacy of their societal discrimination.<sup>18</sup>

<sup>16</sup> UNIDO & UN Women (2019). Gender Equality in the Sustainable Energy Transition. [https://www.unido.org/sites/default/files/files/2019-03/UNW\\_UNIDO\\_Gender\\_Equality\\_in\\_the\\_Sustainable\\_Energy\\_Transition\\_GuidanceN....pdf](https://www.unido.org/sites/default/files/files/2019-03/UNW_UNIDO_Gender_Equality_in_the_Sustainable_Energy_Transition_GuidanceN....pdf)

<sup>17</sup> GWNET has participated in a number of studies, such as: IRENA (2020). Wind Energy: A Gender Perspective; <https://www.globalwomensnet.org/wind-energy-gender-perspective/>; IRENA (2022). Solar PV: A Gender Perspective; <https://www.globalwomensnet.org/solar-pv-a-gender-perspective/>; GWNET also commissioned a study "Women for Sustainable Energy: Strategies to Foster Women's Talent for Transformational Change", 2020; <https://www.globalwomensnet.org/women-for-sustainable-energy/> which all corroborate the findings on women's under-representation in the "old" and "new" energy sectors.

<sup>18</sup> World Wide Web Foundation (2020). Women's Rights Online: Closing the digital gender gap for a more equal world. <http://webfoundation.org/docs/2020/10/Executive-Summary-English.pdf>

Given the current under-representation of women in the energy sector, re-skilling endeavours alone (aimed at members of the current workforce) will not lead to higher female participation automatically; there is even a risk that they might perpetuate the current imbalances. Great attention should therefore be given to **targeted career counselling, skill-ing and educational programmes for women, young people, and marginalised communities.**

## 3

## EASTERN NEIGHBOURHOOD CASE STUDIES: GEORGIA, MOLDOVA, AND UKRAINE

This chapter investigates progress towards a gender-just energy transition in three Eastern Neighbourhood countries: Georgia, Moldova, and Ukraine. The latter two were selected due to the expected impacts of Russian aggression on their energy transitions; Moldova must rapidly reduce its reliance on Russian fossil fuels, while Ukraine has suffered great losses to its transmission infrastructure in Russia's war and is developing plans for green post-war reconstruction. Georgia was selected as it is to some extent representative for the Caucasus region and has significant cooperation with Germany.

### 3.1 STATUS OF AND PLANS FOR THE ENERGY TRANSITION

The Eastern Neighbourhood countries have **great potential for renewable-energy generation**, but most are still highly dependent on fossil fuels. Some 100 GW of renewable-energy capacity has been installed in Eastern Europe and Central Asia thus far, which is less per capita than the global average. Whereas prior to 2017, the countries in the region invested primarily in hydropower, the **largest capacity growth** between 2017 and 2021 **was in solar and wind**. In this period, Ukraine alone installed 8.3 GW of solar PV capacity.<sup>19</sup>

The past five years have seen significant progress in **reducing the energy intensity** of Eastern Neighbourhood country economies (though a gap remains with the OECD average), in addition to an increasing number of net-zero commitments, improved energy efficiency policies, and increasing use of auctions and net metering schemes in the region. **Remaining challenges** that hamper the energy transition include **data availability and comparability**, and **ageing energy transmission and distribution systems** that are ill-suited for the accommodation of distributed, variable renewable-energy generation.<sup>20</sup>

In addition, **energy poverty remains high** across the region, as many low-income households live in poorly insulated housing and are unable to afford sufficient gas and electricity for their needs. Many Eastern Neighbourhood coun-

tries report high shares of renewables in heating and cooking, which can be explained by the widespread use of firewood in rural areas. In Georgia, 95.9% of rural households rely on firewood for heating, which leads to deforestation and respiratory health issues, and is therefore neither healthy nor sustainable. Programmes to help rural households switch to gas have had limited success due to affordability concerns.<sup>21</sup>

Of the focus countries, Georgia and Moldova are **highly dependent on energy imports**. Georgia produces less than a quarter of the energy it needs, primarily through its hydropower plants, as well as some natural gas and one wind-power plant.<sup>22</sup> Moldova is one of the least energy-self-sufficient countries in the world. It produces approximately 20% of the energy it uses domestically, primarily in the form of solid biomass (though more details could not be found, this is likely firewood used for heating and cooking).<sup>23</sup>

Ukraine, on the other hand, produced nearly 65% of its own energy before the war started, owing to its position as the seventh-largest nuclear power producer in the world. Renewable energy accounted for just 5% of the energy mix in 2018.<sup>24</sup> Between 2017 and 2021, Ukraine installed 8.3 GW of solar capacity, making it one of the top 30 solar investors in the world. Due to the war, **almost all of Ukraine's wind-power capacity and a small share of its solar capacity are currently out of operation**, because plants are in areas under occupation, have been taken offline, or have been destroyed (see below for more details).<sup>25</sup>

The renewable-energy targets set by the governments of Georgia, Moldova, and Ukraine can be found in Table 2. All three countries have adopted **renewable-energy and energy-efficiency legislation** that is largely **based on EU directives**. For example, Moldova has transposed the Energy Efficiency Directive (EED), Energy Performance of Build-

<sup>19</sup> REN21 (2022). UNECE Renewable Energy Status Report 2022.

<sup>20</sup> Ibidem.

<sup>21</sup> Ibidem; Interviews.

<sup>22</sup> International Energy Agency (2021). Georgia Energy Profile.

<sup>23</sup> International Energy Agency (2020a). Republic of Moldova Energy Profile.

<sup>24</sup> International Energy Agency (2020b). Ukraine Energy Profile.

<sup>25</sup> REN21 (2022). International Energy Charter. Ukrainian energy sector evaluation and damage assessment – V (as of December 20, 2022).

Table 2  
Renewable-energy targets of Georgia, Moldova, and Ukraine

Country	Renewable-energy targets
Georgia	<ul style="list-style-type: none"> <li>– 30% of total final energy consumption (by 2020; achieved: 25%)</li> <li>– 35% of total final energy consumption (by 2030)</li> <li>– 89% of energy generation (by 2030)</li> </ul>
Moldova	<ul style="list-style-type: none"> <li>– 20% of final energy consumption (by 2020; achieved: 25%)</li> <li>– 10% of generation (by 2020; achieved: 3.12%)</li> <li>– 200 MW of utility-scale RE by 2025, 400 MW by 2030</li> <li>– 27% of heating and cooling (by 2020; achieved: 41.2%, though primarily traditional biomass)</li> <li>– 10% of transport (by 2020; achieved: 0.18%)</li> </ul>
Ukraine	<ul style="list-style-type: none"> <li>– 11% of final energy consumption (by 2020; achieved: 9.19%)</li> <li>– 12% in primary energy supply (by 2025), 25% by 2035</li> <li>– 11% of generation (by 2020; achieved: 13.92)</li> <li>– 12.4% of heating and cooling (by 2020; achieved: 9.28%)</li> <li>– 10% of transport (by 2020; achieved: 2.47%)</li> </ul>

Source: REN21 (2022).

ings Directive (EPBD), Energy labelling framework regulation, and Ecodesign Directive. Ukraine is the only one of the three focus countries with a net-zero emissions commitment (by 2060).<sup>26</sup>

### 3.2 WOMEN IN THE ENERGY WORKFORCE: GAPS AND CHALLENGES

The link between energy transitions and gender equality is **insufficiently acknowledged** in the focus countries’ policies and strategies; for example, an EU-commissioned ‘Country Gender Profile’ of Moldova states that “[i]n the Republic of Moldova, there are no published documents, which recognise the multiple dimensions of and interactions between gender equality and climate change / green transition”.<sup>27</sup> Georgia’s Nationally Determined Contribution (NDC) under the Paris Agreement on climate change refers to women as “agents of change” in decision-making processes related to energy efficiency, but only “in households”.<sup>28</sup> The Moldovan NDC announces a commitment to promoting climate technologies to create jobs “for both women and men”. It also discusses gender inequalities in a section about “National Circumstances”.<sup>29</sup> The Government of Ukraine prepared an NDC gender analysis to announce its climate commitments; however, the NDC does not make any mention of gender or women outside of the section describing this gender analysis.<sup>30</sup>

As is the case in the EU, fewer women than men participate in the labour force in Eastern Partnership countries (see Table 3). Though in Georgia, Moldova, and Ukraine, women in the overall population outnumber men and are on average more highly educated, they earn less and are under-represented particularly in technical and leadership positions.<sup>31</sup> **The sector-specific sex-disaggregated data available is limited**, so for countries where no specific studies have been undertaken, it is difficult to determine how many women work in the energy sector. Table 3 includes data on women working in industry as a rough proxy. It shows that although much fewer women than men work in industry in the three focus countries, the numbers for Georgia and Ukraine are higher than the EU average.

Based on literature research and interviews, the reasons for this inequality appear to be primarily cultural. As a result of **deeply entrenched traditional ideas** about men and women’s differing responsibilities in the household, women spend far more time on unpaid domestic work than men – in Georgia, it is three times as much.<sup>32</sup> Many **women lack both the time and the family support** to pursue a career. Employers tend to view women employees as less productive because they assume that they will find it difficult to combine a job with their duties at home.<sup>33</sup>

In Eastern Neighbourhood countries, entrenched ideas about certain jobs being unsuitable for women partly reflect the **lists of banned professions for women** that

<sup>26</sup> REN21 (2022).

<sup>27</sup> NIRAS (2021), p. 36.

<sup>28</sup> Government of Georgia (2021). Georgia’s Updated Nationally Determined Contribution (NDC).

<sup>29</sup> Government of the Republic of Moldova (2020). Updated Nationally Determined Contribution of the Republic of Moldova.

<sup>30</sup> Government of Ukraine (2021). Updated Nationally Determined Contribution of Ukraine to the Paris Agreement.

<sup>31</sup> Dena (2021). The Role of Women in Energy – Female Empowerment in Eastern Europe and Central Asia; NIRAS (2021). Country Gender Profile – Republic of Moldova. EU 4 Gender Equality: Reform Helpdesk; UNDP (2021). Gender Equality in Georgia: Barriers and Recommendations. Updated Edition, Part II.

<sup>32</sup> European Union Delegation to Georgia (2021). Gender Action Plan III – 2021–2025. Country Level Implementation Plan – CLIP for Georgia.

<sup>33</sup> Heinrich Böll Stiftung (2019). Women and Men in Ukrainian Energy Sector.

Table 3

**Key statistics on women and men's participation in the labour force in Georgia, Moldova, and Ukraine, compared to EU average**

	Female labour force participation (15–64)	Male labour force participation (15–64)	% of women working in industry (of all working women)	% of men working in industry (of all working men)
<b>Georgia</b>	61.5 %	77.8 %	15.0 %	21.5 %
<b>Moldova</b>	44.8 %	49.6 %	5.6 %	28.4 %
<b>Ukraine</b>	60.8 %	72.9%	14.0 %	34.8 %
<b>EU average</b>	67.9 %	79.0 %	13.0 %	35.1 %

Source: World Bank Gender Statistics.

were a remnant of the Soviet Union. Until 2017, Ukrainian companies were not allowed to employ women in 450 professions, including “in gas welding, as carpenters, operators of excavators, lumberjacks, train drivers, motorists on ships, long-haul bus or lorry drivers, divers, firefighters, [making] parts for copper wind instruments etc.”<sup>34</sup> These lists have now been repealed in Georgia, Moldova, Ukraine, and most other countries in the region, but their **cultural impact** remains.<sup>35</sup>

According to the World Bank, women in Georgia and Moldova no longer face any legal constraints to their work life, though **inequalities persist**. For example, time taken off work for childcare is not accounted for in pension benefits, which results in lower pensions for women with children. In Ukraine, equal pay for equal work is not mandated in law. In addition, Ukrainian law still limits women's ability to perform night work, dangerous work, industrial work, or work requiring business travel.<sup>36</sup>

Though ideas about men's and women's roles are changing, the **pace of change is slow**. A study conducted in Georgia in 2020 found 60% of men and 38% of women still considered a woman's main duty to be to care for her family.<sup>37</sup> Women studying STEM in Moldova reported that their numbers were growing, but that they still faced “jokes” from fellow students and from university lecturers that women should focus on cooking, or that they were only at university to find a husband.<sup>38</sup> The way **women are**

**represented in the media** and in and in teaching materials has been identified as a remaining barrier to equality; in Moldova, textbooks are gender-biased<sup>39</sup> and in Georgia, an EU gender review found that over-sexualisation of women in the media undermined their positions in public life, politics, and the workplace.<sup>40</sup>

Interviewees confirmed that **younger men are more supportive** of women having careers, and **younger women are more likely to pursue careers**, including technical ones. Though women in the energy sector remain scarce, lessons may be learned from other STEM sectors. For example, Moldova has managed to attract a high share of women to the IT sector over the past few years, partly through income tax cuts, demonstrating that change is possible (also see below 4.2.).

A key remaining challenge is that many people, especially men, **do not view the lack of women's representation** in technical and leadership positions (including in the energy sector) **as a problem**. A survey found that 45% of women but only 21% of men thought there should be more women in management in Ukrainian energy businesses.<sup>41</sup> Several interviewees said that since women outnumber men in policy-related positions, the imbalance in technical positions should not be a concern. One interviewee stated that women's representation in the renewable-energy training courses he organises in Georgia was something donors demand, but that women were simply not interested.

Other interviewees suggested that women in their countries may not demonstrate much interest in the renewable-energy sector because they are **unaware** of the opportunities it offers to them, as the societies they live in do not encourage them to contemplate careers in technical profes-

<sup>34</sup> Shandra, Alya (2017). Ukraine's Health Ministry opens up previously banned 450 professions for women. Euromaidan Press.

<sup>35</sup> Anti-Discrimination Centre (2022). All Jobs For All Women – Timeline; Dena, 2021.

<sup>36</sup> World Bank (2022a). Georgia. Women, Business and the Law 2022; World Bank (2022b). Moldova. Women, Business and the Law 2022; World Bank (2022c). Ukraine. Women, Business and the Law 2022; Dena, 2021.

<sup>37</sup> European Union (2021a). Gender Equality in Georgia in GAP III Priority Areas: Country Review.

<sup>38</sup> NIRAS (2021).

<sup>39</sup> Ibidem.

<sup>40</sup> European Union (2021a).

<sup>41</sup> Heinrich Böll Stiftung (2019).

sions. Women may also not be interested because the **prospect of working with only male colleagues** deters them, for various reasons; concerns about not fitting in or harassment, but also concerns about being judged for spending their workdays with only men. Though the interviewee's claim that women lack interest in energy-related training courses may therefore present too simple a picture, he was right in stating that the lack of women in the sector could not be addressed simply by better marketing of training programmes; it is **not sufficient to set gender quotas** for such programmes without also providing other support to increase women's interest in the sector and address their concerns.

### 3.3 UKRAINE: WOMEN, RENEWABLE ENERGY, AND THE WAR

As has been widely publicised, the Russian war of aggression against Ukraine has had severe impacts on the Ukrainian energy system, leading to large-scale blackouts. However, thus far, it has been **mostly transmission and distribution infrastructure** that has been affected, rather than generation capacity. The war's impacts on renewable-energy capacity have not been as dramatic as sometimes reported: as of January 2023, an estimated 8% of solar PV capacity has been destroyed or damaged, as well as 1% of wind-power capacity. However, 80% of wind-power plants are in occupied territory. Of Ukraine's total renewable-energy capacity, **6% has been destroyed or damaged** and 25% (including part of the 6%) is under occupation.<sup>42</sup>

It is key that **women's voices be heard** in reconstruction planning processes, but this is far from a given. A gender analysis of the war in Ukraine found "little evidence that the inclusion of women as leaders and participants in formal and informal peace processes is being prioritised."<sup>43</sup> The National Draft Recovery Plan of Ukraine was developed **without any input from communities**; and in the European Commission's and European External Action Service's three-step approach for Ukraine's reconstruction ("Reanimation – Recovery - Reconstruction"), civil-society organisations are only expected to be included during the third stage, apparently because civil-society input could not be accommodated due to the "fast pace of decision-making" of the EU institutions in the current emergency.<sup>44</sup>

The war has **severely affected women and girls in Ukraine**, especially elderly women and women from marginalised groups, such as Roma. Sixty percent of Roma women and children lack any official documentation and therefore cannot legally cross borders into the European Union or claim rights as Ukrainian refugees once there.<sup>45</sup>

### 3.4 REASONS FOR FEMALE UNDER-REPRESENTATION

The reasons for the under-representation of women in the energy sector in Eastern Neighbourhood countries are **primarily cultural**. Traditional views of women's roles in the household prevail; as a result, women **are often discouraged** by their environment from pursuing careers. They also may not be able to combine their duties in the household with fulltime work. Women who wish to **pursue technical careers**, including in the energy sector, face the additional obstacle that these careers are still viewed as **inherently masculine**. Though in most Eastern Neighbourhood countries, the laws that prohibited women from being employed in many technical professions have been repealed, the cultural impact of these laws lingers.

The above-mentioned barriers are exacerbated by the fact that the under-representation of women in the energy sector is **not widely recognised as a problem**; few programmes exist to attract women to the sector or make them feel welcome once they are there. This, in turn, discourages women who may have concerns about **working in all-male teams**. Some interviewees presented this as a 'chicken-and-egg'-type problem, claiming that companies would gladly adopt family-friendly policies to facilitate women's employment, but only once they had women on staff who required those policies. Of course, the lack of these policies is likely to impede women from joining energy companies in the first place.

<sup>42</sup> Ukrainian energy sector evaluation and damage assessment – VI, International Energy Charter (2023).

<sup>43</sup> International Energy Charter (2022).

<sup>44</sup> Izhyk, Valeria (2022). Civil Society Has the Right to Have a Say in Ukraine's Post-War Reconstruction; Interviews.

<sup>45</sup> NGO Working Group on Women, Peace and Security (2022). Gender Analysis of the Situation in Ukraine.

## 4

# OPPORTUNITIES STEMMING FROM KEY EUROPEAN UNION STRATEGIES

### 4.1 POLICY DOCUMENTS TO PROPEL THE EU ENERGY TRANSITION

The EU is a global leader on green development; it is a major economic area that has managed to decouple economic growth and GHG emissions for a number of years in a row, albeit to varying degrees<sup>46</sup>. It is also at the forefront of international endeavours to stabilise the global climate.

The sanctions adopted by the EU in response to the war of aggression against Ukraine entail further opportunities to accelerate the green transition, since it is necessary to wean the EU from its abundant fossil fuel imports from Russia.

With the 2019 adoption of the ambitious package of measures usually referred to as the **European Green Deal**<sup>47</sup>, the EU aims to become the world's first climate-neutral continent by 2050. The Green Deal presents a roadmap to make the EU's economies sustainable by turning climate and environmental challenges into opportunities across all policy areas and making the transition inclusive and just, first and foremost by boosting resource efficiency. This is achieved primarily by embracing the concept of a circular economy, restoring biodiversity, and reducing pollution. Mobilising research and innovation, financing the transition, and leaving no-one behind are key dimensions of the EU Green Deal. It should also serve as a sort of EU Climate Pact and bolster the global leadership position of the EU.

The Green Deal Communication needs to be seen in conjunction with the EU Council Recommendation on **Ensuring a Fair Transition towards Climate Neutrality**<sup>48</sup> and also the 20 principles of the **European Pillar on Social Rights**<sup>49</sup> adopted in 2017 at the Gothenburg Summit.

In light of Russia's war of aggression against Ukraine, the communication from the EU Commission of 18 May 2022 entitled **REPowerEU Plan**, in line with the Versailles Declaration of 10 and 11 March 2022, sets out measures to phase out the Union's dependence on fossil fuels from Russia. This entails diversifying gas supplies and accelerating the roll-out of solar and wind-generation capacity and heat pumps, decarbonising industry, and enabling faster permitting of renewable-energy projects.

The International Energy Agency (IEA) projects the European Green Deal to create 2.5 million new jobs in the European Union by 2030, driving employment growth of 1.2 %, both directly in clean-energy sectors as well as in supporting industries. Therefore, the **EU has made upskilling a priority for its just transition**. The European Pillar of Social Rights Action Plan stipulates that at least 60% of adults will undertake a learning experience every year by 2030. The EU Skills Agenda also includes ambitious targets to upskill and reskill 120 million adults annually; sizeable funds have been earmarked to support worker training; in total, the Commission estimates that EUR 12 billion will need to be invested in skills for the energy transition by 2030.<sup>50</sup>

Various other agreements – such as the Council conclusions on a fair transition towards climate neutrality of 7 June 2022 – point to the job creation potential and the general need for adequate skilling and reskilling measures, including for women. The Joint Declaration on Skills in the Clean Energy Sector, issued after the Clean Energy Industrial Forum in June 2022, recognises the need to **bring more women into the renewable-energy sector to fill skills gaps** and increase women's participation in the workforce. However, it does not acknowledge the benefits of gender diversity to companies – in other words, it promotes gender diversity only because it is good for women, not because it is good for the sector. The 2020 Pact for Skills for the green and digital transitions includes anti-discrimination, gender equality, and equal opportunities as one of four key principles.

It is therefore fair to say that **significant work** lies ahead to complement the current policy guidance with a gender-lens, if the Green Deal and the achievement of energy

<sup>46</sup> <https://www.eea.europa.eu/en/newsroom/news/economic-recovery-pushed-eu-emissions-up-in-2021>

<sup>47</sup> European Union (2019). European Green Deal (COM(2019) 640 final)

<sup>48</sup> European Union (2021b). Council Recommendation on ensuring a fair transition towards climate neutrality. Interinst.File 2021/0421 (NLE) <https://data.consilium.europa.eu/doc/document/ST-9107-2022-INIT/en/pdf>

<sup>49</sup> European Union (2017). The European Pillar of Social Rights in 20 principles. [https://ec.europa.eu/info/strategy/priorities-2019-2024/economy-works-people/jobs-growth-and-investment/european-pillar-social-rights/european-pillar-social-rights-20-principles\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/economy-works-people/jobs-growth-and-investment/european-pillar-social-rights/european-pillar-social-rights-20-principles_en)

<sup>50</sup> International Energy Agency (2022). Skills Development and Inclusivity for Clean Energy Transitions. <https://www.iea.org/reports/skills-development-and-inclusivity-for-clean-energy-transitions>, p. 18.

security are to result in a fair and gender-just transition within the EU and beyond. This was stated by panellists and participants at the First European Employment and Social Rights Forum in Brussels on 16 and 17 November 2022.<sup>51</sup> It remains to be seen whether the level of ambition will be gender-sensitive, gender responsive, or gender transformative<sup>52</sup>.

## 4.2 GENDER-EQUITABLE SKILLS BUILDING FOR THE ENERGY TRANSITION IN EU MEMBER STATES

The EU supports skills building for the energy transition in Member States in several ways. For example, it supports cross-border collaboration between universities by funding several Erasmus Mundus master's programmes on various aspects of renewable energy. The COVID-19 National Recovery and Resilience Plans of EU Member States include a focus on building green skills and boosting the energy transition, and the EU supported their implementation through the Recovery and Resilience Facility. The Commission has also announced that it will **support Member States with the development of skills strategies** that include activities to break gender and other stereotypes, and promote Technical and Vocational Education and Training (TVET), including among women.<sup>53</sup>

**Few precedents exist for successful labour force planning** at the scale and speed required for the energy transition. Raising awareness of opportunities in the renewable-energy sector and offering training courses is important, but may not be enough. What other actions can the Member States take?

Lessons can be learned from the **rapid and proactive development of IT-based economies** by governments, for example in Ireland in the 1990s and 2000s, Estonia more recently, and Moldova just in the past few years. These countries' governments used active labour market policies to push people towards IT, including by providing training and career advice, but also subsidised apprenticeships and salary subsidies. The Moldovan government has even made salaries in the IT sector tax-free.

Another option that governments have is to **attract talent from abroad**. Germany and Denmark both do this by advertising for renewable-energy workers on social media platforms. However, bringing in talent from elsewhere is likely to exacerbate skills gaps in the countries of origin. Interviewees mentioned that one of the biggest skills challenges that Georgia faces is how to retain highly skilled people after they finish their education; many now leave for Europe where salaries are higher. As Europe outperforms most other parts of the world in terms of salaries, it

must be careful not to cause brain drains and hamper energy transitions elsewhere.

A far more elegant solution would be to **involve the entire workforce at home, including women**. This will require efforts to attract more women to STEM/TVET and prevent skilled women from leaving the renewable-energy sector. A study found that, despite long-standing efforts to bring more women into technical professions, women in the EU still are less likely than their male classmates to do paid work-based learning experiences and to find employment soon after graduating from TVET. It also found that, although courses on the environment attracted 32% female students, the share of female students in electricity and energy-related courses was just 4%; **rebranding exercises may be necessary here**.<sup>54</sup>

## 4.3 EU PARLIAMENT INVESTIGATION AND RECOMMENDED ACTION

In the light of this statistically undeniable under-representation of women in sustainable energy sectors in the EU, the European Parliament's FEMM committee commissioned a study on the topic in 2019.<sup>55</sup>

Key findings of the study include the realisation that **women** in the EU and in its Member States **are under-represented** in their roles **as change agents** in the energy transition in at least three dimensions: there are more male than female energy professionals working in the sector; women are in the minority when it comes to decision-making at all levels in the EU and in its Member States; and gender differences in energy consumption and demand are not recognised by energy services.

The report finds that energy policies throughout the EU Member States appear to be gender-blind, with negative consequences for gender equality in the energy transition. The **lack of gender-disaggregated data** is seen as a major hindrance for progress, since it hides women's under-representation in the renewable-energy sector. And – quite worryingly – the report finds that “empirical evidence that **women's employment and income will benefit** from modern energy access is limited and rather **inconclusive**.”

**Visibility of women in STEM** is seen as key to motivate girls to choose a STEM education, to motivate women to work in STEM, and to motivate female professionals to pursue their careers in the energy sector. **Mentoring and networking** are valued highly, since they create a stimulating peer-learning environment and a supporting community for women in the energy sector. **Corporate responsibility** is underlined as a key factor in ensuring a facilitating work environment for female employees.

<sup>51</sup> <https://www.eusocialforum.eu/eu/home>

<sup>52</sup> GGKP Policy Brief, forthcoming

<sup>53</sup> European Union (2020). European Skills Agenda for Sustainable Competitiveness, Social Fairness and Resilience.

<sup>54</sup> Szebeni, Kinga (2022). The Skills Agenda promotes gender balance in view of a just twin transition in Europe.

<sup>55</sup> European Parliament (2019). Women, Gender Equality and the Energy Transition in the EU. [https://www.europarl.europa.eu/RegData/etudes/STUD/2019/608867/IPOL\\_STU\(2019\)608867\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2019/608867/IPOL_STU(2019)608867_EN.pdf)

The study presents best practices on:

- **disaggregated data** (commending the work done by IRENA and the Clean Energy Ministerial's C3E programme);
- **getting women into STEM** (examples include: provision of more information on STEM, student-centred, inquiry-based, participatory strategies, informal and experiential learning spaces for girls, mentoring, breaking down the stereotype that STEM/energy is only for men, creating female science ambassadors, and making university curricula in general more women friendly);
- **getting women into RE jobs and keeping them there** (good practices on getting women to apply, broadening the pool in recognition that skills other than technical ones – including social sciences, marketing, etc. – are also needed in the context of energy transitions, providing work experience to women, setting goals and targets, companies declaring their commitment to gender equality, publishing anonymised salary data to provide more transparency and reduce the gender pay gap, pro-active commitment to gender equality from senior management, and targeted training for employees);
- **and keeping women in the RE sector** (good practices for improving the work-life-balance, e. g. through part-time and flexible working arrangements, paid parental leave, career re-starts, female professionals networks, and award programmes).

Recommendations centre on creating a **more gender equitable energy policy** (starting with the collection of sex-disaggregated data), and **reducing the gender gap** in renewable-energy sector **employment** (in this context, an independent evaluation of the impact of different initiatives under way is recommended). Finally, the spotlight is put on the local level, where it is seen as imperative to increase gender equality related to the energy transition and in particular with regard to **decentralised energy systems**.

# 5

## RECOMMENDATIONS AND CONCLUSIONS

### 5.1 RECOMMENDATIONS

The participation of women in the energy sector can be improved through a variety of measures involving many different stakeholders<sup>56</sup>. For the purpose of this report, we emphasise recommendations in the specific context of addressing the skills gaps in the current labour markets in ways that are suitable to bring in more female talent. We address general recommendations to policymakers, employers' representatives and unions, companies, and the education sector; we remind the EU institutions and all national entities with responsibilities to implement EU directives of the opportunities to advance gender equality, and we formulate some recommendations with regard to the situation in Ukraine.

#### 5.1.1. GENERAL RECOMMENDATIONS

##### To policymakers

- Improve the **collection of gender-disaggregated data** as an indispensable basis for decision-making on just energy transitions.
- Ensure **participatory, inclusive structuring of just energy-transition processes**, being mindful of the need to avoid perpetuating female under-representation in the energy sector (e.g. include women in dialogues even if they are currently under-represented among high-level energy sector representatives).
- **Eliminate all legal barriers to women's equal participation** with men in the labour market.
- Systematically use **foresight and mapping of skills needs** and create commensurate skilling offers (e.g. as recommended by IEA, in at least five avenues) such as: clean energy skills training, reskilling for coal workers, retraining of workers in the oil and gas and automotive sectors, academic and corporate programmes, and targeted skills programmes for young people, women, and marginalised communities.

- Factor in **non-energy sectors in calculating absorption of lost jobs**.
- Strengthen **social dialogue in shaping energy-transition labour policy**, in particular by including trade unions as workers' representatives in discussions related to national long-term decarbonisation strategies.
- Work towards a **consensus around labour migration** issues.
- Provide **adequate financing to guarantee a just transition**, which should be seen as a major public good.

##### To unions and employers' organisations

- Draw benefit from the work done by the **Sustainable Energy Jobs Platform**<sup>57</sup> and continue to engage in a **multi-stakeholder approach** around issues of the just energy transition.
- Highlight the need for **high-quality jobs** as well as a large quantity of jobs.
- Strengthen **diversity in unions' and employers' organisations ranks**, and work towards inclusion and participation in energy-transition strategies and processes.
- Use the **full potential of social dialogue and collective agreements**, i.a. to improve working conditions, training and increase flexibility to make green transition/energy sector jobs more appealing to women.

##### To companies

- Commit to **equal opportunities for women and men** in all phases of recruitment, in-company-training, promotion, salaries, parental leave, etc.

<sup>56</sup> For an overview of existing good practice, see GWNET, Women for Sustainable Energy – Strategies to Foster Women's Talent for Transformational Change. 2020. <https://www.globalwomennet.org/women-for-sustainable-energy/>

<sup>57</sup> <http://sejplatform.org/>

**GOOD PRACTICE EXAMPLE 1**

In 2021 **Spain adopted its first climate and energy transition law**, setting the base for a low-carbon economy. In the section on a **just transition**, article 27 demands explicitly that the just transition, as well as the relevant application and development tools, will be elaborated **taking into account the gender perspective** and observing the principles of social inclusion and universal accessibility.

<https://www.boe.es/buscar/doc.php?id=BOE-A-2021-8447>

**GOOD PRACTICE EXAMPLE 2**

Also, outside of Europe many encouraging examples do exist, like in **Chile** where the government launched the public-private partnership **“Energia + Mujer”**. It investigates barriers to women’s participation in the energy sector and develops a **joint action plan** to address these barriers. The initiative led to a **roadmap for the Ministry of Energy to mainstream diversity** and inclusion into all of its policies, plans and projects.

<https://energia.gob.cl/Energ%C3%ADam%C3%A1sMujer>

**GOOD PRACTICE EXAMPLE 3**

The **Energy Community in South East Europe** has prepared a policy paper presenting relevant indicators for **collecting gender-disaggregated data**, to build a better understanding of women’s current access to the energy sector and monitor progress towards gender equality. The paper includes a step-by-step plan for disaggregated data collection.

[https://www.energy-community.org/dam/jcr:002983b8-8c9f-40ad-86c6-5c8e931dcd01/PP-04/2021%20ECS\\_Gender\\_0422.pdf](https://www.energy-community.org/dam/jcr:002983b8-8c9f-40ad-86c6-5c8e931dcd01/PP-04/2021%20ECS_Gender_0422.pdf)

- Regularly **collect data and undertake surveys** to identify remaining gender-equality gaps, and take action to address these.
- Encourage **women’s networks, mentoring, and career support services for women** in order to more rapidly level the playing field, including by allowing staff to engage in mentoring programmes during work time.
- Develop and run **corporate programmes for skilling and reskilling**.

**To the education sector**

- Respond swiftly to the **foresight and mapping of skills at all educational levels**, including skilling opportunities for persons in the informal sector.
- In secondary education, **encourage girls to take an interest in STEM**, run girls in STEM activities, and **invite female STEM experts** to career days.
- In higher education, **ensure gender balance in promotional materials for STEM and TVET programmes**, invite female STEM experts to give guest lectures, and support female students in accessing apprenticeships.

**5.1.2. RECOMMENDATIONS ADDRESSED TO EU INSTITUTIONS**

- Ensure that in the further implementation of the EU climate action and the Green Deal package – including RePowerEU and the skills-related policy work – **due consideration is given to gender justice** in line with the EU’s overall commitment as detailed in the EU Gender Equality Strategy 2020–2025<sup>58</sup> and ensure participation of all interested stakeholders from an early stage.
- Take to heart the analysis and recommendations presented by the European Parliament’s FEMM Committee study<sup>59</sup> on creating a **more gender-sensitive energy policy and** reducing the **gender gap**.
- Use the opportunities for intensified exchange with countries with EU accession candidate status (Moldova and Ukraine) and countries that have been given a European perspective (Georgia) to promote **mainstreaming of gender considerations in energy sector cooperation talks and projects**.

<sup>58</sup> [https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/gender-equality/gender-equality-strategy\\_en](https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/gender-equality/gender-equality-strategy_en)

<sup>59</sup> European Parliament, 2019.

**GOOD PRACTICE EXAMPLE 4**

As part of its Women in Technology Programme, **Wien Energie offers apprenticeships** with strict **50/50 gender quotas**, so that girls do not need to be concerned that they will be the only one.

<https://www.wienenergie.at/ueber-uns/karriere/frauen/>

**GOOD PRACTICE EXAMPLE 5**

To demonstrate their commitment to gender equality, **companies should collect data** on gender equality among their staff, **identify gaps**, and publicly commit to a diversity and inclusion strategy to address these. They should also conduct regular anonymous surveys to assess how effective their actions are. See the **Equity, Diversity & Inclusion Manifesto** of **Sonnedix**, winner of the 2021 Solar Power Europe **Solar Gender Champion award**, for a good example of a public commitment to equality.

<https://www.sonnedix.com/wp-content/uploads/2022/10/EDI-Manifesto.pdf>

**GOOD PRACTICE EXAMPLE 6**

The Girls Go Circular **learning platform**, managed by the **European Institute of Innovation & Technology**, is working with schools throughout the continent to provide training on digital and entrepreneurial skills relevant to the circular economy to tens of thousands of girls between the ages of 14 and 19.

<https://eit-girlsgocircular.eu/>

**GOOD PRACTICE EXAMPLE 7**

The **U.S. Department of Energy** together with MIT Energy Initiative, Precourt Institute for Energy (Stanford), and the Texas A&M Energy Institute collaborate to implement the **Clean Energy Education and Empowerment (C3E) Initiative**. Each year **they award women** in advocacy, business, education, government, technology and research, **recognizing their leadership** and contribution to clean energy. The award creates high visibility and inspires other women for careers in these sectors.

<https://c3e.org/winners>

- Capitalise on the opportunities of **supporting Ukraine’s national recovery** – perhaps inspired by the Marshall plan approach<sup>60, 61</sup> and “building back better” to **promote gender equality** in general and in particular with regard to the build-up of a modernised, leap-frogged Ukrainian energy system.
- Ensure that the **needs and priorities of women** are included in the agenda when the international community supports the **reconstruction of Ukraine**.

- Explore ways to **provide skills training** related to renewable-energy technology and business models to **Ukrainian women while they reside in EU countries**, to prepare them for central roles in the green reconstruction.

5.1.3. RECONSTRUCTION OF UKRAINE

- Recalling **UN-SC Resolution 1325 (2000)** on women, peace and security and subsequent resolutions, keep in mind that women have an irreplaceable role to play in all endeavours aiming **to end the warfare** and usher in true peace and that they are entitled to sit at negotiating and decision-making tables.
- Put special emphasis on **gender justice in re-building or modernising Ukrainian infrastructure** in general and energy infrastructure in particular.
- Harness opportunities to **work with municipalities** as soon as it is feasible with a view to creating **distributed renewable-energy supplies**; ensure that **women and men equally** have the opportunity to **contribute to the consultation**, installation, and operation of these renewables.

60 <https://www.gmfus.org/news/designing-ukraines-recovery-spirit-marshall-plan>

61 <https://www.rferl.org/a/ukraine-rebuilding-russia-costs-marshall-plan/32193833.html>

## 5.2 FINAL CONCLUSIONS

In the past decade or so, climate change has evolved from a future threat to an immediate and evident reality. In response to this, the energy transition, too, has become concrete and visible to people everywhere in Europe in the past few years. This has intensified since the Russian invasion of Ukraine. **The shift to low-carbon energy systems is now truly picking up pace**, not least for energy security reasons. The energy transition is expected to generate **millions of new high-quality jobs**. This employment creation represents an enormous benefit but can also pose a threat to the transition's success if not **enough skilled professionals** are available to fill the new positions.

To accelerate the energy transition in line with European Union targets, we need to train hundreds of thousands of renewable-energy and energy-efficiency professionals at all levels. **Training is currently unable to keep up with demand** – and skills shortages are already being felt, most acutely through long wait times for installing rooftop PV, heat pumps or energy renovations of homes. At the same time, women remain grossly under-represented in the renewable-energy sector, where they occupy just 32% of all positions and 28% of technical positions. **The skills gaps for the energy transition will be much easier to fill if women and men are given the opportunity** to participate equally.

Well **over a million people will need to be trained by 2030**, which is just around the corner. The students who will graduate with a Master's degree in STEM subjects in 2030 are now 16 to 17 years old and in the middle of deciding what they want for their futures. Students who will undertake technical training have just a little bit more time. So, it is important to **undertake action immediately** to spark young people's interest in professions related to the energy transition and to **ensure equal participation of women and men**.

The EU's **labour markets and institutions are not sufficiently prepared** for the challenges that the energy transition will bring, but there is still time to catch up. Research has shown that young people, and **young women in particular, look for careers in which they can make a meaningful contribution** to a more just, sustainable world. **The energy transition offers such opportunities in abundance** – now is the time to work together to help women and men make the most of them.

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## LIST OF ACRONYMS

<b>EED</b>	Energy Efficiency Directive
<b>EPBD</b>	Energy Performance of Buildings Directive
<b>EU</b>	European Union
<b>FEMM</b>	European Parliament Committee on Women's Rights and Gender Equality
<b>GGKP</b>	Green Growth Knowledge Partnership
<b>GHG</b>	Green hous gas
<b>GWNET</b>	Global Women's Network for the Energy Transition
<b>IEA</b>	International Energy Agency
<b>IRENA</b>	International Renewable Energy Agency
<b>NDC</b>	Nationally Determined Contribution
<b>NGO</b>	Non-governmental organisation
<b>PV</b>	Photovoltaics
<b>RE</b>	Renewable energies
<b>REN21</b>	Renewable Energy Policy Network for the 21st Century
<b>SDG7</b>	United Nations Sustainable Development Goal No. 7 on affordable and clean energy for all
<b>STEM</b>	Science, technology, engineering, and mathematics
<b>TVET</b>	Technical and Vocational Education and Training
<b>UN</b>	United Nations
<b>UNECE</b>	United Nations Economic Commission for Europe
<b>UNIDO</b>	United Nations Industrial Development Organization

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### **Friedrich-Ebert-Stiftung e. V.**

Godesberger Allee 149  
53175 Bonn  
Germany  
Email: [info@fes.de](mailto:info@fes.de)

Issuing Department:  
Competence Centre for Climate and Social Justice | FES Just Climate  
Cours St Michel 30e | 1040 Brussels | Belgium  
<https://justclimate.fes.de/>

Responsible for this publication in the FES:  
Claudia Detsch, Director of FES Just Climate

Editor: Stephan Thalhofer, Policy Advisor, FES Just Climate

Orders/Contact: [justclimate@fes.de](mailto:justclimate@fes.de)

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