



# **Just transition: Energy poverty policies and gender equality in Europe**

## **A cross-national analysis of gender mainstreaming in energy poverty policies**

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## ABSTRACT

Considering the rapid energy transition happening in Europe, debates emerge about how to equally include everyone to ensure a just transition. Through the formulation of new regulations, such as the Green Deal and the Clean Energy for all Europeans Package, the concept of just transitions and the issue of energy poverty have become a higher policy priority within the EU. Yet, there is still a lack of recognition of the gender dimension of the issue in energy policymaking due to a general assumption that energy policies are gender neutral and affect all people equally. In this thesis, a just transition framework following the three dimensions of energy justice is developed identifying key policy elements that are intended to increase the likelihood that energy poverty policies in Europe tackle the issue of energy poverty in a more gender-aware and hence effective way. This framework is applied to analyze the current energy poverty policies of three different European countries: the UK, France, and the Netherlands. The cross-country comparison assesses the foregoing nations' efforts to include a gender mainstreaming perspective in energy policymaking. In addition, a policy case study is analyzed to highlight good policy practice for tackling energy poverty in a gender-aware way.

**Keywords:** just transition, energy poverty, gender inequality, energy policy; gender-sensitive policy elements

## **LIST OF ABBREVIATIONS**

EC: European Commission

EIGE: European Institute for Gender Equality

EPAH: Energy Poverty Advisory Hub

EPOV: Energy Poverty Observatory

EU: European Union

EU-SILC: European Union Statistics on Income and Living Conditions

LIHC: Low Income High Cost

LILEE: Low Income Low Energy Efficiency

NECP: National Energy and Climate Plan

SDG: Sustainable Development Goal

UK: United Kingdom

UN: United Nations



## 1. INTRODUCTION

The recent sharp rise in energy prices in Europe has put a lot of households in the situation where they had to reconsider their energy consumption in order to be able to pay their energy bills. The European Commission (EC) has adopted a plan to reduce the overall gas demand which, next to switching to alternative fuels, includes key strategies directly affecting European Union (EU) citizens, namely actively promoting lower consumption and reducing heating and cooling in public buildings as well as private homes (EC, 2023). This current energy crisis and the high costs of energy are expected to worsen the level of energy poverty for a substantial share of households in the EU (Clancy et al., 2022; TNO, 2023). For the EU, energy poverty describes the situation in which a household is not able to access essential energy services and does not have sufficient levels of heating, which is reinforced by the EC through its energy reduction plan (EC, 2022). The current situation highlights the importance to protect the poorest and most vulnerable households to ensure their situation will not worsen due to this energy crisis.

With soaring energy prices in recent years, coupled with the EU's commitment to reduce greenhouse gas emissions in the energy sector, the issue of a just energy transition, that does not leave behind the most vulnerable, has received greater attention and will become even more relevant with our sustainable energy system of the future. This relevance is further strengthened by the binding agreement of all United Nations (UN) Member States to achieving the 2030 Agenda for Sustainable Development, with a special focus on the Sustainable Development Goal (SDG) 7 to ensure "universal access to affordable, reliable, sustainable and modern energy for all" (IEA, 2022). Our current fossil fuel-based energy system is known to be a system of injustice and unsustainability, with few countries having abandoned access while others experience energy poverty through lack of access to adequate energy resources (Villavicencio Calzadilla & Mauger, 2018). In addition, combustion of fossil fuels is a major contributor to climate change, which affects people differently and thus inequitably around the world. However, the energy transition with its target of increasing the share of renewables also entails both environmental and social challenges and, when not recognized and addressed adequately, may further exacerbate this inequality and vulnerability to energy services even further. A transition away from fossil fuels comes with major changes for regions that are particularly dependent on these cheap energy sources (Bouzarovski et al., 2020; Carley & Konisky, 2020) and the risk of an unequal allocation of consequential costs and benefits in society (Middlemiss et al., 2020). Therefore, there is a need for new and effective policies within Europe that ensure a just transition for everyone, thus recognizing where existing inequalities may worsen, or new injustices may arise and addressing these through targeted measures. As highlighted by various researchers (Breukers et al., 2021; Straver et al., 2020; Feenstra et al., 2021), national energy policies that do not recognize the need to tackle the issue of energy poverty as part of the energy transition may contribute to growing inequalities and vulnerability to energy poverty.

There is increasing evidence that vulnerability to energy poverty has a gendered dimension (Clancy et al., 2017). Multiple studies (Clancy et al., 2022; Clancy et al., 2017; Feenstra, 2002; Middlemiss, 2022; Robinson, 2019; Simcock et al., 2021) focusing on the Global North<sup>1</sup> have shown that women and women-led households are at higher risk of facing energy poverty and that implemented policies aiming to combat the issue do not effectively target those most in need. Yet, as highlighted by the UN's SDG 5, achieving gender equality and empowering women is a crucial foundation for a sustainable world (UN, 2023). Therefore, combining SDG 5 and 7 can help to ensure

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<sup>1</sup> The concepts of Global South and Global North are used in this thesis, instead of developing and developed countries, thus, taking into account that all countries are continuously changing and developing. Following Feenstra & Clancy (2020), these concepts are "not used in a strict geographic sense but in a political economy sense of large disparities in wealth and political instability".

that the energy transition is not only focusing on technical aspects, but also includes socio-cultural gendered differences in vulnerability to avoid further increase of already existing injustices, as Kooijman et al. (2023) highlight. In addition, taking an approach that considers intersectionality of different characteristics when identifying vulnerable people can ensure that all people and their needs are recognized and considered when policy actions are taken to address energy poverty in Europe (Sunikka-Blank & Galvin, 2021).

This thesis aims to address the policy gap in understanding the need for a gender-aware approach to energy poverty policy, answering the following research questions with respect to Europe:

- 1. How does gender influence the experience of energy poverty?**
- 2. What would constitute gender-aware energy poverty policies?**
- 3. How do illustrative EU countries perform in terms of the gender-awareness of their energy poverty policies?**
- 4. What can be done, at the level of practice, in terms of gender-aware energy poverty policy?**

Based on scientific knowledge, a just transition framework that integrates a gender-sensitive approach is developed and applied. The framework identifies key policy elements that help to ensure gender-awareness in energy poverty through the concept of just transition along the three tenets of energy justice. This thesis analyzes different approaches to energy poverty and policy by performing a qualitative cross-national comparison, using the indicators defined in the just transition framework, for three European countries, namely France, the Netherlands, and the UK, with a special focus on Scotland. This selection of countries allows representation of a range of European experience with energy poverty per se, energy poverty policy, and gender-aware energy poverty policy. Comparative analysis illustrates prevalent gender gaps as well as challenges of including gender mainstreaming into energy poverty policies in Europe. Finally, the thesis highlights a case study of a local level project that successfully addresses gender inequality in their energy poverty strategy, to underline the potential that including the gender-sensitive policy elements – at the level of practice – may have on energy poverty alleviating through a national policy level.

The thesis is structured as follows. Section two is divided in two parts. Part one provides literature context on energy poverty in Europe, highlighting on its different definitions and drivers, as well as vulnerability to energy poverty, with a special focus on gendered experiences. Part two introduces the concept of just transition and energy justice. In section three the methodology of this thesis is laid out. Section four shows and discusses the results, divided into three sub-parts: the development of a gender-aware just transition framework, the application of this framework for cross-country comparison, and the discussion of a good practice case study. The thesis concludes with a reflection on the current situation of gender-mainstreaming practices in energy poverty policies in Europe and highlights potential limitations of this thesis.

## 2. LITERATURE CONTEXT

### 2.1 Energy poverty and gender

#### 2.1.1 Energy poverty in Europe

Indicators from the EU Statistics on Income and Living Conditions (EU-SILC) estimated that in 2020 more than 35 million people (8%) in the EU were experiencing energy poverty, based on their inability to keep their homes adequately warm (Eurostat, 2021). The number of people affected varies across the EU with largest shares in South-Eastern Member States, such as Bulgaria and Lithuania, and lowest shares in Austria, Finland, and the Netherlands (see Figure 2-1).

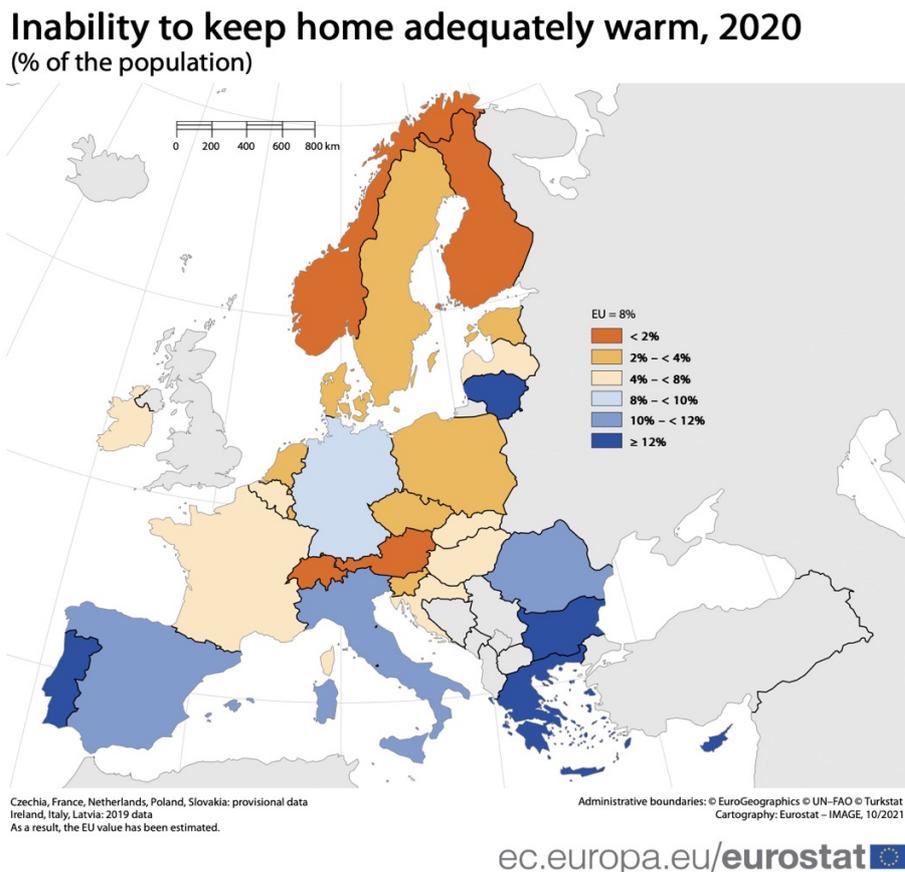


Figure 2-1: EU Member States and the percentage of population that were unable to keep their home adequately warm in 2020 (Eurostat, 2021).

Since 2020, the impacts of the COVID-19 crisis, as well as drastic increases in energy prices due to the Russian invasion of Ukraine in February 2022 have worsened the energy situation of many Europeans (EC, 2022), with some groups more impacted by it than others. A recently published analysis by the International Monetary Fund showed large gaps between richest and poorest households and the proportion of income they spent on energy in 2022 (Ari et al., 2022). This highlights that the energy crisis impacts poorer households disproportionately. The analysis found that the UK has the biggest gap with the richest 10% of households expected to spend 6.1% of their income on energy, compared to 17.8% of the poorest 10% (Carrington, 2022). This unequal distribution in energy cost burden will most likely worsen the already difficult situation for many energy-poor households in the EU. Thus, addressing energy poverty through just energy policies and measures has become an even more urgent challenge during the last two years.

These statistics reveal that energy poverty is an ongoing lived reality in countries of the Global North, and they refute only in the assumption held by many people that energy poverty is an issue in the Global South. Much of the current understanding about who is living in energy poverty in Europe is based on proxy indicators. This is because many Member States have not defined energy poverty and analyzed data of different indicators on energy poverty in their country which makes it difficult to evaluate the extend of the problem in Europe. In 2016, the EC initiated the EU Energy Poverty Observatory (EPOV), a 40-month project that aimed at developing coherent monitoring and data collection on energy poverty at the EU level (EPAH, 2023). Since the start of this program, there has been a noticeable shift in the integration of energy poverty into EU directives and national policies (Bouzarovski et al., 2020), as well as a more coherent understanding of the problem through the initiative's set of energy poverty indications. Its approach continues to be an integrated part of the Energy Poverty Advisory Hub (EPAH), which intends to be a platform of expertise on energy poverty in Europe and connect stakeholders aiming to eradicate energy poverty. These ongoing energy poverty projects and research programs commenced by the EU highlight the need for collaboration and sharing of best practice to ensure a successful alleviation of energy poverty in Europe, as part of a just transition for all (Kerr et al., 2019).

However, as most literature on energy poverty policies and gender perspectives focuses on Northern and Western Europe, e.g., the UK and France, there is a lack of detailed research on the extend and lived reality of energy poverty in Eastern and Central European countries (Karpinska & Śmiech, 2020). Energy poverty has a diverse and multidimensional character, yet the existence of spatial variations of the issue within a country and between nations in Europe still underestimated and neglected by most studies (Bouzarovski et al., 2020; Mashhoodi et al., 2019).

### **2.1.2 Energy poverty definitions and vulnerability**

As of today, there is no EU-wide definition for energy poverty. Instead, every EU Member State chooses whether to prioritize energy poverty in their policy agenda and decides, according to country specific factors, on a definition for energy poverty (Clancy et al., 2017). Due to its inefficient housing stock, the UK has been the first country in Europe that brought academic and political attention to the issue of energy poverty, or fuel poverty as it is officially called in the UK, already in the 1970s (Koh et al., 2012). Since then, an extensive amount of research, mostly in the UK, has led to updated versions of measures and definition of energy poverty that recognize and reflects the multidimensional aspect, as well as spatial and temporal variation of the issue (Bouzarovski et al., 2020; Mahoney et al., 2020). The UK government characterizes a person as fuel poor when they are living “on a lower income in a home which cannot be kept warm at reasonable cost” (Secretary of State for Business, Energy & Industrial Strategy, 2021).

The UK's first indicator of energy poverty was the 10% metric, an expenditure-based measure which considers a person as fuel poor if their household spends more than 10% of its income on energy to ensure an adequate level of warmth in their home (Mahoney et al., 2020). This 10% indicator proposed by Boardman (1991) was in place in the UK until 2013 and some countries in Europe, including Northern Ireland, Ireland, and France, still use variations of it today (Mahoney et al., 2020; Clancy et al., 2017). As argued by Deller (2018), such a single expenditure-based metric for all Member States to identify households experiencing energy poverty can be problematic due to a complex range of factors within the country. These include income, quality of buildings, the country's climate, types of heating/ cooling, or how income is assessed (Feenstra & Clancy, 2020). The absolute measure does not respond to changes in income or improvements of energy efficiency of the building (Boardman, 2012). In addition, the 10% indicator has been criticized to be very sensitive to variations in energy prices (Secretary of State for Business, Energy & Industrial Strategy, 2021; Tirado Herrero, 2017).

Another indicator that considers the relation between a household's income and its energy expenditures, also known as the Hills Review, is the Low Income High Cost (LIHC) metric. Compared to the former indicator, this measure not only gives insights into the number of people living in energy poverty, but also the severity of the issue for each household (Tirado Herrero, 2017). According to this metric, a household is considered energy poor if it (1) has higher costs of energy than national median and (2) has an income (after paying for required energy costs) below the official national poverty line, which is defined as 60% of the median income of the country (Rademaekers et al., 2016; Secretary of State for Business, Energy & Industrial Strategy, 2021). However, this indicator has been criticized to mask the impact of rise in energy prices as it is based on the national median which shifts upwards when the prices in the whole country increase, thus leading to almost no change in the share of households living in energy poverty (Rademaekers et al., 2016). In addition, households that under-consume energy to save money are not considered by this indicator (Mulder et al., 2023).

A third energy poverty metric that was introduced in the UK after consultation in 2019, to better include the three main drivers of energy poverty, is the Low Income Low Energy Efficiency (LILEE) measure. This indicator considers a household to be energy poor if (1) its income, after deducting energy costs and taxes, is below the poverty line, which is defined as less than 60% of the national median income, and (2) its building efficiency has a rating of Band C or below (Secretary of State for Business, Energy & Industrial Strategy, 2021). Through this indicator, the UK government aims to better identify the energy poverty measure a household needs to alleviate it out of their energy poverty situation, as it distinguishes between economic-based reasons and condition of the house (ibid).

Although the number of countries in the EU that recognize and implemented energy poverty in their national policy is rising, most countries still lack an energy poverty definition (Clancy et al., 2017). Deciding on a definition that considers the multi-dimensional character of energy poverty remains a challenge. Without an energy poverty definition implemented in national policy less relevant data will be collected, thus leading to an inaccurate understanding about the number of people living in energy poverty in Europe. The EPAH is an EU-wide institution that aims at uniting countries in their energy poverty approaches and measures to be able to make comparisons between nations. It defined three main causal factors of energy poverty, commonly known as the triangle of energy poverty drivers, namely low income, high energy costs, and energy efficiency of household and buildings (EPAH, 2022). The EPAH selected this simplified three-dimensional approach to better understand the complexity of energy poverty.

From these drivers, different groups of people who are more vulnerable to energy poverty can be identified. Yet, vulnerable people living in energy poverty are not a homogeneous group, but their causes and lived experiences are diverse. To understand this complex group of individuals, extensive data disaggregated by intersecting factors needs to be collected to ensure that implementation of measures is effective (Clancy et al., 2022). Many energy poverty policies are using the term of 'vulnerable people', without an in-depth understanding of the underlying mechanisms that lead to those socioeconomic circumstances (ibid). However, it is crucial that policy measures are made in such a way that they target the ones that are affected the most by energy poverty. As summarized by Middlemiss (2022), the term 'vulnerable people' is referring to a variety of different categories, such as low-income, ethnicity, people from demographic categories, including elderly, gender, young people, as well as people living with disabilities. Another factor that drives vulnerability is the type of household, e.g., single parent families and large households and those living in social housing. However, it is crucial to consider intersectionality when identifying groups of vulnerability. People can face multiple forms of discrimination to energy access, for instance elderly women, single parents with small children, or transgendered people with a lower education level more likely to be exposed to energy poverty (Robinson, 2019; Sunikka-Blank & Galvin, 2021; Feenstra & Clancy, 2020).

The impacts of energy poverty on people are as diverse as the drivers of the issue. Houses where energy poor people live are usually considered energy inefficient and old, thus generally in bad condition (Middlemiss, 2022). It is widely known that damp and mold, which are more likely to be present in houses with poor insulation and heating systems, have a negative impact on the physical health of the household members. A Marmot Review highlighted the linkage to cardiovascular and respiratory diseases from these poor living conditions. In addition, mental health issues such as anxiety, depression, or other forms of stress that arise due to poor living conditions, as well as arrears on energy bills (Middlemiss, 2022). The constant worry of not being able to pay the energy bill for the next month is adding to the physical discomfort of living in a cold home. These negative impacts on physical health have been shown to vary with social characteristics, such as age and gender (Clancy et al., 2022). Elderly people, young children, as well as women are more sensitive to low temperatures, thus suffering more from reduced heating behavior (Clancy & Feenstra, 2020). More gendered experiences of energy poverty are to be discussed in the section below.

Another impact of energy poverty is the change of individual behavior to reduce and minimize energy consumption (Clancy et al., 2022; IEECP, 2022). For instance, a household might switch off their heating or cooling system in most parts of their home or only turn it on during specific times, e.g., when guests are visiting. This coping strategy may negatively affect health, as discussed above, or the social life of energy poor people, as they stop inviting people into their houses which may result in social exclusion. The variety of different effects of energy poverty on people's social lives illustrates the complexity of the issue and highlights the need to engage with people affected by energy poverty to understand their lived experiences and coping mechanisms.

### **2.1.3 Gender perspectives on energy poverty**

In the past decade, an increasing number of researchers have highlighted the gendered dimension of energy poverty while criticizing the gender-blind approaches adopted by policymakers, which, according to ENERGIA (2023), “further institutionalise and perpetuate existing inequalities”. In this context, it is important to define the understanding of ‘gender’ as is used in this thesis. Gender is seen as a dynamic social construct with ‘defined roles, privileges, attributes and relationships [...] which are learned and not biologically determined’ (Khamati-Njenga & Clancy, 2003). Some traditional gender roles are reinforcing power inequalities within a household, for instance, from a binary perspective, women usually take up the role as caregivers while men are in charge of decision making, e.g., about energy services, and power over resources (Feenstra, 2002; Feenstra & Özerol, 2021; Sovacool & Dworkin, 2015). However, men and women are not only two homogenous groups, but rather on a spectrum with high diversity of gender roles dependent on context, time, and place (Feenstra & Clancy, 2020). Therefore, this thesis aims at minimizing the use of the binary terms ‘men and women’ as much as possible. Yet, little amount of data disaggregated by gender is available in the context of energy poverty, with some sex-disaggregated data available. Thus, the thesis sometimes uses the comparison between men and women, thus discussing the issue in a more simplified ‘men and women’ approach instead of a more appropriated nuanced categorization.

The concept of gender roles, which results from different social roles and responsibilities attributed to genders, resulting in different energy needs and power over energy resources (Feenstra, 2022; Feenstra & Özerol, 2021; Tsagkari, 2022). For instance, from a binary approach, women are more likely to take up the role of “primary caretakers and housekeepers” than men (Tsagkari, 2022) and due to this traditional task division, women tend to spend more time within the house, thus are more exposed to the consequences of energy poverty and the coping strategies taken up by the household (EmpowerMed, 2020; Simcock et al., 2021). Despite changes within these traditional gender roles, e.g., increase in women having a paid work, some specific tasks, including household tasks and care work, remain primarily the responsibility of women (Clancy et al., 2022; Robinson, 2019). An analysis from the Scottish Government (2020<sup>2</sup>) explored how time is used in

2020, during the COVID-19 pandemic, with a focus on gender. The report found a statistically significant difference in time use between men and women, with women spending more time on unpaid work, including housework, cooking, household management, and childcare, whereas men spent more time in paid work. Besides childcare, it is often women who provide support to older relatives or are responsible for family members living with disabilities (EIGE, 2022), which are time-consuming activities that are not paid and are often not acknowledged. As highlighted by Robinson (2019), these gendered inequalities continue to be a widespread structural problem in many countries of the Global North.

A more detailed understanding of the people within the vulnerable groups can help to point out the gender dimension of energy poverty. As mentioned before, one of the main drivers for energy poverty is low income. The gender pay gap, indicating the difference in average wages between men and women, illustrates how the level of income is gendered in Europe (EP, 2020). In 2019, women in the EU earned 14.1 % on average less per hour than men (EC, 2021). The gender pay gap, as well as the higher proportion of women who worked part-time or had no paid work for most of their lives due to their responsibilities as caregivers and homemakers, results in older women receiving lower pensions than men, which is reflected in the so-called gender pension gap (Birgi et al., 2021). In addition, women make up a higher share among elderly people due to their on average 5.6 years longer life expectancy than men in the EU (Eurostat, 2022). In their Gender Equality Strategy 2020-2025, the EC (2020<sup>4</sup>) defined one key objective on addressing and minimizing the gender pay and pension gap. Without full economic equality, women are going to be disproportionately affected by energy poverty, as they may be less able to afford their energy costs or invest in appliances with higher energy efficiency.

In addition, the gender care gap illustrates that women are more likely to take up unpaid care work, which leads to them spending more time at home, thus having different energy needs and affecting heating costs. A study, published by EIGE (2021<sup>2</sup>), highlights that in 2016, 81% of all women in the EU are daily carers, thus taking up at least one form of unpaid care work per day, compared to 48% of men. This can be traced back to traditional gender roles which, according to EIGE (ibid) are assumed to still be so persistent, even in mixed-sex households where both adults are working, due resistance in change in gender culture and gendered social norms. As highlighted by Clancy et al. (2022) and discussed in the previous section, women, young children, and elderly people are more sensitive to temperature, thus exhibit different energy needs. Connected to the gendered care work distribution, another vulnerable group that has been widely identified to be more prone to energy poverty are single parents (Clancy et al., 2017; Martiskainen et al., 2021; Middlemiss, 2022). With, according to numbers from the EIGE (2016), about 85% of single-parent households being headed by women, this adds another gendered dimension of energy poverty vulnerability.

Despite clear indication that women tend to be more vulnerable to energy poverty, gender-awareness is still not considered in the field of energy poverty policies (Clancy et al., 2017). As of today, a 'one-fits-all' approach is chosen in most energy poverty policies which leads to individual energy needs of marginalized groups hidden and unconsidered. Yet, some of these invisible groups of vulnerable energy consumers make up 50 % of European society: namely women. If these gender-blind policies continue to ignore who is most vulnerable to energy poverty in Europe, women will continue to be discriminated and their needs ignored (Clancy et al., 2017; ENERGIA, 2023). In addition, to fully understand the broader conditions that shape vulnerability to energy poverty, other characteristics intersecting with gender and energy poverty, as discussed in the previous section, are crucial to be explored and better understood. As highlighted by Lieu et al. (2020), "[t]ransitions toward a low-carbon future are not only technical and economical, but also deeply social and gendered", thus adding a social perspective to energy poverty is an important approach to be taken up, e.g., through the concept of energy justice and just transition.

## 2.2 The concept of just transition

In the past decade, the concept of energy justice emerged from the field of environmental justice (Sovacool & Dworkin, 2015; Heffron & McCauley, 2017) and is now seen as an established research agenda within the field of social sciences (Feenstra & Özerol, 2021; Tsagkari, 2022). Compared to environmental justice, energy justice has a particular focus on access to energy, energy production and consumption, as well as energy policymaking (Feenstra & Özerol, 2021; Hall, 2013). Sovacool and Dworkin define energy justice as a concept that considers “temporal, economic, sociopolitical, geographic, and technological aspects of the global energy system” (Sovacool & Dworkin, 2015) which highlights its multidisciplinary nature. Upham et al. (2022) add to this by drawing a connection between energy justice and a just transition through the reduction of vulnerability.

The perspective of just transition helps to (a) determine where injustices occur within the energy systems, (b) identify people and groups most vulnerable and ignored, (c) introduce new processes to ensure a reduction and equal distribution of injustices amongst all groups in society (Jenkins et al., 2016; Tsagkari, 2022). Based on previous works from Sovacool & Dworkin (2015), Jenkins et al. (2016), and Feenstra & Özerol (2021), an analytical approach to just through three main tenets of justice can be identified: distribution, recognition, and procedural (see Figure 2-2).

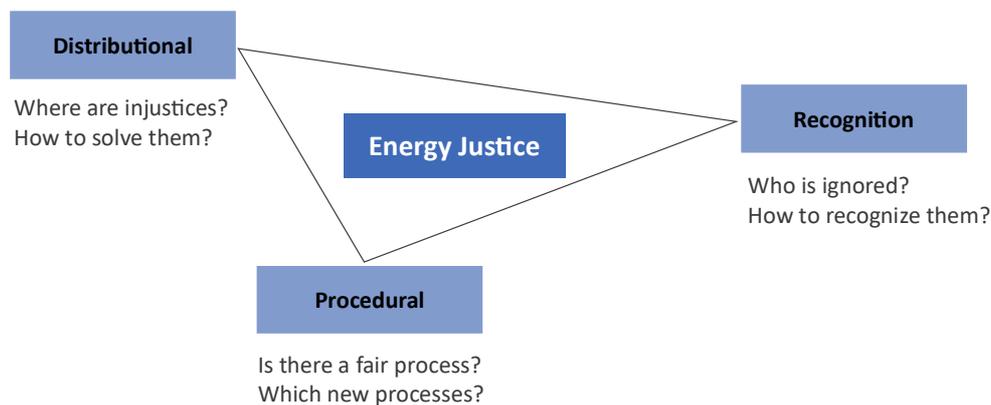


Figure 2-2: Three tenets of energy justice. Adapted from Jenkins et al. (2016).

*Distributional justice* focuses on the allocation of opportunities and burdens within production and consumption of energy services. It aims at benefitting all people in society equally when it comes to adequate access and affordability to energy systems regardless of ethnicity, gender, financial means, etc. (Jenkins et al., 2016). Distributional injustices may originate from a narrow perspective when implementing new measures to tackle energy poverty (Lamura, 2022), solely focusing on the three main drivers of energy poverty: low income, high energy costs, and energy efficiency (EPAH, 2022). This impact-related tenet of justice identifies where injustices in the energy system occur and assess the impact energy policies have on society, e.g., whether they are intended to distribute benefits and burdens equally (Feenstra & Özerol, 2021). However, to be able to assess impacts of distributional injustices, the presence of inequality needs to first be known and widely recognized as an unjust problem that needs action to be solved. For instance, Middlemiss (2022) revealed the differences in the burden of rising energy prices for energy poor people compared to other less energy vulnerable groups of society. For energy poor households, as energy systems change, there is a higher risk of being disproportionately burdened. As highlighted by Middlemiss (2022), “[u]nderstanding this starting point is critical in ensuring the energy poor are able to participate in a just transition and are not subject to further disadvantage”. Energy policymakers

should ask themselves whether resources for energy poverty policies are targeted in a way that ensures fair allocation among all. Here, gender-targeted or gender-sensitive budgeting is arguably a necessary consideration in policymaking, to ensure that public funds are distributed equally between women and men.

*Justice through recognition* calls for the acknowledgment of existing inequalities regarding access to affordable and sustainable energy services in society and marginalized groups (Lacey-Barnacle et al., 2020). This second tenet of the just transition framework aims to recognize and understand the diversity of perspectives and needs in our society which, due to the multidisciplinary nature of the energy transition, can be based on social, economic, ethnic, and gender factors (Jenkins et al., 2016). A lack of recognition of specific needs of marginalized social groups further reinforces existing inequities. Non-recognition of injustices may lead to the stigmatization of social groups, for instance stereotyping people that live in energy poverty by ignoring their individual concerns, needs, and stories (Jenkins et al., 2016). The intersectional nature of energy poverty increases the risk of misrecognition of injustices which is why it is crucial to identify who is ignored in the energy transition by considering the diversity within and between societal groups (Feenstra & Özerol, 2021). Only with the representation of diverse stakeholders is it possible to define actions to better recognize energy needs of the excluded groups in the future (Jenkins et al., 2016), thus ensure a just transition for everyone regardless of social background.

*Procedural justice* highlights the importance of guaranteeing both equal inclusion and active participation of societal groups in the decision-making processes of the energy transition. This distinction is needed, because “being included in the discussion does not equal participation in the decision-making” (Jenkins et al., 2016). The third principle focuses on inequities in governance and decision making which may be a result of stigmatization of marginalized groups or active exclusion from energy policy processes (Tsagakari, 2022). By including a greater variety of appropriate stakeholders in procedural decision-making of energy systems, injustices through exclusion may be reduced. Every citizen should be given the opportunity be heard and actively involved in decisions regarding development and implementation of energy processes (Carley & Konisky, 2020; Sovacool & Dworkin, 2015). Identifying where a fair process and equal participation in all steps of decision-making is not yet implemented can give responsible parties the ability to determine which current practices need to be adapted or what new processes are required to ensure a fair energy transition for all (Feenstra & Özerol, 2021; Jenkins et al., 2016).

As Sovacool & Dworkin (2015) highlighted, the just transition perspective can be used in many ways. As a conceptual approach that helps researchers and policymakers to identify injustices within the energy system by considering specific needs and expectations of energy use, as well as to evaluate the outcomes of energy policies (Sovacool & Dworkin, 2015; Jenkins, 2018). Used as an analytical tool, the just transition perspective helps to better understand and therefore identify steps that are needed to resolve underlying problems which are present in energy systems (Sovacool & Dworkin, 2015). The concept can also be applied by decision-makers, such as policymakers, homeowners, or consumers, to ensure decisions related to energy matters are made in such a way that they are fair for everyone, and their outcomes are equally allocated (Feenstra & Özerol, 2021).

### **3. METHODOLOGY**

The research questions concern (1) the influence of gender on the experience of energy poverty; (2) what gender-aware energy poverty policies would constitute; (3) how illustrative EU countries perform in terms of the gender-awareness of their energy poverty policies; and (4) what can be done, at the level of practice, in terms of gender-aware energy poverty policy. Research question 1 and the underpinning of research question 2 are addressed above through literature review. Research question 3 requires the development and application of an evaluative matrix that takes into account the foregoing. Research for question 4 again involves inference from literature. With the first two questions being principally addressed through literature review, below I particularly address research questions 3 and 4.

#### **3.1 Development of a gender-sensitive just transition framework**

One objective of this project was to develop a just transition framework that incorporates a gender-sensitive perspective in the analysis of energy poverty policies. In recent years, more researchers have used the energy justice framework when analyzing gender-related topics within the scope of energy systems (Tsagkari, 2022). Yet, such a framework for energy poverty policies that is commonly agreed on and used is still lacking in Europe. This results in policy formulation processes that do not incorporate a gender-sensitive approach, thus hindering a successful and fair energy transition. As this project focuses on gender equality in energy poverty policies in Europe, literature from the Global North was selected for developing the gender-sensitive just transition framework. We emphasize that the proposed just transition framework with its added gender-perspective on energy poverty policies should not be viewed as a fixed one-size-fits-all tool, but rather serve as a basis for policy that can be adapted according to its individual country application. Such flexibility is necessary, given the spatial variation of energy poverty across Europe, thus the diverse characteristics and systematic inequalities of each country (Stojilovska et al., 2022). However, to the extent that countries share similar energy poverty characteristics, the framework should still be broadly applicable beyond the countries studied here.

The framework links the concept of just transition to gender equality by adding a gender perspective to the dimensions of distributional, recognition, and procedural justice. For each tenet of justice policy elements have been identified that need to be included to ensure gender mainstreaming in energy poverty policies. Nonetheless, the three principles are not separate from each other, and are often strongly linked and interdependent (Tsagkari, 2022). Thus, some policy features may be part of both procedural and recognition justice. For instance, an active inclusion and participation of women in energy policy decision-making can only occur if policymakers recognize that the needs of women living in energy poverty are different from those of men, and that this needs to be taken account of in decision-making processes, including by direct involvement, thus linking procedural and recognition justice.

With the above in mind, a literature review was carried out in order to support the analysis of the gendered aspects of energy poverty in Europe, including possible ways of taking account of these in energy poverty policies. This literature informed criteria by which to add a gender-lens to energy poverty policy, including key policy elements that could be integrated within a just transition framework.

#### **3.2 Comparative analysis of energy poverty policies and gender-awareness**

As a second objective, a cross-national analysis of gender mainstreaming in energy poverty policies in Europe was conducted, based on the just transition framework developed as a previous objective of this thesis. Three exemplar countries in Europe were selected for a more detailed

overview of their energy poverty policies and assessment of both how and the extent to which gender-awareness has been included during formulation and implementation of these policies. In this respect a form of process evaluation (Theodoulou & Kofinis, 2004), that has implications for outcomes, has primarily been undertaken. In addition, the EIGE policy cycle in energy with its gender mainstreaming approach was selected as an additional method to analyze energy poverty policies (EIGE, 2023<sup>2</sup>). The countries chosen for this thesis are the UK, France, and the Netherlands, because their energy poverty agendas vary from only recently existent (the Netherlands), to partly implemented (France), to subject of research and political action for decades (the UK). The UK has made great progress in determining strategies to reduce energy poverty due to recognition of the issue as early as the 1970s (Koh et al., 2012) which led to other European nations making the UK a role model for tackling the problem of energy poverty in their countries (Mahoney et al., 2020). Yet, and in part the underlying reason for its policy salience, the nation faces a high number of its citizens living in energy poverty, which certainly leads to the question as to its role as a leader of energy poverty mitigation (Mahoney et al., 2020). In addition, each devolved nation of the UK approaches energy poverty in a different way and through different policy strategies. For this country comparison, Scotland was selected as the main country to focus on, due to its most comprehensive policy approach to tackle energy poverty, including quantified long-term targets (EPOV, 2019<sup>1</sup>). During the past 10 years, France has increased the priority of energy poverty in their policy agenda through the rise of research and policies on the issue and the implementation of the French Energy Poverty Observatory (ONPE) to define, monitor, and measure energy poverty (EPOV, 2020). The Netherlands, on the other hand, has only recently acknowledge energy poverty as an issue distinct from income poverty, which should thus not be addressed through social welfare policies, but specific energy poverty policies (Feenstra et al., 2021; Mulder et al., 2023).

In addition, France and the Netherlands were chosen because they were ranked 5<sup>th</sup> and 3<sup>rd</sup> in the EU on the Gender Equality Index, respectively. The Gender Equality Index is a tool developed by the European Institute for Gender Equality (EIGE) to measure and track progress and setbacks of gender equality in the EU (EIGE, 2023<sup>1</sup>). The index includes a variety of different domains, including (1) finance, namely at-risk-of-poverty and income distribution amongst women and men, (2) time spent on care and domestic work, (3) power in decision-making processes. In addition, the index considers other elements that intersect with gender, e.g., family type, age group, level of education, country of birth, and disability (EIGE, 2023<sup>1</sup>). With the two countries ranking highly in the Gender Equality Index, they were assumed to be more likely to include gender mainstreaming in their national policies.

Two approaches were used as part of this comparative analysis and to identify and select relevant energy (poverty) policies for comparison between the three countries. The first approach aimed at determining the extent to which the three nations have already integrated energy poverty into their political agenda, for instance by having a definition, indicators, measures, or support schemes in place. For this method, recent country-specific energy policies were chosen to assess how and to what extent the three nations recognize and address energy poverty. Instead of simply presenting a list of energy (poverty) policies of each nation, an analytical approach was applied whereby the findings were investigated through the lens of the proposed just transition framework. This allowed identification of how current policies aim, succeed, or fail to address energy poverty in a gender-aware and hence (it is assumed) a more effective way.

Following Bouzarovski et al. (2020 & 2021), Breukers et al. (2021), Lamura (2022), and Stojilovska et al. (2022), the National Energy and Climate Plan (NECP), a document mandated by the EU to each Member State in accordance with the Clean Energy for all Europeans Package from 2019, was selected as key reference source on current energy poverty approaches for or all three countries. The EU called on each country to submit their final NECPs by the end of 2019 covering key topics that needed to be addressed in the NECP of each Member State, including the requirement for

defining and reporting on energy poverty as part of the just energy transition in Europe (Bouzarovski et al., 2021; European Commission, n.d.; Feenstra et al., 2021). Even though the UK is not a Member State anymore, their national government has submitted and published its final NECP. As the other two nations have also not, at the time of writing, updated their NECPs, the UK's NECP is still considered here, thus providing a suitable frame for cross-national comparison. However, a more recent policy publication on energy poverty in the UK is included for most recent policy aims.

During the past two year, there have been few analyses of the NECPs focusing on the energy poverty dimension. Bouzarovski et al. (2021), Bouzarovski et al. (2020) through the EU Energy Poverty Observatory, and Lamura (2022) conducted comparative analyses on how energy poverty is addressed in the NECPs. The present study focuses in more detail than the latter papers on three countries instead of all Member States. By analyzing the nations' NECPs in terms extent of implementation of energy poverty in their policy agenda, as well as including the EC's assessment documents of the submitted NECPs, an overview of the extent of implementation of the issue of energy poverty in the policy agenda in France, the UK, and the Netherlands was provided. For the UK, the analysis focused on Scotland specifically, due to the country's strong commitment to ending energy poverty and a recently published Fuel Poverty Strategy from 2021. This updated version of the nation's previous Fuel Poverty Act was selected as an additional policy document because it includes updated energy poverty measures and definitions of vulnerable consumers (The Scottish Government, 2021<sup>3</sup>).

As a second, additional approach to the analysis, recent country-specific publications and literature reviews on gender perspectives in energy poverty policies were collected and a comprehensive policy evaluation was again conducted for each of the three nations, in the same terms as above.

### 3.3 Case study selection

As a third objective of this thesis, a policy case study in a single country is analyzed in detail, as a means of highlighting good policy practice for tackling energy poverty in a gender-aware way. The aim in this respect is to present an illustrative example that supports the proposed just transition framework by additionally highlighting gender mainstreaming gaps in the good practice case. However, it is important to emphasize a limitation to generalize from one case study which is performing well in reducing energy poverty by including a gender-lens. As highlighted earlier, the spatial and intersectional dimension of energy poverty ask for individually targeted mitigation measures and solutions. Despite the challenges of generalizing across cases and countries, lessons can be learned from such small-scale case studies providing that differences in nation's specific energy poverty characteristics and needs are taken into account.

For the selection of the case study, the EPAH ATLAS was used as a primary source. This interactive online database was launched by the EPAH in 2021 and aims at highlighting inspirational approaches to address energy poverty on a local level across Europe (DG Energy, 2021). The database was filtered for energy poverty cases that specifically focus on SDG5 Gender Equality and are located in one of the three countries chosen in this thesis. EmpowerMed was selected due the projects main aim to contribute to energy poverty alleviation through practical measures that empower vulnerable groups, with a special focus on women (EPAH, 2021). The program works together with local organizations and partners, focusing on tackling energy poverty in the Mediterranean (EmpowerMed, 2023<sup>2</sup>). For instance, the Geres four-year program is a participant of EmpowerMed in Marseille, France, which aims at "[r]educing social inequalities and speeding up the energy transition for all in Marseille" (Geres, 2019), by targeting and involving women in particular. Other countries included in the EmpowerMed project are Spain, Italy, Albania, Croatia, and Slovenia (EPAH, 2021).

The definition of good practice was thus based on the EPAH's selection of inspiring cases. EmpowerMed is a four-year project funded by the EU under the HORIZON 2020 program 'SOCIAL CHALLENGES – Secure, clean and efficient energy' (CORDIS, 2022). Therefore, official reporting on the overall objectives, work progress, as well as expected potential impact of this project is required and publicly available through the EC's research results website.

## 4. RESULTS AND DISCUSSION

### 4.1 Development of a gender-sensitive just transition framework

A just transition should ensure gender equality when implementing policies and measures to tackle injustices, such as energy poverty. Adding a gender mainstreaming perspective to energy policymaking can help to overcome disadvantages in access to affordable and reliable energy and well-being (Clancy et al., 2011). Yet, this is still not common practice within Europe, with only few countries, e.g., Sweden and Belgium, having implemented specific gender mainstreaming laws or strategies (Clancy et al., 2017; EIGE, 2020). Here, the just transition framework can help with its main application target of supporting the decision-making process of energy policies to ensure an equal and fair outcome for all (Jenkins et al., 2017; Tsagkari, 2022).

In this thesis, a framework based on the three tenets of energy justice in the context of gender-aware energy poverty policies has been developed (see Table 4-1). For each type of justice, key policy elements that should be included during the policymaking process have been proposed, based on previous works in this field, including by Clancy et al. (2020), Feenstra (2002), Feenstra & Özerol (2021), Jenkins et al. (2016), Lamura (2022), Sovacool & Dworkin (2015), and Tsagkari (2022). The following sections elaborate in detail how and why these elements can lead to more equitable energy poverty policies in Europe. Although each type of justice is discussed separately, it is important to note that they are not mutually exclusive, but that all three tenets must be considered for a just transition.

Table 4-1: Key policy elements of gender-responsive energy poverty policies. Source: Author

		Policy Element
Distributitional Justice	D1	Identification of main drivers of energy poverty
	D2	Equal distribution of benefits & impacts among all
	D3	Targeted resources and subsidies for the most vulnerable (gender budgeting)
	D4	Gender-sensitive impact assessment/ evaluation of policy measures
Recognition Justice	R1	Implementation of a formal and explicit energy poverty definition
	R2	Collection and use of sex-disaggregated energy poverty data
	R3	Identification of groups that are relatively vulnerable to energy poverty, inc. specific group characteristics (Intersectionality)
	R4	Acknowledgement of gender differences in energy needs
Procedural Justice	P1	Inclusion and active participation of women in policymaking processes
	P2	Involvement of appropriate/ diverse stakeholders (NGOs, gender organization, etc)
	P3	Access to information on energy poverty measures and support schemes and programs
	P4	Existence of and linkage to national gender equality policy (gender mainstreaming)

#### 4.1.1 Distributional justice

If injustices of energy poverty are to be tackled by states, these must ensure that the corresponding policy objectives and measures adequately address all of those affected, and that the impacts of these policies are distributed to support welfare equality. As a starting point, it is crucial to understand the main drivers of energy poverty, to better assess where the injustices are, and who may be impacted and to what extent. Three widely agreed-on drivers are low income, high energy costs, and energy efficiency of buildings (EPAH, 2022). The first of these puts women at a higher risk of experiencing energy poverty due to the existing pay gaps and the higher tendency of women to work part-time, thus earning less on average (as elaborated in Section 2.1). By identifying a nation's specific causes of energy poverty, policy measures can be developed that focus on the most important aspects that need to be tackled first. Determining a country's energy poverty drivers requires detailed understanding of the issue of nationally-specific energy poverty and its intersectional characteristics. This is also reflected in the first phase of the policymaking cycle by EIGE (2023<sup>2</sup>), which focuses on gender mainstreaming in energy policies. Thus, comprehensive data collection and analysis must be conducted, which is still not done on a large scale at the national level in Europe, as will be discussed in the following sub-section in relation to recognition justice. Therefore, a first and crucial policy element of the just transition framework developed in this thesis is the identification of main drivers of energy poverty.

A second key policy feature is to ensure that policy benefits and impacts support equality. In the context of the just transition, this requirement implies that not only can the majority of households participate in the change to a sustainable and affordable energy system, but that vulnerable and low-income households are also actively assured equal benefits and opportunities. Here, it is crucial that in policymaking process the question should be asked whether the energy poverty policy is intended to address distribution in favor of equality for all citizens regardless of income, sex, race, etc. (Jenkins et al., 2016). For instance, decisions on eligibility requirements for energy poverty support schemes must be made in a gender-aware way to ensure that women are not left out or disadvantaged. An example illustrating the importance of gender mainstreaming in this context is the retirement age. Elderly people are considered to be more vulnerable to energy poverty due to the low income from their pension. Yet, on average, women receive lower pension rates and at the same they tend to retire earlier and live longer than men, which must be considered when developing a financial support scheme that aims at reaching pensioners and is based on a certain age limit. For instance, the Scottish government adapted the eligibility of their payment support to "people above the women's state pension age" in their Fuel Poverty Strategy from 2021 (The Scottish Government, 2021<sup>3</sup>). Targeting energy poverty policy resources in a fair and equal way, e.g., through gender budgeting, will help to ensure achievement of the policy's main goal of supporting the most vulnerable and affected citizens, with a special focus here on women. Therefore, targeting resources to the most vulnerable to energy poverty has been identified as a third key policy element in the proposed just transition framework.

Another suggested action to facilitate distributional justice is the evaluation of different policy measures through social impact assessment. Continuously analyzing the outcomes of an energy poverty policy may improve its implementation and effectiveness, as well as provide insights into options by which to better achieve policy targets (Theodoulou & Kofinis, 2004). The policy cycle defined by EIGE (2023<sup>2</sup>) highlights the importance of including checks on an energy poverty policy during and after its implementation, in the form of gender-sensitive monitoring and evaluation processes. This can be performed through social and specifically gender impact assessment and policy evaluation during the policymaking phase and after the implementation of the policy. Post-evaluation should help to identify where measures are not yet reaching the most energy poor people, or which driver of energy poverty needs to be addressed in a different way to ensure reducing numbers of energy poverty decrease among all genders.

### 4.1.2 Recognition justice

As discussed earlier, a just transition may only be achieved if all three tenets of justice are considered, implying that they interact and influence each other. For instance, a nation will only be able to take action to identify its main drivers of energy poverty once the topic is recognized as an important issue to be tackled. Getting past the condition of being ignored, e.g., by placing the gendered issue of energy poverty on the policy agenda, is the first stage of, and precondition for, being treated justly. One essential and inevitable element of an energy poverty policy is the implementation of an official energy poverty definition. Only with a formal definition in place do governments put energy poverty on their policy agenda and adopt measures and define targets to combat the issue.

In order to incorporate a gender-aware perspective into energy poverty policy, the collection and analysis of sex-disaggregated data is essential. It provides insights into the realities of the lives of women and men on a variety of social and economic dimensions, and thus assists in designing a just policy that includes gender differences in terms of energy poverty (Kooijman et al., 2023). Without sex-disaggregated data, there is limited knowledge on the extent to which gender equality may benefit the energy transition in Europe (Tsagkari, 2022). In addition, lack of data and lack of analysis of available data further reinforce the invisibility of women's energy poverty exclusion. A main issue with current data collection on energy poverty in Europe is that most surveys collect data on a household level, not each individual within a household. For instance, income data is assumed to be equally distributed among all adult members of a household, ignoring the fact that, on average, women still own less than men. It also implies that gender relations in a mixed-sex household are symmetrical, and that the women of a household have the same financial opportunities, patterns and decision-making opportunities as men do, disregarding the gender inequalities that variously operate within households (EWL, 2022 & Gonzales Pijuan, 2018). As Middlemiss et al. (2018) pointed out, there is a mismatch between assumed experiences of energy poverty and the actual lived experiences. This could be traced back to the fact that most countries still focus on quantitative data when analyzing energy poverty, even though studies (Feenstra et al., 2021; Middlemiss, 2022) have highlighted the importance of including qualitative data on lived experiences to better understand the reasons why certain people fall into energy poverty.

Another policy element identified as having the potential to increase gender-awareness in energy poverty policies is the acknowledgement of those groups most vulnerable to energy poverty. Research indicates (see Section 2.1) that there are social factors that increase the risk of experiencing energy poverty, including age, household composition and presence of children, sex and thereby gender roles, country of birth, disabilities, level of education, etc. By identifying which social categories of citizens are more likely to be affected by energy poverty, policymakers can develop measures to specifically reach and address people in vulnerable groups. Without disaggregated analysis of the groups that are more vulnerable to energy poverty, policymakers fail to recognize "unequal power relations at all levels of society" (Clancy et al., 2022) and therefore increase the risk that their policy measures are targeted ineffectively.

Applying an approach whereby intersecting inequalities are captured and reflect the diverse realities of energy poverty in a given society is the ideal. However, there is even less data available on how these characteristics may intersect with gender and how to best integrate an intersectional approach to energy poverty policies. More studies need to be conducted in the upcoming years to shed more light on this issue of intersectionality in energy poverty to ensure an even more inclusive and just transition. Again ideally, this will enable the design of policy that is tailored to specific national, regional, and socio-economic circumstances.

Discussions about gendered perspectives of different needs within the just energy transitions are currently limited in extent in policy settings (Lieu et al., 2020). Yet, without recognizing that women have different energy needs and take on specific roles within their household, that require different patterns of energy consumptions than those of men, there will continue to be energy-related injustices. These differences in responsibilities and opportunities will be further perpetuated if gender-blind policies fail to consider them appropriately. The socially constructed energy needs that arise, for instance, from the high proportion of women performing care work at home, only becomes visible, when sex-disaggregated data on individual, not household level, are collected and analyzed.

### **4.1.3 Procedural justice**

To ensure procedural justice in energy poverty policy, the main policy element identified is that of guaranteeing equal inclusion, as well as participation, of women in decision-making policy contexts. This starts via actively including gendered perspectives in the discussion about energy poverty definition, drivers, and measures by ensuring all voices are heard and considered. However, as highlighted by Jenkins et al. (2016), including women in the energy transition discussion does not mean that they will be treated equally to men. Women have historically been, and to some extents still are, excluded from active participation and decision processes (Tsagkari, 2022), which may be one reason why most energy policies are gender-blind and thus not equally fair to all (Clancy et al., 2017). Therefore, gender-aware energy poverty policies require the presence of women in governance and their direct influence in the policymaking and implementation phase. This requires acknowledgement of women not only as energy consumers, but as producers and decision-makers (Feenstra & Özerol, 2021).

Recognizing that women do not necessarily hold consensual positions on associated policy, another aspect in the just transition framework that aims at ensuring fairness in the processes by which decisions about energy policies are made is the involvement of diverse stakeholders. This implies that a variety of different perspectives on energy poverty should be consulted during all phases of policymaking. For instance, national NGOs, organizations focusing on intersectionality, or gender mainstreaming experts could and should be included in the discussion about possible measures to effectively tackle energy poverty. As mentioned with the previous policy element, some important perspectives may be overlooked, intentionally or unintentionally, given lack of awareness or interest among decision-makers. Hence the need to involve a diverse group of stakeholders. However, the consultation and engagement of a broad range of viewpoints comes along with the challenge of finding a consensus, which can make the final decision-making process more difficult. Yet, on the issue of gender mainstreaming, there may be quite a high degree of consensus on what should be done.

An important aspect that is often forgotten when energy poverty measures are implemented is to make sure those most affected by energy poverty can access and understand existing support programs and information. A major barrier to reaching the desired target group is their lack of knowledge about eligibility for support schemes and the procedure for applying for financial support (ENERGIA, 2023). Women and men have different capacities to obtain information on energy services, more efficient appliances, or financial assistance (ibid). Another issue with reaching the desired target group for support measures that people must apply themselves is that some consumers may struggle to determine whether they are eligible for a certain allowance (März, 2018). Therefore, accessible online information in simplified language, as well as additional local advisors and energy counselors which aim at reaching low-income and vulnerable households, may be viable approaches to make sure everyone in need is addressed by energy poverty measures (Straver et al., 2020).

A final policy element that should be included to help ensure a fair energy transition is the linkage in energy poverty policy to any national gender equality strategy. Such linkage indicates understanding of the material linkages between energy poverty policy and the main goal of gender equality. Only when gender mainstreaming is common practice in all policy areas, can a just transition be said to be taking place.

## 4.2 Application of the framework for cross-country analysis

To analyze how the three different European countries approach and address energy poverty and gender-awareness within their national policies, the NECP of each country, as well as additional relevant energy poverty policies were examined along the just transition framework developed in the previous section. The analysis was done by investigating the extent to which the three dimensions of energy justice - distribution, recognition, and procedural justice – are reflected in the energy poverty policies of each country. The following subsections present the results from that cross-country comparison.

All three countries have presented an overview of energy poverty in their NECPs submitted in 2019. France and the UK reported defined indicators to analyze the extent and impact of energy poverty on their citizens. The Netherlands, however, uses the indicators suggested by the EPOV when giving an overview of the country's energy poverty numbers. All three NECPs highlight the aim of affordability of energy in the context of the just transition. While the UK, and in most aspects France, have already implemented an in-depth approach with country-specific indicators and targeted measures to tackle energy poverty, the Netherlands takes a more general approach by not considering the problem separately from the issue of poverty and by not collecting data to identify country-specific indicators (EC, 2020<sup>1</sup>).

### 4.2.1 Energy poverty policy in France

#### 4.2.1.1 Country overview

France is a country where social inequalities are responded to by citizens through loud protests and raising their voices. One illustrative and well-known example is the yellow vest (gilets jaune) movement which began in 2019 as a protest against the increase in carbon tax which may result in higher fuel prices, affecting the cost of energy and transport services, thus disproportionately burden low- and middle-income households (De Witte, 2019; Martiskainen et al., 2021). These protests highlight the importance of an energy transition that ensures that all burdens and benefits are distributed equally among all citizens. According to the EPOV (2020<sup>1</sup>), France is, next to the UK, one of the few countries in Europe that has energy poverty recognized by the national government and on their political agenda for more than a decade. In addition, the country is an illustrative example of how local-level bottom-up energy poverty projects and programs of non-governmental organizations can provide the basis for a national energy poverty strategy (Bouzarovski et al., 2021). Multiple energy efficiency and financial support programs, involving different stakeholders, are implemented through national and local authorities, targeting low-income and energy poor households (EPOV, 2020<sup>1</sup>).

Energy poverty is measured and reported by the French Energy Poverty Observatory (Observatoire National de la Précarité Énergétique, ONPE), taking into account a broad variety of indicators. According to the most recent publication by the national monitor (ONPE, 2022), about 20% of French people declared that they were suffering from the cold during the winter of 2020 to 2021, compared to a share of 15% of feeling cold in 2017 (Ministère de la Transition énergétique, 2020). Among those, more than one third had financial reasons and almost two thirds avoided turning on the heating in their homes to avoid high energy bills. The latter is a common coping practice that people living in energy poverty engage in often to the expense of their health and well-being (Middlemiss, 2022; Simcock et al., 2016). According to the EPOV Member State Report (EPOV, 2020<sup>1</sup>), disaggregation of 2017 data for household types highlighted that 12.3% of people living social housing, which are about 16% of the French population, reported arrears on their utility bills, compared to 2.9% of homeowners.

Even though France has not yet implemented a new national strategy in place for its international strategy for gender equality (2018-2022), a variety of different legislations and policy frameworks have been implemented in the country to promote gender equality in areas such as work, pension, or access to decision-making (EIGE, 2022<sup>1</sup>). A tool and obligation for gender mainstreaming and its reporting was introduced in 2012 by the Ministry of Women's Rights (ibid). However, this active enforcement of this methodology was stopped after four years, with the result that gender mainstreaming is not a common practice in French ministries today. The National Institute of Statistics and Economic Studies monitors and reports the progress of gender equality in different fields, aiming at raising awareness on the current state of gender equality in the country (ibid). In addition, annual reports with key sex-disaggregated statistics on employment, education, health, culture, and violence against women are published by the Ministry of Equality between Women and Men (2021).

#### *4.2.1.2 Distributional justice*

In its NECP, France is addressing the issue of energy poverty within the country. It mentions two indicators that are monitored and used by the ONPE to evaluate energy poverty nationally. While the first indicator focuses on the energy effort rate, considering a household as energy poor if it spends more than 8% of its income on energy, the second one considers the lived experience of people through their feeling of cold. As highlighted by Feenstra et al. (2021) and Middlemiss (2022), a qualitative indicator, such as the one used in the French NECP, is crucial to include when assessing the situation as experienced, as energy poverty is a complex issue that cannot fully be mapped through economic-based indicators. While the French government has its focus on tackling energy poverty as a long-term goal, the EC has criticized France's lack of a fixed quantified target (EC, 2020<sup>2</sup>). Setting a long-term target may help to implement a monitoring framework that oversees progress in meeting that goal and adjust strategies and measures in such way that it is ensured to achieve the fixed target (The Scottish Government, 2018<sup>2</sup>).

According to the EC's assessment of the final NECP, the government suggests good approaches to ensure the aim of a just transition is integrated into national policies (EC, 2020<sup>2</sup>). Implemented energy efficiency strategies as well as financial support schemes are specifically targeted to the most vulnerable citizens, who, according to a disaggregated data analysis (EPOV, 2020<sup>1</sup>), live predominantly in social housing. As set out by Bouzarovski et al. (2020), France has indirect funding programs for households most affected by energy poverty through the energy efficiency schemes of national energy companies. For instance, the country's energy allowance ("chèque énergie") has been increased to target the 20% lowest income households and is intended to help pay for energy expenses in their homes, as well as certain energy renovation work. In addition, the government is considering the composition of a household when identifying those most in need (Ministère de la Transition énergétique, 2020). Therefore, the country actively aims for equal distribution of benefits among all its citizens and targeting resources to those most in need. However, gender budgeting is not discussed in the final NECP, nor is it common practice to take the goal of gender equality into account when budgeting for energy poverty policies (Ministère de l'Économie et des Finances, 2019). Without the integration of gender budgeting in their approach to combat energy poverty, France risks not fully achieving distributional justice in her energy transition, as women may not equally benefit from support schemes.

The government has assessed possible social and employment impacts of planned objectives and measures in their NECP (Ministère de la Transition énergétique, 2020). The social impact of measures to tackle energy poverty, especially related to housing and mobility, is provided in detail. Yet, as highlighted by the EC (2020<sup>2</sup>), a meaningful assessment of energy poverty measures can only be developed with quantified targets in place. The NECP is lacking a gender-sensitive evaluation of different policy measures proposed and implemented by the government, despite the country's

recent program that aims at analyzing the impact of all public measures regarding gender equality (EIGE, 2022<sup>1</sup>). Yet, as stressed by the IEA (2023; 2018), the energy sector is one of the areas where awareness of gendered impacts is among the lowest, thus social impact assessments including a gender perspective are rarely performed. A shift in recognizing the added value of gender impact assessments in energy poverty policy is crucial for France to ensure that women are equally targeted by measures as men.

#### *4.2.1.3 Recognition justice*

France was one of the first EU Member States that had an official definition of energy poverty implemented by its government. The final NECP also highlights the country's broader approach to include transport poverty as an issue related to, but separate from, energy poverty. A reason for France to specifically include fighting mobility poverty into their objectives for a just transition may be the yellow vest movement, as discussed earlier and supported by Kerr et al. (2019). In recent years, the interface between energy poverty and transport poverty has gradually received more attention in the research community, as highlighted by Bouzarovski et al. (2021). In France, energy poverty is defined based on two different indicators: (i) the energy effort rate, and (ii) declaration of feeling cold due to at least one of the following reasons: "poor insulation, insufficient heating, heating breakdown, heating restriction because of cost or energy shutdown because of non-payment" (Ministère de la Transition énergétique, 2020).

France is one of the few European countries that have a national monitoring program on energy poverty in place. The ONPE's work is to measure energy poverty, as well as evaluate implemented objectives and publish yearly reports on the situation of energy poverty in the country. The EPOV (2019<sup>2</sup>) highlighted the ONPE as a best practice case study, underlining the ONPE's commitment to raising awareness of energy poverty in the country, measuring energy poverty, and monitoring the effectiveness of the country's energy poverty policy. The observatory's work may be used as a successful model for other EU Member States to implement a national energy poverty observatory as well. There is a consensus within the EU and among the energy poverty community (Bouzarovski et al., 2020; EPAH, 2021) that sharing good practices and lessons learnt from energy poverty measures and initiatives with other countries in the EU is a crucial and necessary approach to ensure all EU Member States are part of a successful and fair energy transition that recognizes vulnerability to energy poverty. However, the ONPE is not disaggregating its data by sex, the need for which has continuously been highlighted by researchers (Feenstra, 2002; Tsagkari, 2022) to be an important step towards a better understanding and recognition of the groups most vulnerable to energy poverty.

In its NECP, France takes the concept of social justice as a basis when stressing that special attention is needed to protect the most vulnerable households (Ministère de la Transition énergétique, 2020). The country identifies people living with disabilities or limited mobility, as well as individuals "who are vulnerable in economic, social or energy terms" (ibid) as vulnerable groups that may experience inequality in terms of accessibility to energy services, thus must be given particular attention or support. Yet, an official definition of groups that are vulnerable to energy poverty, including acknowledging the intersectionality of social characteristics, is missing in the NECP. Moreover, the plan does not mention any gender differences in energy needs, even though an analysis from 2013 (ONPE, 2016) revealed that single parents and elderly people living alone are more likely to experience energy poverty in France. The share of women in both categories is assumed to be higher, as single parents are mostly female-headed households and the life expectancy of women is longer compared to men in France (INSEE, 2022).

#### 4.2.1.4 Procedural justice

The EIGE Gender Equality Index for France (EIGE, 2021<sup>1</sup>) shows that in 2021 the share of female ministers in the national government was slightly higher (51%) than that of male (49%), compared to an EU average of 34% to 66%, respectively. In addition, the Ministry of Energy Transition, which is in charge of publishing the NECP, is currently held by a woman. This supports the country's focus area for achieving gender equality, the employment and professional work sector (EIGE, 2022<sup>1</sup>). Yet, despite having a higher share of women in decision-making positions, the country is still failing at adding a gender-aware perspective to their energy poverty alleviation.

As highlighted by an EPOV case study (2019<sup>2</sup>), the successful implementation and country-wide acceptance of the energy poverty observatory in France is due to the close cooperation and inclusion of a variety of different stakeholders in energy poverty policy processes. However, the ONPE is lacking the consultation of experts on gender mainstreaming and intersectionality of energy poverty. Therefore, specific energy needs of vulnerable groups may be overlooked, thus not considered when measures are developed.

According to the final NECP, the French government plans to co-finance energy audits, which aim at spreading information and knowledge on energy efficiency improvements to low-income households and those with heating systems of very low performance rates (Ministère de la Transition énergétique, 2020). This suggests that the country's main targeted driver of energy poverty is low energy efficiency in French houses. Yet, in its assessment of the French NECP, the EC (2020<sup>2</sup>) encouraged the country, among other actions, to further address energy poverty through campaigns raising awareness of financial support schemes. Only by considering all three drivers of energy poverty through multiple policy measures can the country ensure that the complex issue of energy poverty is effectively addressed and tackled.

## 4.2.2 Energy poverty policy in the Netherlands

### 4.2.2.1 Country overview

The Netherlands' main goal of the energy transition is to rapidly phase out of natural gas towards less carbon-emitting sources for heating (Feenstra et al., 2021). However, a current Dutch household uses about 86% natural gas and only 14% electricity for heating, cooking, and hot water (PBL, 2018). It is not clear what effect this change might have on Dutch households due to an expected rise in energy prices, and how the government is aiming to protect and support low-income and vulnerable households (Feenstra et al., 2021). Until recent years, high energy costs were considered a problem closely related to income poverty, thus addressed by social welfare policy (Feenstra et al., 2019; Mulder et al., 2023). Energy poverty was, and to a wide extent still is, not recognized as an important issue to be tackled on the Dutch policy agenda. However, the EU obligating all Member States to link energy poverty to just transition and to define indicators for energy poverty in their NECPs (EC, 2020<sup>1</sup>) resulted in a recent slow increase of quantitative studies on analyzing energy poverty data on a national level (Mulder et al., 2023). While the Dutch government has not shown a strong initiative to tackle energy poverty, certain municipalities and local organizations have worked out support measures and programs to reach energy poor citizens (Feenstra et al., 2019; Straver et al., 2017). As announced by Mulder et al. (2023), "a national energy poverty monitor in the Netherlands is currently being developed by the Dutch national statistics institute" which indicates that the government is slowly realizing that a better understanding of the energy poverty situation is needed to ensure a just transition for the country through effective policy measures. The importance of recognizing energy poverty as an issue in the Netherlands and speeding up the implementation of a national policy has been highlighted by a recent report by TNO (2023) on numbers of energy poverty in 2022. The report stresses that high energy prices during the last year

have resulted in an alarming increase in rate of energy poverty in the country, which was reported to be about 18% higher compared to the last statistics from 2020.

Most recent numbers on energy poverty in the Netherlands from 2018 are based on the EPOV data (EPOV<sup>2</sup>, 2020). According to all four EPOV indicators, percentages for the Netherlands are generally lower than European average. In 2018, 2.2% people reported to not be able to keep their home adequately warm, compared to the EU average of 7.3%. Yet, for those living in social housing, this number increases to 16%, indicating that there is a need for more disaggregated data in the Netherlands to better understand who is most vulnerable to energy poverty (EPOV, 2021; Feenstra et al., 2021). According to an expenditure-based indicator monitored by the EPOV, 10.7% of Dutch households spend a high share of their income on paying their energy bills. Mulder et al. (2023) concluded that energy poor households tend to spend between 13% and 20% of their income on energy expenditure, with range being dependent on the indicators used for measuring, while for an average Dutch household the share is only 5%. These higher costs are mainly due to a higher use of energy, which can be attributed to the fact that these low-income households live in mostly poor-insulated buildings and use appliances with higher energy consumption (ibid). In general, more than 60% of Dutch residual buildings have a very low energy efficiency (C-G energy efficiency label) and tenants have no, or only limited influence on measures to improve their building's energy performance (Feenstra et al., 2021; Mulder et al., 2023). Therefore, energy measures that not only address the first driver of energy poverty identified by EPAH (2022), low household income, but also focus on improving energy efficiency of household and buildings are essential for a just energy transition in the Netherlands.

The Netherlands, through their Ministry of Foreign Affairs, aims to tackle gender inequality by considering the specific interests and concerns of women (Government of the Netherlands, 2023<sup>1</sup>). In 2018, the Dutch government committed to gender mainstreaming, and thus integrate it as an approach in all foreign policies and programs. This “requires policymakers to map the nature and extent of the consequences of proposed policies and regulations for gender equality” (EIGE, 2022<sup>2</sup>). Even though policy makers are obligated to perform a gender impact assessment, there is no legal requirement to publish and report on the results, thus it is considered unlikely that such an assessment is performed in all policy areas (ibid). Other gender mainstreaming tools, such as gender budgeting or sex-disaggregated data have been suggested by the government, yet, without a legal obligation to use them in all policy areas, they are not widely used, but are assumed to be rather unknown concepts within some ministries (ibid).

#### *4.2.2.2 Distributional justice*

In their NECP, the Netherlands mainly focuses on low income as the driver for energy poverty (EZK, 2019). A main reason for this could be that the government still sees the issue of energy poverty as one that can be combated by its poverty policy agenda. Yet, previous research indicates that energy poverty strategies that only tackle the problem of low income in a household, e.g., by lowering energy bills, will inevitably not lead to solving all issues regarding energy poverty in household (Feenstra & Clancy, 2020; Middlemiss et al., 2020). There is a common consensus among researchers that the use of multiple indicators allows better measurement and mapping of the multidimensional nature of energy poverty (Rademaekers et al., 2016; Feenstra & Clancy, 2020). However, agreeing on and quantifying these indicators, especially without detailed disaggregated data on the situation of energy poverty, remains a challenge in the Netherlands.

The Dutch government is aiming to keep the costs of the energy transition “as low as possible” (EZK, 2019), yet it does not fully assess whether costs of energy and climate policy changes are distributed fairly among people. Concluding from a study by the Netherlands Bureau for Economic Policy Analysis, analyzing income and burden implications of the NECP, the government aims at achieving a fair distribution through shifting the share of the Surcharge of Sustainable Energy tax

more towards national companies and businesses instead of households (EZK, 2019). Breukers et al. (2021) critically observe that compensating for the higher energy costs of all Dutch households fails to provide targeted support for households living in energy poverty, specifically in terms of their capacity to invest in more energy-efficient appliances and energy systems. As highlighted by Malerba et al. (2022), targeting such tax adaptations for the most vulnerable households, instead of a universal tax reduction, would be the most effective approach for a high-income country like the Netherlands to simultaneously reduce energy poverty and achieve its climate goals.

As highlighted above, the Dutch government does not mention any targeting of resources and subsidies to the most energy-poor households, let alone individuals who belong to groups that are more likely to be vulnerable, such as elderly women. The country has a scheme implemented to ensure that households with payment arrears are not disconnected from energy supply in winter months (EZK, 2019). In addition, a subsidy scheme for “insulating homes of energy poor people” (Mulder et al., 2023) has recently been proposed, based on spatial energy poverty statistics carried out in the Netherlands, indicating that the government is aiming to address specifically those most in need. In the NECP, a small number of energy subsidies for the transition away from carbon-intense energy sources are mentioned, yet the EC (2020<sup>3</sup>) criticizes the lack of quantification and accounting for energy poverty of the described energy subsidies. In addition, gender budgeting to promote equality in energy policy processes is not mentioned in the NECP or any other energy policy of the Netherlands.

The aim of a just transition is mentioned in the Dutch NECP (EZK, 2019), however, it is lacking a detailed impact assessment, both in terms of social and environmental aspects, and no gender-sensitive evaluation of policy measures is described in the plan. This is despite the government’s adoption of a gender mainstreaming policy that mandates a gender impact assessment for each new policy, including any energy policy. As described in the previous section, without a legal requirement to report the results of this assessment it is unlikely that policymakers actively consider that distribution of energy poverty measures may be gendered. However, the groundwork has been laid to make gender mainstreaming an integral part of all policies in the Netherlands, and in theory, appropriate tools are available to assess and ensure gender-equal distribution of benefits and impacts of energy poverty policies.

#### *4.2.2.3 Recognition justice*

Even though the EC offered guidance on the definition of energy poverty, the Netherlands does not have a formal and explicit energy poverty definition in place (EZK, 2019), despite various researchers, including Feenstra et al. (2021) and Middlemiss et al. (2020), highlighting the importance and urgency of such an implementation in the country. In addition, the country’s NECP states that “[t]he Netherlands has no specific objectives related to energy poverty” (EZK, 2019), which goes in line with the lack of a definition, as well as the lack of recognition of the diverse drivers of energy poverty (see previous section). In their final NECP, the Netherlands concluded that energy poverty is not an issue since only a low number of Dutch citizens experience it according to data from EPOV and a 2018 study published by the national Environmental Assessment Agency (PBL). Yet, the EC highlights that the numbers presented by the EPOV imply that about 8.6% of households are considered to be at risk of not being able to pay their energy costs, based on numbers from 2014/15, and that the number of hidden energy poor households may be even higher (EC, 2020<sup>3</sup>).

As highlighted before, the collection and analysis of energy poverty data is crucial to enable the government to get a better picture of the situation of the issue in the country. In addition, there is a consensus among researchers in the broader field of gender equality that capturing sex-disaggregated data is the important first step in recognizing that there are gender-specific differences in the experience of and vulnerability to energy poverty (Feenstra, 2002; Tsagkari, 2022). This was also highlighted by a gender analysis of energy poverty performed in the Netherlands in

2017 (Clancy et al., 2017), revealing existing differences in energy poverty between Dutch men and women. The Dutch NECP provides an overview of the current situation and numbers of energy poverty based on available data from EPOV and a 2018 study from the PBL (EZK, 2019). Thus, at the time of writing, there is no national observation of energy poverty in the country. However, according to a recent paper by Mulder et al. (2023), the Dutch national statistics institute was commissioned to implement a yearly monitoring of energy poverty in the Netherlands, based on the framework proposed in the publication. The introduction of such a monitoring system may accelerate the process in the Netherlands of recognizing energy poverty as an important policy issue, which will become even more urgent due to the rapidly evolving energy transition. In addition, it may help to assess the effectiveness of implemented policy targets in reaching those most affected by energy poverty. However, collecting data alone will not fight energy poverty in the country. Wider recognition of the problem, as well as usage of the data to develop further measures and support programs are necessary, further steps to guarantee that the energy transition in the Netherlands will be fair and just for all citizens. In this respect, the disaggregation of data by a diverse selection of social characteristics known to intersect with energy poverty, especially gender, is crucial.

To sum up, as said, the NECP does not identify groups that are more likely to be vulnerable to energy poverty, thus should be the main target group for energy poverty policy (Breukers et al., 2021; ESK, 2019). Nonetheless, in the national plan towards just transition, one program is mentioned that focuses on “the inclusion and exclusion of Dutch people (both individually and in groups) during and as a result of these transitions and on the consequences of these transitions on the quality of life” (EZK, 2019), indicating that there is a some policy awareness that the energy transition may worsen inequalities for some groups of the Dutch society – an awareness that has been emphasized by observers as an important precursor to action (Bouzarovski & Tirado Herrero, 2017; Middlemiss et al., 2020). In general, the country focuses on low-income households that are aimed to be supported by income poverty policy, disregarding the diversity of reasons for vulnerability due to different group characteristics. The NECP does not acknowledge any gender differences in energy needs, which have been highlighted as playing an important role in the different experience of energy poverty between women and men by various authors, including Clancy et al. (2020), Feenstra (2002), and Tsagkari (2022). It is important to mention that inclusion of specific group characteristics and intersectionality of gender with other social factors in the Dutch NECP would first require the nation to recognize the diversity of energy poverty and collect disaggregated energy poverty data. Since this is still not the case at time of writing this thesis, it comes as no surprise that the Dutch government is overall failing at the second tenet of the just transition framework, recognition justice, specifically regarding energy poverty.

#### *4.2.2.4 Procedural justice*

While the Dutch NECP does not specifically mention the inclusion and participation of women in energy and environmental policymaking processes, one of the government’s four aims to tackle gender inequality focuses on “[p]romoting female leadership and participation by women in political and other forms of decision-making” (Government of the Netherlands, 2023<sup>1</sup>). Yet, the energy sector is still one of the areas where women are underrepresented and their participation is even lower compared to other sectors, as highlighted by various reports by the International Energy Agency (IEA) within their work on energy and gender (IEA, 2023; IEA, 2020; IEA, 2018). Currently, the Ministry of Economic Affairs and Climate Policy, which is responsible for the NECP of the Netherlands, has more men in higher positions than women (Government of the Netherlands, 2023<sup>2</sup>). As of January 2023, the post of the Minister of Economic Affairs and Climate Policy is held by a woman, while the Minister for Climate and Energy Policy is male. Yet, as stressed by Jenkins et al. (2016), there is a difference, in terms of procedural justice, between inclusion and active participation. In addition, a lack of awareness of the gender dimension of energy poverty among policymakers, no matter their gender, cannot be solved by simply assigning more women to decision-making positions. There is a

need for widespread recognition of the importance of the issue, in addition to the active participation of women in energy poverty policy processes.

Another way of including the diversity of energy poverty experiences is through the involvement of appropriate stakeholders and experts on intersectionality and gender equality. However, the Dutch NECP does not mention any stakeholder consultation for ensuring equality of the energy policy. The plan highlights a broad stakeholder consultation and involvement for their energy transition, focusing on “labour market & education, spatial integration, finance and innovation” (EZK, 2019). Yet, these themes of focus show that the government is failing to include stakeholders that focus on the impacts the energy policy may have on people. In addition, citizens were involved by giving ideas and suggestions on the NECP. However, as criticized by various researchers, a proper involvement of people’s opinions and experiences can only be achieved through active engagement and participation (Feenstra, 2002; Jenkins et al., 2016; Tsagkari, 2022), e.g. through genuine consultation with Dutch citizens living in energy poverty.

Information on energy poverty measures and support schemes is not available on the Dutch governmental website. Few news articles have been published mentioning the government’s plans to implement support schemes for high energy bills for vulnerable households (Rijksoverheid Nederland, 2021). As the government does not have specific measures and support programs for energy poverty in place, besides the ones that already exist to address income poverty (EC, 2020<sup>3</sup>), there is no mention of any support schemes in their NECP, nor on their website. However, as discussed earlier and as highlighted by a study from Breukers et al. (2023) focusing on energy poverty policies in Netherlands, more actions to tackle energy poverty are taken on a municipal level. The latter paper shows how some Dutch municipalities are working in close contact and collaboration with local organizations to better reach energy poor households and to spread information on energy support programs and energy efficiency measures. These sub-national initiatives seem to reflect understanding of the importance of engaging with the people most vulnerable to energy poverty through in-person coaching programs, in contrast to the governmental approach of untargeted financial relief measures (Feenstra et al., 2021; März, 2018).

Gender mainstreaming is not mentioned as an overall policy goal in the NECP of the Netherlands. As discussed above, even though there is a legal obligation through a gender equality policy to perform gender impact assessment in the Netherlands, this is still not common practice, especially in sectors that are focusing more on technical and financial issues, such as the energy sector (EIGE, 2022<sup>2</sup>; IEA, 2020). This highlights the importance of not only implementing a gender equality policy, but also reporting on the required tools used for the planning and making processes of an energy policy. If the Netherlands is drafting a national energy poverty policy in the upcoming years, it is crucial that gender perspectives are included in all policy processes to ensure that all three tenets of justice are addresses and a just energy transition can take place in the country.

### **4.2.3 Energy poverty policy in the UK, focusing on Scotland**

#### *4.2.3.1 Country overview*

As part of the UK, Scotland’s energy poverty approach is influenced by the UK’s roadmap to tackle the issue of energy poverty. The Scottish government has committed to support switching to decarbonized heating systems and to tackle energy inefficiency, which is considered one of the main drivers for energy poverty, by 2030 (Department for Business, Energy & Industrial Strategy 2020; The Scottish Government, 2021<sup>3</sup>). Yet, each of the four UK nations has their individual policy approach, targets, and measures in place, in part due to significant regional differences in energy poverty across the UK countries, as highlighted by Mahoney et al. (2020). Spatial distribution of energy poverty indicates that levels are higher in rural and island communities, where households have no connection to the gas grid, for instance in the Northern Highlands or in the Scottish Isles (Mahoney et

al., 2020). Statistics from 2019 highlight this uneven distribution, with more than 43% of households living in energy poverty in rural areas, compared to urban areas with shares of around 24% (The Scottish Government, 2022). Other factors, such as climate, building characteristics, and socio-economic data result in an even higher diversity of the issue (ibid). This highlights the need for spatially disaggregated data to ensure energy poverty policies in the nation are reaching those most in need. Yet, as observed by März (2018) and Robinson (2019), high-level spatial variations in energy poverty have been largely neglected by researchers until relatively recently: both data and understanding of this are currently lacking.

The 2020 statistics on energy poverty in England indicate that 13.3% of households experience energy poverty under the LILEE metric, and more than 52% of all low-income households live in buildings with an energy efficiency rating of Band C or higher (Department for Business, Energy & Industrial Strategy, 2022). The Scottish House Condition Survey monitors data on energy poverty and extreme energy poverty, disaggregated by a variety of building and household characteristics, for instance type of tenure, families, and older people. According to UK government statistics from 2019 (The Scottish Government, 2022), 24.6% of households were living in energy poverty, with the share increasing to 37% for households living in social housing. Older people show a higher percentage of energy poverty, namely 26.7%, this being due to a variety of factors, including sensitivity to low temperatures, low pensions, and a lack of knowledge and access to energy services (Clancy & Feenstra, 2020; EC, 2020<sup>4</sup>; Robinson, 2019). The Scottish government has published its Fuel Poverty Strategy in December 2021, thus updating its Fuel Poverty Act from 2019 which defines the country's set targets for 2040. In addition, all 32 local authority areas of Scotland are required to meet the targets, to ensure citizens in all parts of the country, including households living in rural regions, are participating in the fight against energy poverty.

In 2020, Scotland released its new Gender Equality Index, a monitoring tool to measure the progress towards gender equality in the country (The Scottish Government, 2020<sup>1</sup>). While some indicators are based on the EIGE Gender Equality Index, a direct comparison of the two Indices is not possible, due to some differences between indicators, as also emphasized by the UK government (ibid). The first publication of the Gender Equality Index (ibid) indicated that Scotland was performing lowest in the power domain, pointing out that women have less access to and influence on decision-making processes. Additionally, the index highlights the presence of gender intersectionality with other population characteristics, yet intersecting data is only available for a few indicators. The Equality Act 2010, a UK legislation that also pertains Scotland, focuses on a diverse range of different characteristics of people that need special consideration (The Scottish Government, 2021<sup>1</sup>). Moreover, this policy highlights the Equality Impact Assessment (EQIA) as an important tool to assist policymakers in developing policies that do not discriminate or disadvantage those in need of special protection (ibid).

#### *4.2.3.2 Distributional justice*

As discussed before, the identification of the main drivers of energy poverty are crucial for a nation to adapt measures and set out targets. While the UK identifies the same three drivers of energy poverty as proposed by the EPAH (2022) in its final NECP (Department for Business, Energy & Industrial Strategy, 2020), Scotland defines four in their strategy paper, namely poor energy efficiency, high energy costs, low income, and the way energy is used in the home (The Scottish Government, 2021<sup>3</sup>). By adding a fourth driver, the nation attempts to better map the complex issue of energy poverty. Yet, the Scottish government claims that some drivers may be outside of its control, as energy market prices as well as some policy areas are regulated and decreed by the UK government (ibid).

In the country's national just transition planning framework (The Scottish Government, 2021<sup>3</sup>), the overall goal of energy efficient homes that help to reduce energy poverty is stated. In addition, the government highlights the importance of fair distribution of costs, ensuring that low-income households are not disproportionately burdened, and benefits, making sure that everyone, "regardless of where you live, who you are and what you do" (ibid), receives them equally. The country puts a special focus on reaching households living in remote areas, as they were shown (Roberts et al., 2015) to often be left out or disregarded when discussing energy poverty measures and support schemes. There are a variety of different energy poverty schemes in place, for instance Winter Benefits including the Warm Home Discount, or the recently implemented Energy Bills Support Scheme Discount. All of these, except for the latter, are targeted to reach special groups, including elderly, families with young children and people with severe illnesses or disabilities. The Winter Fuel Payment is specially delivered to people above the women's state pension age, thus focusing on elderly people as a group at higher risk of being fuel poor while actively including a gendered perspective. Yet, the updated energy poverty strategy is still lacking a specific focus on distributional impacts on women and the importance of gender equality. However, as highlighted by Clancy et al. (2017), as some of the UK's winter allowances are specifically addressed to elderly people above a certain age, this could be indirectly interpreted as benefiting women, as they make up a higher share of elderly in the country.

The gender impacts of the Scottish 2019 Fuel Poverty Act were assessed and published using the nation's EQIA tool. The assessment was performed regarding a variety of different characteristics, including age, disability, pregnancy, gender, sexual orientation, and ethnicity, and it concluded that the strategy would have a positive impact on equality issues (The Scottish Government, 2018<sup>2</sup>). However, this social impact assessment has not yet been performed for the implemented 2021 version of Scotland's energy poverty policy, thus the impacts of the recent policy on gender are not fully assessed.

#### *4.2.3.3 Recognition justice*

As discussed earlier, the UK Government was the first in Europe to adopt and apply a formal and explicit energy poverty definition. All of the UK nations focus on improvements in the energy efficiency of buildings where the most energy poor live, including giving special attention to social housing (Wales) and remote areas (Scotland). However, the UK nations ('devolved regions') differ in their long-term targets for tackling energy poverty, as this is treated as a devolved issue with spatial variations (März, 2018). Consequently, nation-specific policies are implemented as an extension to the UK government's approach. Each of the four nations has a slightly different definition of energy poverty and indicators to measure it, as summarized in the UK NECP (Department for Business, Energy & Industrial Strategy, 2020) and by Mahoney et al. (2020). Scotland considers a household as energy poor if (i) it spends more than 10% (20% for the definition of extreme energy poverty) of its income on energy costs, or (ii) its income, after childcare costs and benefits for care need have been deducted, is too low to ensure a certain standard of living, as specifically defined (The Scottish Parliament, 2019).

Data is collected through the countries' specific Housing Surveys and published on an annual base (Department for Business, Energy & Industrial Strategy, 2020). While the energy poverty statistics of Scotland (The Scottish Government, 2022) are published considering sub-categories, such as age and type of dwelling, type of tenure and household, they are lacking sex-disaggregated data, even though the government aims to include gender and sex breakdowns of data in many of its statistical publications, as stated in its gender equality strategy (The Scottish Government, 2020<sup>1</sup>). Another critical aspect in data collection of households is that, for instance, the household income is based on the person in a household with the highest income, which is more likely to be a man than a woman, as highlighted by EWL (2022) and an equality impact assessment performed by the Scottish

Government (2019). Despite the Scottish government being a forerunner in terms of collection and analysis of energy poverty data, especially when it comes to recognizing the need for spatial data, the country is lacking sex-disaggregated data and information on the issue, thus risking to not target all those in need of energy poverty support. Data looking at homes with poor energy efficiency (The Scottish Government, 2021<sup>3</sup>) indicate that of all female-headed households living in inefficient homes, 51% are experiencing energy poverty.

All nations of the UK are recognizing that some groups of people are more likely to experience energy poverty than others. In the UK's NECP a vulnerable household is defined as one "with a person aged 60 years or over, a child or young person under the age of 16 years and/or a person who is disabled or has a long-term limiting condition" (Department for Business, Energy & Industrial Strategy, 2020). Scotland additionally considers people living in remote areas and on islands in the category of those vulnerable to energy poverty, and the nation analyzes the composition of this group in its annual statistical report (The Scottish Government, 2022). As highlighted by the Scottish Government both in the 2018 draft (2018<sup>1</sup>), as well as the updated energy poverty strategy (2021<sup>3</sup>), households with a woman or a person aged under 35 are most likely to experience energy poverty. While Scotland acknowledges the gendered experience of warmth between women and men (ibid), it does not discuss gender differences in energy needs due to societal roles taken up by different genders.

#### *4.2.3.4 Procedural justice*

As highlighted by the Scottish Gender Equality Index, the country is performing lowest in terms of equal involvement and active participation of women in policymaking processes (The Scottish Government, 2020<sup>1</sup>). The role of Cabinet Secretary for Social Justice, Housing and Local Government of Scotland, which is, e.g., responsible for ensuring and mainstreaming equality, as well as poverty action measures, is currently held by a woman. Yet, as discussed before, awareness of the necessity to include gender perspectives in energy poverty policies cannot be assumed to be prevalent among policymakers generally, including women. Nevertheless, ensuring greater diversity in the country's political representation is an approach that Scotland should arguably take up, to better address the complex problem of energy poverty and more effectively address affected groups.

One approach that Scotland has implemented to overcome the stigma of energy poverty is that of engaging with local communities that work closely with those most affected by the issue (The Scottish Government, 2021<sup>2</sup>). Additionally, the Scottish Fuel Poverty Advisory Panel was set up to advise the government on energy poverty measures, as well as assist in understanding the issues that Scottish people living in energy poverty are experiencing, and thus where support is needed most. Stakeholders from nine different organizations are part of the advisory panel, which is renewed bi-annually to ensure a diverse and appropriated selection of NGOs and representatives (The Scottish Government, 2023). Yet, the panel announced their temporary pause in their work due to a necessary focus of resources to the impacts of Covid-19 (ibid). At the time of writing, Kirsten Jenkins is among the list of involved stakeholders, who is considered a known researcher focusing on energy justice and energy policy. Several publications of hers (Jenkins et al., 2016; Simcock et al., 2021) highlight the relevance of including a gender perspective to the issue of energy poverty. Thus, this shows that the Scottish Fuel Poverty Advisory Panel is actively involving stakeholders from diverse backgrounds.

According to its NECP, the UK has several different policies and programs implemented that focus on giving general advice and training on energy consumption and energy efficiency, with the aim of giving citizens a source of clear information for purchasing decisions (Department for Business, Energy & Industrial Strategy, 2020). Yet, there are no detailed approaches in the latter regarding how to best reach those most vulnerable. Information on available funding programs and measures to address energy poverty are easily accessible on the UK's, as well as the Scottish's governmental websites. For each support program, one can find out who is eligible to apply, or how

the financial allowance will be distributed, thereby lowering the barrier to at least finding information and support for those living in energy poverty. This is especially crucial to those who might be suffering from the negative impacts of living in energy poverty on their mental health (Middlemiss, 2022). Yet, as stressed by März (2018), the sole availability of information might not be enough to reach all those in need, since people still need to be aware that the information is out there, consider themselves as eligible for the program, and are not too ashamed to admit they require financial support. In addition, the step of applying for an energy poverty scheme may already be inaccessible for some people, e.g., those living with disabilities or with limited English skills (März, 2018). Websites also require broadband access, a smartphone and/or digital literacy, none of which can be assumed. Nonetheless Breukers et al. (2021) highlighted the Scottish government's plans to ensure households are aware of the support available for them through local partners and organizations, which in principle are able to consult those most vulnerable in person and help with applying for a scheme.

Neither the UK's NECP, nor the Scottish Fuel Poverty Strategy, link gender equality with the alleviation of energy poverty (Department for Business, Energy & Industrial Strategy, 2020; The Scottish Government, 2021<sup>2</sup>). As mentioned above, gender mainstreaming in the energy policy sector is not a common practice in the UK. However, the Scottish government has been performing gender impact assessments on previous energy poverty policies, such that these may have been taken into account in the forthcoming, updated strategy. Nevertheless, a ministry-wide implementation and commitment to gender mainstreaming would ensure that a more diverse approach is already applied into the first steps of new energy poverty policies, thus assuring a just transition in the country.

#### **4.2.4 Comparative country analysis**

When comparing the NECPs and energy poverty policies of the three nations, the countries' different approaches to both recognizing and tackling energy poverty becomes clear. While the Netherlands does not have its own definition of the term, nor of the drivers for energy poverty in the country, Scotland has had an explicit definition for decades and recently updated relevant indicators, by which to better represent the lived reality in the country. France has increased research and policy action on energy poverty in the past decade, with policy measures implemented to improve energy efficiency, aimed at households most in need and the social housing sector (Bouzarovski et al., 2021). In addition, France is the only country, out of the three studied in detail in this thesis, that specifically links energy poverty to transport poverty and suggests measures for mobility that target most vulnerable groups (Ministère de l'Économie et des Finances, 2019). Scotland has a similar focus of measures as France, aiming to improve the housing stock of the country, and target households in rural areas, where extreme energy poverty has been shown to be a particular problem (Mahoney et al., 2020). Both France and Scotland have a long-term strategy for renovation of housing stock, therefore targeting one of the three main drivers of energy poverty. As suggested by Stojilovska et al. (2022), this likely reflects their longstanding experience of research and implementation in relation to energy poverty measures and their presence on the political agenda. In comparison, the Netherlands does not mention any long-term renovation targets, despite the obligation by the EC to do so in their NECP. Despite the lack of recognition of energy poverty as a problem to be tackled, NL does highlight the potential issue of energy affordability linked to the energy transition (Bouzarovski et al., 2021). As observed by Lamura (2022), all NECPs and the policies analyzed above lack acknowledgement of the concept of energy poverty along the three tenets of energy justice specifically.

In regard to gender mainstreaming in energy (poverty) policies of the three countries, none specifically refer to gender as an important characteristic for being more likely to experience energy poverty. In none of the three NECPs are relevant keywords such as 'gender', 'women', 'female', or 'intersectionality' mentioned or discussed. This underlines the conclusion by Clancy et al. (2022), that

Member States rarely include gender dimensions in their NECP. However, Scotland does include a gender perspective in their Fuel Poverty Strategy (The Scottish Government, 2021<sup>2</sup>) in terms of highlighting that women are more sensitive to the cold, and that female-headed households are more likely to experience energy poverty. Nonetheless all policies analyzed in this thesis could be said to be gender-blind, in the sense of failing to recognize the differences in gendered roles and needs in relation to energy.

To better compare how the three countries are performing regarding the three tenets of energy justice, an analysis of how each country is doing for each of the policy elements from the developed gender-aware framework was performed using an indicative scoring system of 0, +, and ++. The former (0) was used if a country does not formally have the stated policy element in its body of relevant policy. If the element is partly present, e.g., disaggregated data is collected, but not by sex, the country receives a score of +. If a certain policy element is fully integrated in the country’s policies, a score of ++ was assigned. The following Table 4-2 shows the results of this country comparison.

Table 4-2: Country comparison of key energy poverty policy elements. Source: Author

	Policy Element	France	The Netherlands	The UK (Scotland)
Distributinal Justice	D1 Identification of main drivers of energy poverty	++	+	++
	D2 Equal distribution of benefits & impacts among all	+	+	++
	D3 Targeted resources and subsidies for the most vulnerable (gender budgeting)	+	0	+
	D4 Gender-sensitive impact assessment/ evaluation of policy measures	+	+	++
Recognition Justice	R1 Implementation of a formal and explicit energy poverty definition	++	0	++
	R2 Collection and use of sex-disaggregated energy poverty data	+	0	+
	R3 Identification of groups that are relatively vulnerable to energy poverty, inc. specific group characteristics (Intersectionality)	++	+	++
	R4 Acknowledgement of gender differences in energy needs	0	0	+
Procedural Justice	P1 Inclusion and active participation of women in policymaking processes	++	+	+
	P2 Involvement of appropriate/ diverse stakeholders (NGOs, gender organization, etc)	+	0	++
	P3 Access to information on energy poverty measures and support schemes and programs	+	+	++
	P4 Existence of and linkage to national gender equality policy (gender mainstreaming)	+	+	+

0: not implemented, +: partially implemented (gender aspect might be missing), ++: fully implemented

To better highlight in which energy justice tenet each of the nations is performing well, and where there is improvement needed, visualizations based on the results from the comparative analysis above were performed, as seen in Figure 4-1. The letters D, R, and P, represent the three tenets of justice, namely distributinal, recognition, and procedural, respectively. The numbers next to these letters represent the first to fourth policy elements, as stated in the framework developed earlier.

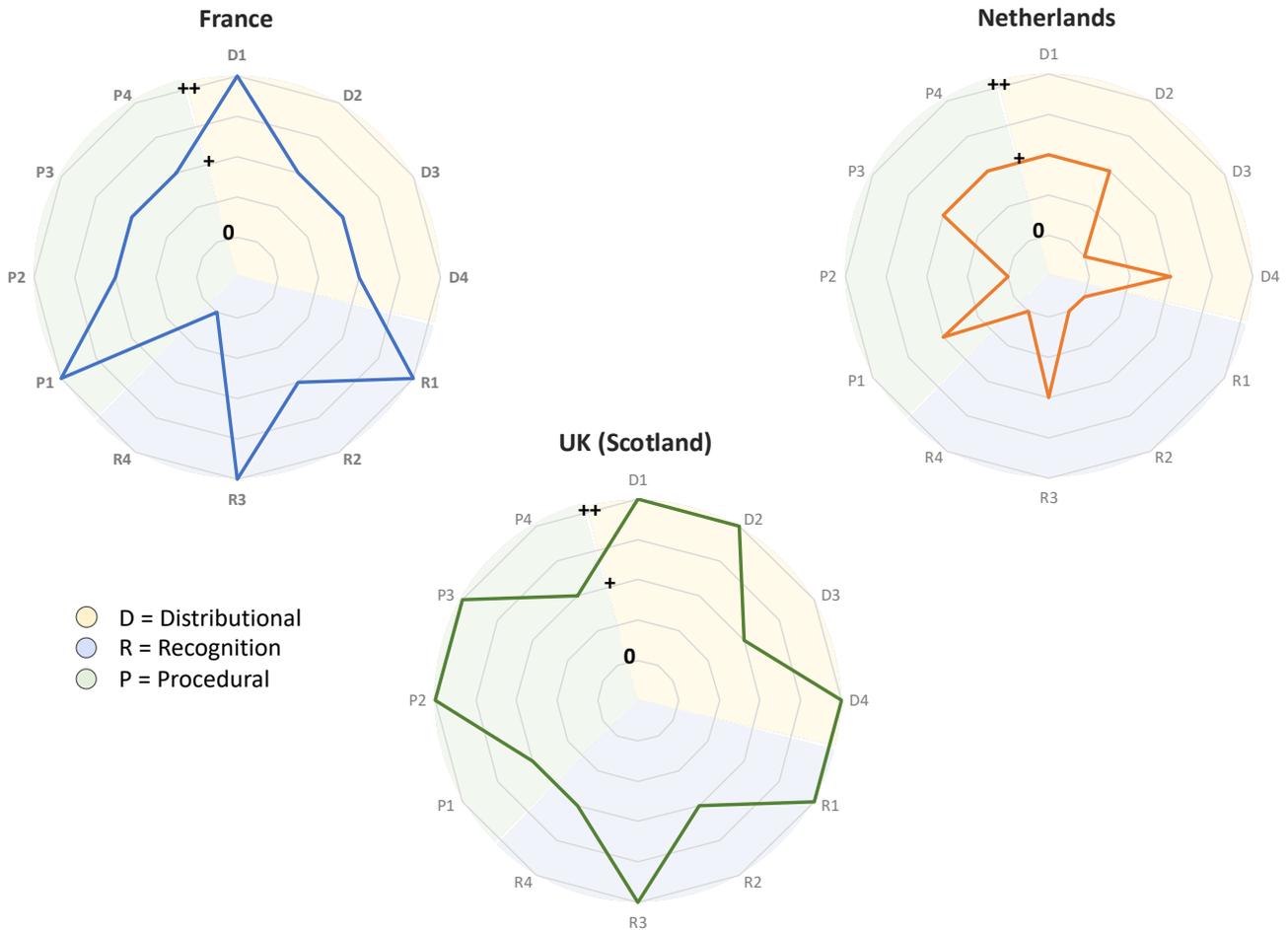


Figure 4-1: Visualization of the policy element analysis of the three nations. Source: Author

In general, the radar charts highlight that the three countries are performing very differently in terms of their national policy and gender mainstreaming approaches. France is doing very well in two out of the four elements within recognition justice. However, it is lacking acknowledgment of gender differences in energy needs. For both distributional and procedural justice elements, the country is performing well in one policy feature, while other aspects are only partially integrated. Most policy elements are partially included, or they are missing the gender-aware approach. For instance, impact assessments of policies are occasionally performed, but not in terms of gender impacts, and data is collected on energy poverty, however not disaggregated by sex or other intersecting characteristics.

For the Netherlands, the chart underlines previous findings, namely that the nation is overall performing weakly compared to the other two countries, when it comes to recognizing energy poverty in their policy agenda and implementing key policy elements that ensure a gender-aware approach. Especially within recognition justice, the Dutch government lacking implementations of suggested policy elements, with specific groups of people more vulnerable to energy poverty only being partially identified, yet gender and other intersectionality is not considered here. None of the 12 policy elements were identified as fully integrated in the Netherlands, which is not surprising since energy poverty is not seen as an issue to be tackled, thus no policy is adopted yet.

Scotland is performing best out of the three countries analyzed in this thesis. In total, it scored best for seven out of twelve elements, with most within distributional justice and equal withing procedural justice. In addition, the analysis shows that all policy features are in some form adopted

in the country, thus no score of 0 was assigned. Therefore, the conclusion can be made that Scotland is already relatively good in terms of gender-aware energy poverty policies, yet some areas of justice need further recognition and elements, such as gender budgeting, sex-disaggregated data collection, and involvement of gender organizations in the policymaking process, all of which arguably crucial to guarantee a just transition in the country.

Overall, the comparison of the three countries chosen in this thesis illustrates the variation in approaches to energy poverty alleviation within Europe. It shows that if a country, such as the UK, has had the issue of energy poverty on its policy agenda for a reasonably long time, the chances are higher that vulnerable groups have been identified through extensive and disaggregated data collection and analysis in the country. This then helps in implementing measures that target those most in need, and these support measures can be adjusted and improved through impact assessment and policy evaluation. In addition, one may conclude that if a country, like the Netherlands, does not recognize energy poverty as an issue to be tackled separately from income poverty and assumes that poverty measures are enough support to help those people that are not able to adequately heat their homes, the likelihood that vulnerable groups are left behind in the energy transition may be higher – with outcomes in practice also dependent on factors such as the quality of building stock. Yet, through cross-national collaboration and sharing of lessons learned and good policy practices, countries that do not yet have energy poverty on their policy agenda, such as the Netherlands, could implement more effective energy policies in a timely manner, to help ensure that the fast-advancing energy transition is fair for all.

### 4.3 Case study

Relating to the fourth research question, regarding what can be done, at the level of practice, here I illustrate how, at a local scale, energy poverty can be effectively alleviated through a gender-aware approach. Through a bottom-up approach, locally implemented energy poverty measures can be assessed and used as a basis to formulate national policy recommendations. EmpowerMed is one of many local-level examples of how to actively include a gender perspective when considering vulnerable groups for energy poverty support. The project's main objective is to combat energy poverty and improve the health of people most affected by energy poverty, with a particular focus on women (EPAH, 2021). Before the start of this EU funded project, reviews of relevant other projects aiming at tackling energy poverty were critically reviewed and gaps as well as lessons learned from those previous were highlighted (Tirado Herrero, 2020). From there, EmpowerMed concluded that solutions for energy poverty are not successfully tailored to empower all people equally, highlighting the need to focus on reaching women-led households and other vulnerable groups with their training and energy audits (ibid). Through advisory groups, consisting of a diverse range of stakeholders, such as researchers, social workers, energy experts, as well as people affected by energy poverty, information and knowledge was shown to spread more effectively (ibid).

Regarding distributional justice and the key policy elements developed in this thesis, EmpowerMed has implemented all four in their projects. Through the consideration of the three main drivers of energy poverty, their resources and practical solutions are targeted to empower households most affected by energy poverty, focusing on gender aspects (EPAH, 2021). They specifically acknowledge that implemented policy measures should be distributed equally among all, without leaving behind or disregarding vulnerable groups. By creating a safe space where women and people from other vulnerable groups are empowered to actively take action against energy poverty, the project aims to ensure that the gender prejudice, that portrays women as helpless and uninterested (passive), is eliminated and they are encouraged to change their situations (EmpowerMed, 2023<sup>2</sup>, Tüttő et al., 2022). In addition, the project's main objective is to assess the impact of different policy measures on gender equality and learn from these assessments to formulate national and EU policy recommendations to tackle energy poverty.

EmpowerMed highlights the lack of an explicit energy poverty definition at the European level (Sundermann & Zini, 2022), thus for their projects, they consider the definition proposed by the EPOV (2019<sup>1</sup>). As highlighted on their website, "EmpowerMed produces gender-disaggregated data related to energy poverty in order to enable a better understanding of women's roles in addressing energy poverty and empower them" (EmpowerMed, 2023<sup>1</sup>). Using this data, the project aims to improve the understanding of composition of vulnerable groups, as well as their specific group characteristics and needs. It provides training materials (EmpowerMed, 2020) educating key stakeholders about gender-just and intersectional approaches in energy poverty to ensure recognition justice within policies.

The project is actively involving a diverse variety of different partners, including local networks, Civil Society Organizations, and Non-Governmental Organizations, such as the EU-wide Women Engage for a Common Future (WECF), which focusing specifically on gender and intersectionality in the energy transition, as well as local groups, e.g., Geres in France (EPAH, 2021). In addition, EmpowerMed works closely together with energy suppliers, local and national authority, and policymakers to ensure their proposed policy measures are heard and may be implemented in national or EU-wide policies (ibid). Case studies, such as EmpowerMed, are a crucial source of learning and knowledge when it comes to implementing effective energy poverty policy measures that ensure a just transition. However, as highlighted by EPAH (2021), such initiatives at local level need to be supported by higher levels of government to ensure a successful implementation on the national level. Arguably there would also be value in an EU-wide (or larger) database of practice case

studies that practitioners and policymakers could use as a resource, when seeking to mainstream gender-awareness within energy poverty policy.

## 5. CONCLUSION

The interconnection of gender and energy is a topic that is still given little attention by policymakers, something that can in part be explained by a lack of awareness of the intersection of these two topics. This both reflects and results in a lack of sex-disaggregated data and knowledge on gender mainstreaming as a tool for policymaking (Clancy et al., 2011). Thus, the central aim of this thesis has been to assess the gendered dimensions of energy poverty in Europe and, by developing a gender-sensitive just transition framework, responding to the need for a gender-mainstreaming approach in energy poverty policies to ensure a just transition for all in Europe. This in turn contributes towards a better understanding of the relationship between energy poverty and gender, and subsequently gender-sensitive policy elements, in the Global North. Reviewing relevant material for this has answered the first two research questions posed at the beginning of the thesis, concerning (1) the influence of gender on the experience of energy poverty; (2) what gender-aware energy poverty policies would constitute.

Secondly, on basis of these key policy elements identified in the developed framework, a cross-national comparison of energy poverty policy approaches in three European countries has been performed, answering research question 3 concerning how illustrative EU countries perform in terms of the gender-awareness of their energy poverty policies. Through this comparative analysis, different national approaches of gender mainstreaming, as well as existing gender-awareness gaps in national energy poverty policies were pointed out. Finally, answering research question 4 regarding what can be done, at the level of practice, in terms of gender-aware energy poverty policy, a case study was selected, based on its effective approach to tackle energy poverty in a gender-aware way. Drawing knowledge and experience from such a local-level good practice example can have beneficial potential for a bottom-up approach towards national or EU-level policies (Breukers et al., 2021). While each country or region has its own political and socio-cultural context, thus needs its individual set of approaches to tackle energy poverty, sharing of local and national experience on how to effectively link energy poverty to gender equality may be useful for a just transition in Europe (Feenstra et al., 2021).

The gendered experience of energy poverty in Europe is lacking awareness, most likely in part due to a lack of disaggregated data collection and analysis, which is considered the basic requirement for recognition of the broad and diverse extent of the issue (Middlemiss et al., 2020; Tsagkari, 2022). In addition, a detailed understanding of the groups most vulnerable to energy poverty, as well as the underlying drivers behind the distributional inequality is crucial for the implementation of effective measures that specifically target those most in need. As concluded from the cross-national comparison of current energy (poverty) policies, some countries in Europe are, slowly but surely, shifting the focus of their national policy agenda towards ensuring a just transition that has the alleviation of energy poverty as a main objective.

This thesis aimed for a broad approach to the topic of energy poverty and gender inequality by analyzing the gendered dimension of energy poverty, identifying key elements that constitute a gender-aware energy poverty policy in Europe, comparing gender-mainstreaming approaches of three countries with different political energy poverty agendas, and highlighting good practices from a local-level case study. However, the focus of the thesis does have some limitations, for instance the specific focus on energy poverty neglects related issues such as transport poverty, as highlighted by Martiskainen et al (2021) and Simcock et al. (2021). In addition, the thesis has mainly focused on the binary category of women and men when discussing gender differences in energy needs and experience of vulnerability, or when highlighting data on the issue. However, as discussed at the

beginning of this thesis, there is already a lack of sex-disaggregated data of energy poverty, and data disaggregated by other social categories intersecting with gender is currently almost non-existent (Clancy et al., 2022). Further research and data collection needs to be done on intersectionality of gender with energy poverty (Robinson, 2019); some organizations, such as the EIGE (2023<sup>2</sup>), are constantly working on including a more diverse perspective to their work on gender equality and energy. An interesting aspect for potential further research would also involve analysis of the wide variety of diverse approaches to energy poverty through local-level case studies. Here it has not been possible to examine detail how some countries that do not have a national energy poverty agenda, such as the Netherlands, are nonetheless successfully implementing energy poverty programs at municipal levels. This raises the question of why some municipalities are recognizing the need to tackle this issue and are actively implementing measures to do so, while the same awareness has not yet reached governmental levels, or other municipalities.

Despite the limitations discussed above, the findings of this thesis highlight that energy poverty in the Global North is an ongoing issue that will become even more relevant in the coming years, given the rapid energy transition and the possibility of further unforeseen energy crises in Europe. Overall, the results emphasize the need for gender-aware energy poverty policies that recognize the diverse and complex dimensions of gendered vulnerability to energy poverty.

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