



GENDER JUST ENERGY POLICY

Engendering the energy
transition in Europe

Mariëlle Feenstra

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COLOFON

Cover design: BL & MF

Printed by: Ipskamp Printing | proefschriften.net

Lay-out: Anna Bleeker | Persoonlijk Proefschrift

ISBN: 978-90-365-5196-0

DOI: 10.3990/1.9789036551960

Correspondence: mfprojects@live.com

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GENDER JUST ENERGY POLICY
ENGENDERING THE ENERGY TRANSITION IN EUROPE

DISSERTATION

to obtain
the degree of doctor at the Universiteit Twente,
on the authority of the rector magnificus,
prof. dr. ir. A. Veldkamp,
on account of the decision of the Doctorate Board
to be publicly defended
on Friday 9 July 2021 at 14.45 hours

by

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List of Abbreviations and Acronyms

AGECC	Advisory Group on Energy and Climate Change
BAWE	Bulgarian Association of Women Entrepreneurs
BCWT	Bulgarian Centre for Women in Technology
CBS	Centraal Bureau Statistiek
CEE	Central and Eastern Europe
EDF	Électricité de France
EIGE	European Institute of Gender Equality
ENERGIA	International Network on Gender and Sustainable Energy
ENGAGER	European Energy Poverty: Agenda Co-Creation and Knowledge Innovation
EPOV	Energy Poverty Observatory
EU	European Union
EWD	Excess Winter Death
EWDs	Excess Winter Deaths
FEMM Committee	Committee on Women's Rights and Gender Equality of the European Parliament
GDP	Gross Domestic Product
HAP	Household Air Pollution
ICT	Information and Communication Technology
IRENA	International Renewable Energy Agency
MLSP	Ministry of Labour and Social Policy
NECP	National Energy Climate Plan
NECPs	National Energy Climate Plans
NVVV	Nederlandse Vereniging van Huisvrouwen
REC	Renewable Energy Community
RECs	Renewable Energy Communities
RES	Renewable Energy Sources
SCP	Sociaal Cultureel Planbureau
SDG	Sustainable Development Goal
SDGs	Sustainable Development Goals
SDG5	Gender Equality
SDG7	Affordable and Clean Energy
SEforALL	Sustainable Energy for All
STEM	Science, Technology, Engineering and Mathematics
UK	United Kingdom
UN	United Nations
WWII	Second World War

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ACKNOWLEDGEMENTS

A doctorate is a proof that you are able to conduct research independently. But more, it is a testimony of fulfilling a journey, a quest for knowledge and insights in yourself. Four years ago, I've embarked on this exciting journey, full of adventures, new endeavours, unexpected challenges without regretting it for a moment. It challenged expects of my personal life, impacting my jobs, my family, my relationships, my health, my finances. But the struggles are more than compensated by the gains. I made long lasting friendships, found new purposes in my life, embraced inspiring opportunities, developed confidence in myself as researcher, grew matureness in my work. This quest I could not have succeed without the support, love and inspiration of the many people that joined my journey.

First of all, I would like to express my gratitude to my mentor and inspirator, Joy Clancy. Joy and I go a long way. She inspired me to write my master thesis on gender-aware energy policy in 2002. She convinced me to start a PhD after we met at her inaugural symposium. Her generosity to share her network and involve me in her research projects, created essential financial support and the supporting network to develop my career as researcher. I know that we will continue to ensure her legacy in gender and energy research.

Gül isn't only my daily supervisor but she became a close friend. Keeping me on track, reminding me of my contribution and assuring me of my added academic value, meant more to me knowing it was coming from a dear friend who knows my struggles and insecurities. Personally, we both went through a lot in the last few years, but these moments were enlightened with our friendship, shared joy and mutual respect. Your motto to upgrade when there is a setback brought many new perspectives and created great opportunities and fun. I am looking forward to new projects and trips together.

Nthabi and Lillian, I couldn't wish for better paranymphs. To have you by my side is such a joy. Your friendship opens up new horizons for me. I can't wait to go back to our beloved Africa, Nthabi. Our ENERGIA mission to Rwanda is such a great memory and inspiration for our shared dreams and passions. Lillian, your creativity is a wonderful inspiration to all scientists to visualize our research and find other ways to share our story. My dear Energy Ladies, it is such an honour to share the stage with you and spread our message.

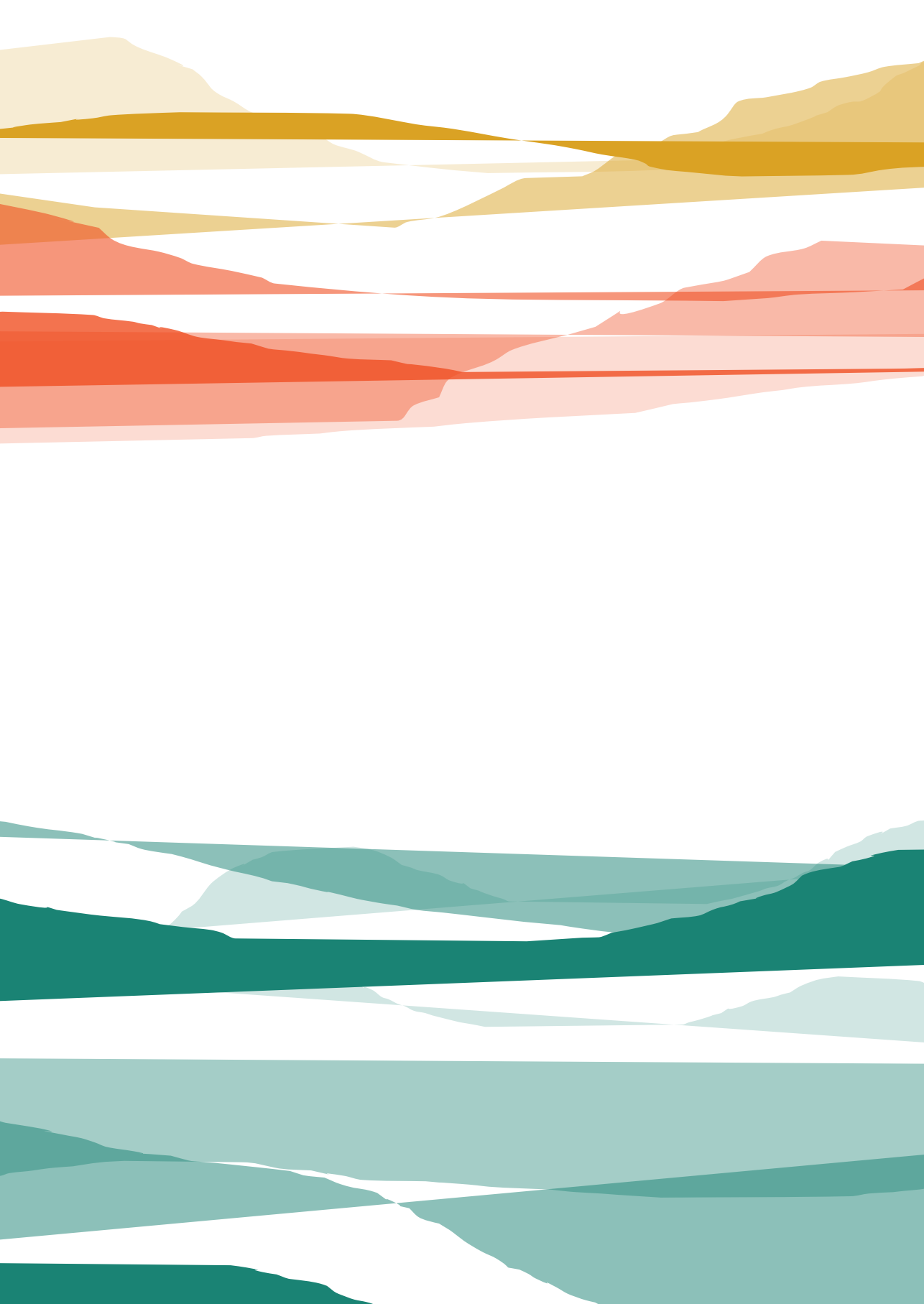
The PhD trajectory introduced me to the academic community. The friendship, support and collaboration of many scholars supported me in my research. Thank you co-authors, CERES, ENERGIA, ECPR, NIG, ENGAGER, Productivity for Scientists-Writing circle and my department CSTM. The Department of CSTM at the University

of Twente was the warm academic home that welcomed me to develop myself as researcher. I enjoy working with you all and I really appreciate your support and the opportunities you give me. A special thank-you for Michiel Heldeweg for your support as department head and your guidance as promotor. The membership of ENGAGER, the European network of Energy Poverty researchers, enables me to develop my insights on energy poverty in Europe. The Engagers form an essential network for collaboration projects and peer support in my research endeavours, but also proved to be great friends during the workshops around Europe and the many zoom calls in the last year.

This PhD research was self-funded. The financial support of my employers and clients facilitated me to pursue my research. I would like to express my acknowledgments to Gemeente 's-Hertogenbosch, Stichting Bibliotheek Aanzet, NEHEM/PNO, Studio Corvers, ENERGIA, the FEMM Committee of the European Parliament, European Institute of Gender Equality, Rijksdienst voor Ondernemend Nederland and UserTCP Gender Annex.

This PhD would not have been completed without the women that inspired me and the men that supported me. My dear friends and family, I am so thankful to share my life with you. I know that some of you don't want to be mentioned by name in these acknowledgements, but your advice and friendship made all the difference. Thank you for kidnapping me to islands, joining me on walks, sharing drinks, cooking me food and remind me to keep dancing. During the journey of my PhD, I have lost beloved people that disappeared in my life. Their love and support helped me to find my path and I still miss their companionship to walk with me. They are dearly missed.

Mama & papa, Niels & Kirsten dank jullie wel voor alles en meer waardoor ik hier nu sta. Hylke, co-ouderschap geef je zelf vorm en wij hebben daar onze eigen balans in gevonden uit vriendschap en liefde voor de jongens. Jouw steun is essentieel geweest. Mijn lieve Jelmer en Kay, hou verwondering, respect en aandacht voor het leven en maak de wereld een klein beetje beter met jullie lach en liefde. Ik ben super trots op jullie.



1

Introduction

Gender equality and social justice receive limited but growing attention in energy research and energy policy. Differences between women and men in their access to and use of energy services constitute the core of the gender-energy nexus research. Within households, access to energy services have implications for meeting needs and interests, which are differentiated between women and men. Differences also occur between households, often mediated beyond income levels, by social characteristics, such as race, age, civil status and ethnicity, and are influenced by personal and contextual factors. These differences, which exist not only between the two groups, but also within them, require specific targeted forms of action rather than generic policy instruments. In the search for a just energy transition, it is essential to scrutinize how energy policy can reflect the rights and meet the needs of all energy users.

Gender-energy nexus research is rooted in development studies, with empirical data that comes mainly from the Global South, and less from the Global North¹. One of the first publications on the gender-energy nexus in Europe focused not only on energy consumption, but also on the women working in the energy sector (Clancy and Röhr 2003). Recently there has been a growing interest in the gender-energy nexus in the Global North, focusing mainly on energy poverty and just transitions (Lieu et al. 2020; Søråa et al. 2020; Mang-Benza 2021). In Europe, energy poverty has a gender face, with evidence showing that more women than men struggling to afford the energy services that they need (Clancy et al. 2017; Sanchez-Guevara et al. 2020). Energy services are defined in this thesis as ‘functions performed using energy which are means to obtain or facilitate desired end services or states’ (Fell 2017, p.129). Despite the growing attention to injustices and inequalities of the energy transition and the recognition of the gender dimension, there remains limited theoretical understanding and empirical evidence on a gendered analysis of energy policy.

This thesis contributes to the above debate by analysing the gender-energy nexus from a policy perspective to ensure a holistic approach in energy policy design and energy policy research reflecting gender energy justice. The sections of this chapter outline the thesis. Section 1.1. sets the scene by describing the gender-energy nexus, the North-South perspective in gender and energy research, and the urgency to engender the energy transition in Europe. Section 1.2 introduces the objectives of

1 In this thesis, I use the terms “Global South” and “Global North” not in a strict geographic sense, but in a political economic sense of large disparities in wealth and political instability. There are pockets of the Global North in the South and *vice versa*. A universal definition is elusive, evolving and contested (for an overview see Clarke, 2018). The origin is in the Brandt Report (Brandt, 1980), which made the link with countries emerging from colonialism and the significant change in their economic situation. My intention is to use these terms in a descriptive way. The Global North can be taken to include Europe, United States, Canada, Israel, Japan, Singapore, South Korea, Taiwan, Australia and New Zealand.

the thesis. Section 1.3 describes the methodology and the selection of cases. The final section outlines the structure of the thesis.

1.1 SETTING THE SCENE: THE GENDER-ENERGY NEXUS

The energy transition debate increases the international recognition of the social impact of climate change and the need for decarbonization. Policymakers gradually realize that the involvement of all actors in the energy system, as a system primarily designed to supply energy services to end-users, is essential to achieve the ambitious decarbonization goals. The 21st century has seen increasing climate strikes and protests, such as the movement of Swedish environmental activist Greta Thunberg engaging teenagers in the climate debate, pointing out the potential threat of a bigger divide between winners and losers of climate change (Martiskainen et al. 2020). The social justice voice is increasing in public and political debate on mitigating climate change (ibid). A sustainable and equitable energy policy is central to current concerns regarding climate change. International conventions demonstrate the global commitment to sustainability and equality. The Sustainable Energy for All programme (SEforALL) initiated in 2011 by Ban Ki-moon, the former Secretary-General of the United Nations (UN), seeks to achieve universal energy access, improve energy efficiency, and increase the use of renewable energy. In 2015, through the 17 Sustainable Development Goals (SDGs), the UN created an international agenda for addressing global problems, with specific goals on gender equality (SDG5) and clean and sustainable energy sources (SDG7). The SDGs are constructed to be mutually reinforcing which illustrates that energy is not a stand-alone topic within the quest for a sustainable future. I describe below this gender-energy nexus and the gendered access to energy services, which conditions the quest for a just energy transition.

1.1.1 The gender-energy nexus in policy

Within households in the Global South, a gendered division of labour allocates the responsibility for energy provision to women. Despite assuming this responsibility, women often have a limited say in household decision-making, which hinders their influence on processes and resource allocation and makes them more vulnerable in their access to energy sources (Skutsch et al. 2003). This gendered dimension of energy access is increasingly acknowledged as a global concern through international conventions and programmes. Although the gender-energy nexus has been recently recognized in the scientific literature, few studies address its unexplored potential and the need to consider gender equality in energy policies to contribute to a more just distribution of energy services and to achieve a sustainable future (Sunikka-Blank et al. 2019). This thesis engages with the gender-energy nexus debate through a policy perspective with a focus on the Global North as represented by Europe.

Given the gendered division of labour in all societies, women and men have different energy needs and they use energy in different ways and for different purposes. Access to energy sources as well as the availability, affordability and safety of energy services affect women and men differently. More than twenty years ago, Skutsch emphasised that a focus on gender is important, because 'gender and energy imply that it is not only a women's issue, but a concern for the whole society and that the social relations between men and women, and the expectations and roles of both men and women as regard to energy, need to be taken into account' (Skutsch 1998, p. 946-947).

Therefore, it is essential to establish an energy system that reflects gender differences and is aware of gendered social relations. Acknowledging the socially constructed and dynamic nature of gender relations, an energy policy should recognize cultural differences in their social context and contribute to the overall aim of gender equality (Feenstra 2002). Considering free market economy and the existence of non-discrimination law, the assumption is made that European countries have gender-neutral energy policies. In the definition of Khamati-Njenga and Clancy (2002), a gender-neutral energy policy is based on the premise that a good policy, programme or project will benefit women and men equally in meeting their practical needs. Whereas the term 'practical needs' is rooted in the context of the Global South (Moser 1993), meeting the needs of energy users resonates with the more recent concept of recognitional energy justice, increasingly used in the North. However, the few studies on gender and energy policy in the European context conclude the opposite, i.e., a gender-neutral policy does not necessarily serve women and men equally, and could even contribute to further existing inequalities in society (Clancy and Röhr 2003; Clancy et al. 2017; Fraune 2016; Wiliarty 2011). Furthermore, energy consumption is not gender-neutral. Purchasing power, preferences, needs, and everyday practices and routines regarding energy consumption are mutually shaped by gender norms and social institutions (Clancy and Röhr 2003; Rätty and Carlsson-Kanyamaa 2010; Fraune 2016).

Gender is considered a social construct of 'a system of socially defined roles, privileges, attributes and relationships between men and women which are learned and not biologically determined' (Khamati-Njenga and Clancy 2002, p 6). Gender relations are dynamic depending on time, place and context. Hence the gender dimensions of energy policy differ across social, cultural, economic and political contexts. An intersectional approach to gender relations pinpoints further variation across a range of social factors, such as age, class, ethnicity, income level, social status, marital status and sexual identity. Such an intersectional approach reveals a potential range of needs and capacities to meet those needs, which may require targeted forms of action rather than generic policy instruments.

Furthermore, in this thesis I take a holistic approach of the gender-energy nexus reflecting that gender roles are not limited to the domestic household sphere. This resonates with Parikh (1995) who identifies four arguments for a holistic approach to the gender-energy nexus. First, women's role goes beyond household energy use through their work in agriculture, food processing, service and manufacturing. Second, households are not a homogenous entity; instead intrahousehold allocations of time and resources differ between genders. Third, women are not only energy users, but also participants of the energy supply chain. Fourth, women have diverse roles in designing, adapting and using new energy technologies. All four arguments are valid in the energy transition debate and should be tackled to design and implement sustainable energy policies. In the ambition for a just energy transition, generic energy policy does not reflect existing inequalities and injustices. Nevertheless, during policy formulation, policy makers are rather constrained by the available generic data. If there are gender-disaggregated data available for the energy sector, these data tend to be disaggregated mainly in terms of 'women and men', hindering a more nuanced and intersectional analysis. The consequences of which are a lack of knowledge of policy makers that is resulting in policy choices and interventions that are not addressing existing inequalities and injustices and could potentially even increase them.

Gender is still a difficult concept to embed in energy policy, since the sector is male-dominated both as decision-makers and as producers (Clancy and Feenstra 2019, IRENA 2019), causing a 'male-orientation' in policy making amplified through the lack of gender-disaggregated data. As a result, the incorporation of social inclusion in energy transition is failing to occur as demonstrated by the evidence on energy poverty. The question arises as to how the energy transition can become more gender just using an intersectional perspective to actors involved in the energy sector. When stating that there is a gender dimension to energy transition and aiming for an energy policy that addresses gender, insights on women's role in the gender-energy nexus is needed. What are women's needs and rights? How can women play a role in energy transitions and how to involve women when designing and implementing energy transition? To address these questions, I will zoom in on women's agency and their role in some parts of this thesis. I am aware of the fact that women are not a homogeneous entity and that the intersectionality of women always needs to be considered.

1.1.2 Energy poverty from a North-South perspective

Energy poverty emerged in 1990s as a policy concern in the Global South. More recently the phenomenon evolves in the energy policy debate in the Global North. The struggle to have access to the energy needed for a decent and comfortable living is referred to as energy poverty (Bouzarovski and Petrova (2015). Energy poverty has no single definition since it depends on the socio-cultural and political-

economic context and the concept is both referred to as ‘fuel poverty’ and ‘energy poverty’. One of its early definitions based on empirical evidence in the Global South is the ‘inability to cook with modern cooking fuels and the lack of bare minimum electric lighting to read or for other household and productive activities after sunset’ (Modi et al. 2006, p.9). The International Energy Agency describes energy poverty as the ‘lack of access to electricity and reliance on traditional biomass fuels for cooking’ (International Energy Agency 2010, p. 237). Most of the people living in energy poverty are in Sub-Saharan Africa, with an electrification rate of 37.5 %, while 80% of the people still rely on biomass to meet daily needs (World Bank 2014). Energy poverty is strongly gendered and gender inequality impacts access to energy and decision-making power over energy resources. Although energy poverty is recognized by scholars as a significant problem, substantial differences can be identified between the Global South and the Global North. The relationship between gender and household energy has been relatively well explored in the context of developing countries (Clancy 2003; Skutsch et al. 2003).

There is a growing body of evidence that the energy poverty is also present in the Global North as collected in the ENGAGER Network² and monitored by the Energy Poverty Observatory³. The first report on gender and energy access in the European Union (EU) argues that persistent gender inequality exists in the access to energy services in the EU resulting in a gendered dimension of energy poverty (Clancy et al. 2017). For example, women and men experience energy poverty in distinctive ways due to differences in income, housing conditions or depending family members. As an illustration, in the city of Madrid, female headed households are more affected by the high energy prices. While 22.7% of all households live in energy poverty, it increases to 38.8% for single-person households of women older than 65, and to 40.9% for single-mother households (Sánchez-Guevara et al. 2020).

A just energy transition aims access to affordable and clean energy for all. Especially those household members that are responsible for cooking, cleaning and caring feel the burden of using energy carefully if money is tight to pay the monthly energy bill. All over the world, women are the main caregivers and responsible for energy demanding household tasks which brings a focus on the energy services they need to achieve these tasks. The daily struggle of women to access the energy services they need is universal. Bouzarovski and Petrova (2015) unravel the dichotomy between fuel and energy poverty through a global lens. The term ‘fuel poverty’ is used in the United Kingdom (UK) to describe energy poverty, since the focus used to be primarily on domestic heating. Bouzarovski and

2 ENGAGER Network of energy researchers in Europe <http://www.engager-energy.net/> (accessed 27th February 2021)

3 Energy Poverty Observatory Europe <https://www.energypoverty.eu/> (accessed 27th February 2021)

Petrova (2015) distinguish two streams in the existing literature on energy poverty, one focusing on fuel poverty with empirical evidence from the Global North and the other stream rooted in development studies with energy poverty data from the Global South. The focus on fuel poverty in the North is expressed in the inadequate heating in homes. The UK has a long history of energy poverty research and was the first country in the Global North with an official energy poverty definition and policy (Boardman 2010). More recently, both research and policy allow a wider understanding of the problem as reflected in the EU-wide use of the term 'energy poverty' instead of 'fuel poverty'. In this thesis the term energy poverty is used to emphasize the deprivation of energy services both for domestic heating, cooling, cooking, appliances and other energy-related uses.

1.1.3 Engendering a just energy transition in Europe

Against the backdrop of international commitment, national governments feel the urgency to transform their energy policy towards renewable and efficient energy resources to meet the needs of consumers as well as a commitment to climate change and sustainability goals. The question remains how to design such a policy that recognizes both women's and men's needs for and the rights to energy services. Insights into the gendered inequalities of energy needs, use and access could contribute to designing energy transition policies that acknowledge and address these injustices. As such, this thesis adds the gender lens to the energy justice and just transitions debates and to the growing body of literature on the gender-energy nexus.

Many European policy-makers are not aware that a 100% electricity connectivity rate is not a measure of energy access. People cannot always afford the energy consumption to meet their need. Energy poverty is an emerging issue in the European policy debate on energy justice, claiming that a just energy transition especially for the vulnerable energy consumer removes energy poverty. Fraune (2016) also emphasises that energy policy in European countries is gender blind and lacks the supportive framework that is required to meet gender needs in energy and transform the energy sector to a more sustainable and just sector. She uses gender relations as an analytical lens, providing an approach to incorporate the characteristics of social stratification to ensure fairness and equity in energy transition: 'Beyond the social order of income distribution, the mechanisms behind income inequality also have to be analysed in order to enhance both social and gender equality of the distributive effects of green growth policies by complementary measures of the existing tax and benefits schemes.' (Fraune 2016, p.10). Fraune analyses the impact of existing energy policy on gendered access to energy, whereas this thesis contributes with the focus on the conceptualisation of the gender-energy nexus and how to integrate these concepts to design a gender just energy policy.

A gender perspective to the energy transition reveals whether gender influences the uptake of a more sustainable energy system and if the energy transition equitable impact women and men. Engendering the energy transition entails an energy value chain reflecting the values of women and men. 'We can ask which values women and men aspire to, what roles and responsibilities they take on within the energy value chain, as well as what motivates them to be involved and how they negotiate decisions to ensure their values are reflected and their aspirations are reached.' (Clancy et al. 2020, p. 5). The role of policy is to stimulate gender equitable outcomes of the energy transition by not only recognising the diversification of energy users, their needs and motivations to participate in the energy transition. Policy instruments can also facilitate a variety of energy actors to participate in the energy transition and strengthen their voice and support them playing their roles in the energy chain. For example, women and men have different levels of access to information, knowledge and resources which impact their agency and their capacity to use their agency. This thesis explores policy choices for engendering the energy transition in Europe and identifies the role of women to be involved in a just energy transition. Engendering energy policy is defined in this thesis as the process that aims to create a gender just energy policy in which the needs and the rights of both women and men are addressed to realize gender-equal policy outcomes.

1.2 RESEARCH OBJECTIVES

Sustainable and clean energy for all is a global concern embedded in international commitments, such as the SDGs and the European Green Deal (European Commission 2019a), which call for action at the national policy level. However, the energy policy literature gives little attention to gender equality. This knowledge gap contradicts with the mutuality of the SDG5 and SDG7, and misses the benefits that gender analysis can bring to policy science and policy-making. Gender analysis of energy policy contributes to ensuring a just energy transition by providing insights into the heterogeneity of social inequalities and understanding of the intersectionality of the energy users as well as creating spaces for women's voices to be heard.

Furthermore, a just energy transition is in danger when there is gender inequality, resulting in unequal access to energy services and unequal representation in energy transition processes between women and men. The literature on the conceptualisation of the gender-energy nexus through an energy justice frame is limited and needs advancements to reflect the current debate on just transitions. Using a gender lens to analyse energy policies can reveal these inequalities and contribute to a just transition. Gendered power relations cause social differentiation, which limits how women and men can participate in, benefit from and take ownership of the energy transition. This thesis aims to identify in current

European policies towards a just energy transition, the choices which address and minimise the gender inequalities in energy access. For this purpose, a conceptual framework will be developed that can be applied globally. This thesis therefore serves two main research objectives, divided in sub-objectives as follows:

A. To advance the theoretical understanding on the gender dimension of energy policy

- A1: To develop a conceptual framework that juxtaposes the gender-energy nexus with the tenets of energy justice
- A2: To compare the gender dimension of energy poverty in different European countries
- A3: To investigate the recognition of gendered needs and rights within energy policy

B. To analyse the energy transition policy through a gender-just lens

- B1: To define policy choices of energy transition in Europe by applying the gender just policy framework
- B2: To demonstrate the manifestation of gender inequalities and energy injustices under different contexts of European countries

In order to achieve the main research objective A, I will juxtapose insights from energy justice literature with approaches to engendering energy policy. The search for a just energy policy is central within the literature on energy justice, which is used as a concept, an analytical tool and a decision-making framework, and is based on three tenets: distributive, recognition and procedural justice. Three engendering energy policy approaches are distilled from the literature: women empowerment, gender mainstreaming and social inclusion. By synthesizing these two streams of literature, I will develop the gender just energy policy framework, which serves as a conceptual framework to understand and define gender inequalities and injustices in energy policy (sub-objective A1). Energy poverty is a phenomenon where both inequalities and injustices are manifested as a reflection of policy choices. Understanding the gender dimension of energy poverty contributes to understanding of just energy transitions and improving the policy choices to alleviate energy poverty (sub-objective A2). I will examine energy poverty alleviation policies in the EU to analyse their reflection of the gender dimension of energy poverty and to identify policy choices that could contribute to a more gender-just energy poverty policy. To investigate the impact of policy choices on existing gender relations, I will deepen the understanding of gendered needs and rights in energy policy (sub-objective A3).

I will apply the gender just energy policy framework and study different contexts to achieve the main research objective B. By identifying existing inequalities and injustices in the current energy system, I aim to provide insights into the possible

policy choices to integrate gender approaches in energy policy design. Since the conceptualization of gender and energy justice is limited and lacks empirical examples in policy analysis, I will test the gender just energy policy framework both for its conceptual and analytical functions. For this purpose, I will compare the policy choices in the energy transition as reflected in the National Energy Climate Plans (NECPs) of the EU Member States. By doing so, policy choices are defined that contribute to a more gender just energy transition (sub-objective B1). However, contextual factors play a highly influencing role in dynamic concepts like gender relations and policy choices. Therefore, I will conduct multiple case studies that demonstrate the manifestation of gender inequalities and energy injustices under different political, historical and socio-cultural contexts of European countries (sub-objective B2).

1.3 METHODOLOGY

This PhD project has its roots in my master thesis 'Towards a gender-aware energy policy: a case study from South Africa and Uganda' (Feenstra, 2002). The cases are analysed using a framework I developed in my master thesis, focusing on what constitutes the characteristics of a gender-aware energy policy and the enabling conditions required to deliver such a policy. In the PhD project, my case study selection has changed to Europe for the above-mentioned reasons, but I still position myself in the gender-energy nexus discourse comparing national policy choices from a North-South perspective. There are lessons to be learned for Europe in how countries in the Global South integrate a gender approach into their energy policy. For example, as I elaborate in chapter 4, Sweden has a 'feminist' foreign policy supporting gender-mainstreaming projects in the Global South, but fails to implement gender mainstreaming in its national energy transition policy.

This methodology section provides an overview of the research design of the overall thesis and the methodological choices made to achieve the research objectives. I choose qualitative policy analysis as my main methodology combined with multiple case studies. The main research entity is national energy policy with an emphasis on three topics: household energy use, energy poverty alleviation and the energy transition. In my master thesis I have identified six enabling conditions that support or hinder the process of engendering energy policy: participatory planning, gender methodology, legislation on gender equality, political commitment, institutional support and financial commitment. In this PhD thesis, focusing on Europe, I apply the same multidisciplinary and multilevel lens as I have developed in my master thesis. Each chapter of the thesis aims to achieve a specific objective or multiple objectives using its own methodology rooted mainly in interpretive policy studies. Therefore, the research design and the data collection and analysis methods are further explained in each chapter.

1.3.1 Research design

In this thesis, I made a number of methodological choices. My first choice is on how to analyse 'gender'. When using gender as an analytical concept, I have considered the intersectionality and contextual nature of the concept. It is important to recognise that women and men belong to heterogeneous groups, who vary across a range of social categories, such as age, class, race, ethnicity, social status, economic status, sexual identity, etc., and are influenced by personal and contextual factors in choices they make. These differences, which exist not only between the two groups, but also within them, may require specific targeted forms of action rather than generic policy instruments. To add to the complexity they change, for an individual, over time. Nevertheless, the current literature approaches gender differences in energy access and energy policy mainly in terms of a woman-man binary variable, rather than a more nuanced, intersectional understanding.

A diverse terminology, with terms such as 'gender-sensitive', 'gender-mainstreaming', 'gender-aware' (Feenstra 2002) and more recently in climate policy the term 'gender-responsive' (Frenova 2020), is used to address gender in energy policy making. This thesis uses the term 'gender-aware' that draws on the definition of Clancy and Feenstra (2006) where a gender-aware energy policy (i) recognises that women and men have different energy dynamics (role in the household, decision-making areas, energy needs, responses to crises or coping mechanisms); (ii) makes available energy technologies and services that match those dynamics; and (iii) employs appropriate policy instruments (such as taxation) to provide an enabling environment. Conceptualising the gender dimension of energy policy is one of the main objectives of this research. Accordingly, juxtaposing the gender-energy debate with the energy justice debate will create a new terminology to describe the developed conceptual framework.

The second methodological choice is on how I collected and generated data. The data collection took place between 2017 and 2020. I followed triangulation methods to collect and analyse the data. Triangulation here is used according to Toshkov's (2016) definition that the same phenomenon is approached with different methods or through different types of data sources. I applied a combination of data from expert interviews with data from the desk review of academic literature, grey literature from international organisations, and policy documents for both EU and national levels. The choice for desk review of policy documents allowed me to continue data collection without facing restrictions due to Covid19 confinements in 2020. All policy documents were accessible online and often available in English translation.

Chapter 3 on energy poverty in the EU is based on a commissioned peer-reviewed report for the European Parliament (Clancy et al. 2017). For that report, the findings from qualitative policy analysis were combined with the insights from interviews

conducted in 2017 with twenty-five key informants representing a mix of academics, decision-makers, policy-makers and stakeholders. A small number of experts from the European Institute of Gender Equality (EIGE)⁴ also contributed to the data gathering by answering an online survey. For Chapter 5, in which I made a historical comparison between France and the Netherlands, my co-author and I each conducted an interview with a key respondent to verify our findings in the literature and to place them in context.

A third methodological choice is the unit of analysis. I took energy policy as the research entity. The level of analysis is therefore mainly at the national level or the EU level. The national level is a suitable scale to formulate a gender just energy policy. National governments are urged to acknowledge the universal declaration to provide sustainable energy for all (SEforALL) as well as their commitments to the SDGs. These are global commitments that require local action and nationwide implementation under country action plans as requested in the SDGs. Further, the new EU Energy Directive obliges all member states to submit a National Energy and Climate Plan (NECP) in which they address their efforts in decarbonization, renewable energy transition and access to clean energy for all their citizens (European Commission 2019a). These NECPs are the unit of analysis in Chapter 4. Within energy policy, the main focus of this thesis is on three topics: household energy, energy poverty and energy transition. The process of engendering policy is broken down into three phases: 1) agenda setting 2) policy formulation 3) implementation (Van de Graaf and Hoppe 1996). The first phase can be seen as a foundational stage that creates the enabling conditions for engendering the energy policy. The formulation phase with the policy design is the main scope of the thesis. Implementation of energy policy is only included in the analysis when this creates insights for the design of the energy policy.

1.3.2 Case studies

The case study methodology allows to identify contemporary initiatives on just transitions and policy choices to improve gender-equal access to energy services. A common concern about the use of case study methodology is the lack of scientific generalization when based on one specific case. Multiple case studies are a way to respond to this concern combined with aiming at theoretical generalisation in which the case study aims to expand and generalize theories (Yin 2009). In multiple case studies the unit of analysis remains the same, but in comparing different cases

4 The EIGE is an autonomous body of the European Union, established to contribute to and strengthen the promotion of gender equality, including gender mainstreaming in all EU policies and the resulting national policies, and the fight against discrimination based on sex, as well as to raise EU citizens' awareness of gender equality. <http://eige.europa.eu/about-eige> (accessed 27th February 2021)

I aim to find either similar results, i.e., a literal replication, or contrasting results but for anticipatable reasons, i.e., a theoretical replication (Yin 2009).

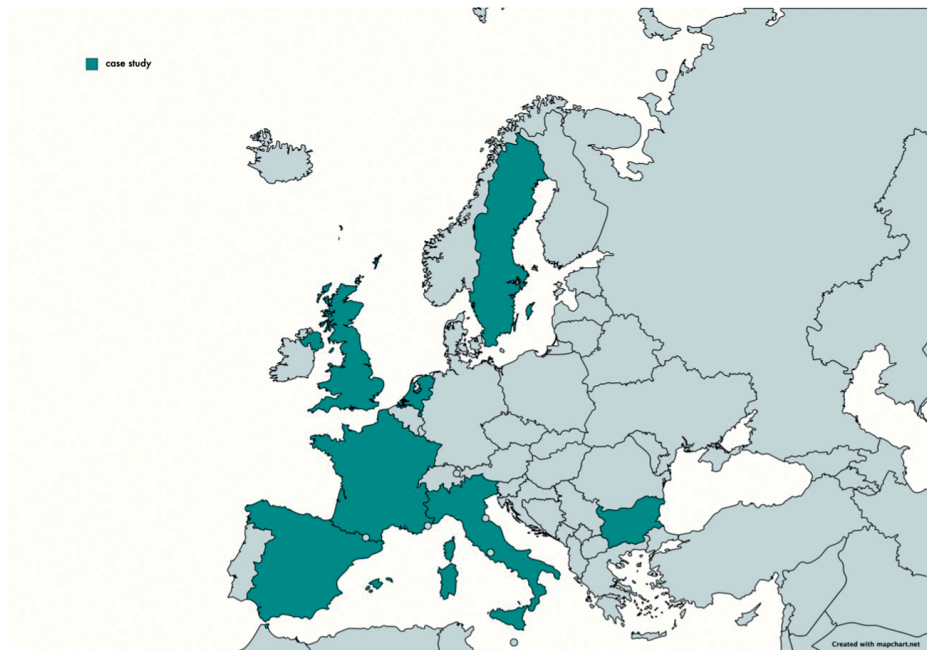


Figure 1.1: Case study selection

In the empirical chapters I focus on Europe, and more specifically the EU member states. Time constraints and accessibility of data makes case study selection necessary. Through mapping the case study countries, illustrative examples of issues related to gender and energy transition are identified. I start in chapter 3 with the case study analysis of seven EU countries (Bulgaria, France, Italy, the Netherlands, Spain, Sweden and the UK⁵). I identify existing policy initiatives on eradicating energy poverty and improving gender-equal access to energy services. The seven countries have different political backgrounds which are reflected in legislation and policy measures to eradicate energy poverty. The geographical spread of the selected countries also reflects the different climate conditions in the EU, which have significant implications on energy needs and resources. From a relatively mild climate without severe winters or extremely hot summers but with very humid conditions (the Netherlands, Northern France, the UK), to land climate with cold winters and hot summers (Bulgaria) and including Mediterranean climate with relatively mild winters but hot summers (Eastern and Southern Spain, Southern France) to Nordic climate with cold winters (Sweden). The climate classification is

5 The study was carried out in 2017 before Brexit while the UK was still an EU Member State.

based on average temperatures and weather conditions, but heat waves and cold spells are having an increasing impact on cooling and heating needs of energy users. Climate and outdoor temperatures have an impact on the heating and cooling needs of energy users. Hence a variety of climate conditions are illustrative to analyse the variety of energy poverty interventions.

Table 1.1: Division of case studies across the empirical chapters of the thesis

EU countries	Chapter 3	Chapter 4	Chapter 5	Chapter 6
Bulgaria	√	√		√
France	√	√	√	
Italy	√			
Netherlands	√	√	√	
Spain	√	√		
Sweden	√	√		
UK	√			

√ = case study is used in the chapter

In chapter 4, I selected five EU member states that reflect the pluriform identity of the EU: Bulgaria, France, the Netherlands, Spain and Sweden. Since the unit of analysis in this chapter is the NECPs, I chose the five countries so as to represent different political backgrounds and institutional differences. Furthermore, they differ in the extent to which gender equality is achieved and gender inequalities are addressed in policies. Another difference among the selected countries is the level of energy poverty, from almost non-existent and not addressed (Sweden and the Netherlands) to the highest level of the EU and acknowledged as a policy concern (Bulgaria). Their distinctive context reflects differences in policy measures to eradicate energy poverty and policy incentives to change energy policy to reflect social realities.

In chapters 5 and 6, I focused on a fewer number of countries and their contextual factors, applying the case study methodology to examine real-life phenomenon in-depth and within its contextual settings. In chapter 5, France and the Netherlands are selected as the two cases that are compared in a historical analysis of energy policy interventions during energy transitions after the Second World War (WWII). France and the Netherlands were also chosen out of personal interest and language skills for me and my co-author. Since we aimed to base the historical analysis on documents in the original language, language skills were essential in order to do the analysis. In chapter 6, the final empirical chapter, I studied a single case that focuses on Bulgaria. Bulgaria was chosen because it offers intriguing conditions, where it shows relatively well performing on gender-equality indicators, whilst it also struggles with a high poverty rate and social inequalities.

1.4 STRUCTURE OF THE THESIS

This thesis is structured around the two main research objectives as outlined in section 1.2. Including this first introduction chapter, the thesis consists of seven chapters. Table 1.2 presents an overview of the thesis structure, including the research objectives, the methodology and the geographical scope of chapters 2 to 6. The thesis is based on chapters that are published or presented as separate peer-reviewed publications, except this chapter and chapter 7.

Chapter 2 develops the conceptual framework of the thesis by juxtaposing the three tenets of energy justice with the three engendering energy policy approaches. The resulting gender just energy policy framework serves as a conceptual framework to understand the interlinkages between energy justice and gender-energy nexus.

Chapter 3 discusses existing gender inequalities and injustices in energy access. Through a gender lens, the structural causes of energy poverty and the policies to address access to energy services are discussed for seven European countries: Bulgaria, France, Italy, the Netherlands, Spain, Sweden and the UK. Three gender perspective of energy poverty are identified: the economic, the socio-cultural and the biological/physiological perspective.

Chapter 4 applies the gender just energy policy framework by analysing the NECPs of five European countries: Bulgaria, France, the Netherlands, Spain and Sweden. The framework is operationalised by defining seven elements and twelve indicators to assess energy transition policies using the gender just energy policy framework.

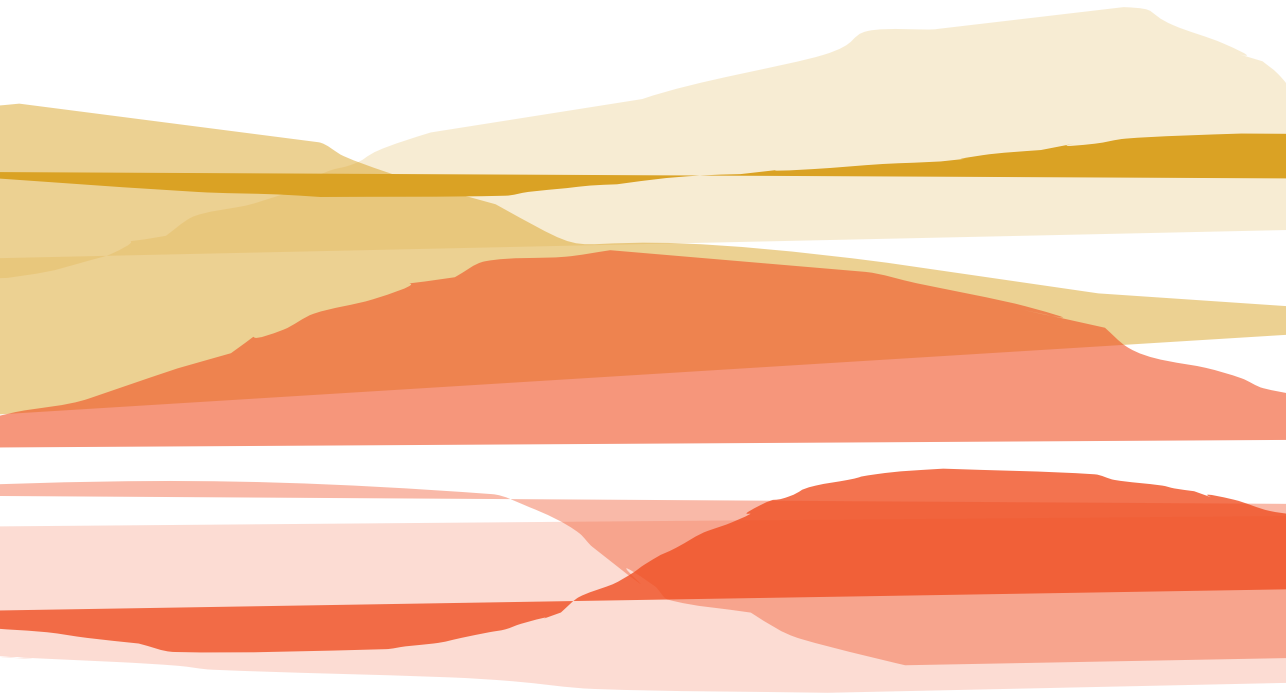
Chapter 5 investigates the involvement of women in the previous energy transition in Europe through a comparative gender analysis of post-WWII household energy policy in France and the Netherlands. The approach of involving women in the uptake of electrification in the energy transition after WWII provides insights on how to involve women in the current energy transition.

Chapter 6 examines further the involvement of women in energy transition with a contemporary case study that focuses on Bulgaria. Both gender equality and energy transition are topical issues in Bulgaria. Three agency roles of women in engendering energy transition are identified: producer, consumer and decision-maker.

Chapter 7 concludes the thesis by synthesising and discussing all findings of the previous chapters. The gender just energy policy framework and its possible contributions to engendering the energy transition in Europe is presented. Furthermore, the findings of the thesis are discussed by reflecting on their implications for research as well as for policy-making. The chapter ends with a future research agenda.

Table 1.2: Overview of the thesis structure

Chapter	Research objective	Methodology	Geographical focus	Publication
2: Conceptual framework	A1	Systematic literature review	Global	Feenstra, M. and G. Özerol (2021) Energy justice as a search light for gender-energy nexus: towards a conceptual framework. <i>Renewable and Sustainable Energy Reviews</i> , 138: 110668
3: Gender injustices in energy access	A2	Policy analysis Interviews Comparative case studies	Bulgaria, France, Italy, Netherlands, Spain, Sweden, the UK	Feenstra, M. and J. Clancy (2020) A view from the North: gender and energy poverty in the European Union. In: <i>Engendering the Energy Transition</i> , eds. Clancy et al, Palgrave Macmillan
4: Analytical framework	B1	Policy analysis Comparative case studies	Bulgaria, France, Netherlands, Spain, Sweden	Feenstra, M. and G. Özerol (under review) <i>A gender just energy policy framework to engender the energy transition in Europe</i> .
5: Energy transition involving women	B2 A3	Historical analysis Interviews Comparative case studies	France, Netherlands	Feenstra, M. and R. Guyet (in publication) The uptake of new domestic energy technologies in the 1950s and 1960s: how France and the Netherlands involved women, in: <i>Home and Hearth: Gender and Energies within the Domestic Space, 19th–21st Centuries</i> , special issue of the <i>Journal of Energy Histories</i> Feenstra, M. and F. Hanke (accepted, in publication 2021). Creating an enabling policy framework for inclusive energy communities: a gender perspective. In: <i>Renewable energy communities in the face of low carbon energy transition in Europe. Lessons on the role of citizen and renewable energy communities' empowerment in the light of the revised EU Renewables Directive</i> . Frans Coenen and Thomas Hoppe (eds). Palgrave, Macmillan
6: Women's role in energy transition	B2 A3	Policy analysis Single case study	Bulgaria	Feenstra, M. (2020) <i>Women as change agents of the Bulgarian energy transition</i> , in: <i>From Economic to Energy Transition: Three decades of transition in Central and Eastern Europe</i> , eds. M. Misik and V. Oravcová, Palgrave Macmillan



2

Juxtaposing energy justice and gender approaches: a conceptual framework

This chapter is based on:
Feenstra, M. and G. Özerol (2021) Energy justice as a search light
for gender-energy nexus: towards a conceptual framework.
Renewable and Sustainable Energy Reviews. 138: 110668.

ABSTRACT

Differences between women and men in their access to and use of energy services constitutes the core of gender–energy nexus research. In early 2010s, the concept of energy justice has emerged as a response to the need to address justice issues in energy access, use and policy making. However, the gender–energy nexus research lacks the conceptual basis to analyse energy policies from a justice perspective. This chapter aims to bridge this scientific and policy knowledge gap by developing and applying a conceptual framework by juxtaposing the three tenets of energy justice (distributive, recognitional and procedural justice) and the three engendering policy discourses (women empowerment, gender mainstreaming and social inclusion). To develop the framework, we conducted a conceptual review of 56 scientific publications by identifying, examining and synthesising the key ideas and debates in energy justice and engendering energy policy. Then we applied the framework to the current body of scientific knowledge on gender and energy justice and identified future research directions. Given the limited scientific literature on gender and energy justice, the framework contributes to conceptualising energy justice for researchers analysing energy systems in their social, cultural, economic and political contexts. This chapter makes a first attempt in doing so, and invites further elaboration and operationalisation of the framework. A comprehensive application of the framework requires further empirical evidence and the development of indicators to assess energy policies from an integrated gender and energy justice perspective.

2.1 INTRODUCTION

Access to sustainable energy for all is a challenge for energy policy makers worldwide. Availability, affordability and reliability are three indicators of the access to energy services, which is crucial to reduce poverty and sustain economic growth (Reddy 2015). This global commitment to energy access is embedded in Sustainable Development Goals (SDGs), specifically SDG7 that aims “to ensure access to affordable, reliable, sustainable and modern energy for all”. In both the Global South and North, energy poverty and limited access to energy have a strong gender face (Clancy et al. 2017). Women and men are unequally affected by limited access to energy services both in society and within households. There is strong evidence on the link between energy poverty in the household and other factors, such as women’s health burdens, time use, education and access to information (Räty and Carlsson-Kanyama 2010; Parikh 2011; Winther et al. 2020; Lacey-Barnacle, Robison and Foulds 2020).

In the early 2010s, the concept of energy justice has emerged as a response to the need to address justice issues in energy access, use and policy making. Sovacool and Dworkin (2015, p.436) define energy justice in their seminal work as ‘a global energy system that fairly disseminates both the benefits and costs of energy services, and one that has representative and impartial energy decision-making’. Energy justice has evolved as a conceptual, analytical and decision-making framework around three tenets: distributive, recognitional and procedural energy justice. The focus on justice in energy policy provides insights into the multiple dimensions of injustice across all global energy systems that can lead the way to a more just energy policy (Jenkins 2018). Justice is a key element in human rights discourses seeking to overcome inequality in society, such as the inequality between women and men arising out of gendered roles in society.

Differences in access to and use of energy services between women and men is at the core of gender-energy nexus research. Drawing from Khamati-Njenga and Clancy (2002, p.6), we define gender as a social construct of ‘a system of socially defined roles, privileges, attributes and relationships between men and women which are learned and not biologically determined’. This definition emphasizes gender as a social construct, which changes over time, space and context. Hence, the gender dimensions of energy access and use vary across social, cultural, economic and political contexts. The objective of gender and energy policy research is an engendering energy policy that enables a fair energy distribution between women and men, recognises gendered energy needs, and contributes to equal participation of women and men in the energy sector. Early research on gender mainstreaming in energy policy that called upon human rights discourses lacked a theoretical foundation for a fair distribution of energy services (Feenstra

2002). The energy justice discourse offers this crucial feeding ground to understand the gender-energy nexus by asking normative questions about the energy-related costs and benefits and the fair distribution of those linked to power, status and governance (Lieu et al. 2020; Moniruzzaman and Day 2020).

The scholarly literature on energy and gender often focuses on the household level, where women suffer greatly under the burdens of energy poverty (Clancy et al. 2017). However, conceptual frameworks and empirical evidence on the analysis of macro-level energy policy through a gender lens remains scarce. This is remarkable given that the earliest publication on gender and energy policy by Parikh (Parikh 1995) has already argued for integrating gender at the macro-level policy. Parikh contests the emphasis on household level for four reasons. First, women's role goes beyond household energy use through their work in agriculture, food processing, service and manufacturing. Second, households are not a homogenous entity and intrahousehold allocations of time and resources differ between genders. Third, women are not only energy users, but also participants of the energy supply chain. Fourth, women have diverse roles in designing, adapting and using new energy technologies. All four arguments are still valid in the energy transition debate and should be tackled to design and implement sustainable energy policies. Further, the research on national energy policies often lack an analytical framework to reflect upon the impact of energy policies on gender roles and relations (Parikh 1995; Feenstra 2002; Clancy and Feenstra 2019).

This chapter aims to bridge the scientific and policy knowledge gap in understanding gender just energy policy by developing and applying a conceptual framework that integrates energy justice and gender approaches in energy policy. By juxtaposing the main engendering policy discourses with the three tenets of energy justice, the main concepts of the gender-energy nexus are identified. The gender just energy policy framework can serve as a conceptual framework to understand the interlinkages between energy justice and gender-energy nexus. Future research can develop the analytical and decision-making application for research and policy. The main research question that we seek to answer is: *How can energy justice be applied to conceptualise engendering energy policy?* This question is broken down into two sub-questions: 1) Which gender discourses are used to contribute to engendering energy policy? 2) How applicable is energy justice for analysing energy policy through a gender lens? To answer these questions, we set the scene in section 2.2 by elaborating on gender and energy justice as an emerging nexus. In section 2.3 we develop and apply the framework based on the findings from a conceptual review of scientific literature. Finally, in section 2.4, we draw conclusions and identify future research directions.

2.2 GENDER AND ENERGY JUSTICE: AN EMERGING NEXUS

Concepts of justice have emerged in the climate change debate from the environmental justice movement of the 1970s (Kotelchuck, Queen and Bullard 1995; Finley-Brook and Holloman 2016; Fuller and McCauley 2016; Jenkins et al. 2016; Jenkins 2018). Taylor (2000, p:508) defines environmental justice as ‘an established movement connecting environment, race, class, gender and social justice issues’. Environmental justice is concerned with the distribution of environmental hazards and access to natural resources, representing distributive and procedural justice concerns (Jenkins 2018). More recently, environmental justice has been complemented with climate justice, in which the connections between climate change and human rights are seen as being central (Willow and Keefer 2015; Fuller and McCauley 2016; Martiskainen et al. 2020; Thoyre 2020). Out of these two justice approaches, energy was separated from the wider range of topics concerning the environment and climate change, creating the concept of energy justice in the 2010s (Fuller and McCauley 2016; Jenkins 2018).

Energy justice has received attention in the scholarly literature since 2013, but the social justice dimension of energy policy was used earlier by non-governmental organisations in the development cooperation sector (Heffron and McCauley 2017). The first framework of energy justice is a triumvirate of tenets – distributive, procedural and recognitional – to be applied throughout the energy system (Heffron, Stephan and Jenkins 2013). Justice dilemmas are in the forefront and include concerns about the material infrastructure of energy technologies, the access to and cost of energy services and intergenerational equity. When energy justice is applied to policy research, the central concepts are energy production and energy consumption, in terms of procedural decision-making and distributive outcomes (Fuller and McCauley 2016). Consideration of the justice dimension is a vital decision-making framework to make fully informed and comprehensive choices (Sovacool and Dworkin 2015). Energy justice through a governance perspective attempts to find answers to three key questions: Where resources should be focused (distributive justice), whose needs should be recognised (recognitional justice) and how democratic legitimacy should function (procedural justice) (Heffron, Stephan and Jenkins 2013).

As Sovacool and Dworkin (2015) stipulate, the concept of justice is more important for what it *does* than for what it *is*: a framework with multiple functions that are revealed by observing its effects on actual decisions. Energy justice functions as a *conceptual* framework to unite justice concerns that are usually distinct. The *analytical* function of the energy justice framework helps to understand the underlying values of energy systems, or to resolve common energy problems. The *decision-making* function assists energy planners and consumers in

making informed energy choices (Sovacool and Dworkin 2015; Jenkins 2018). The decision-making function of energy justice is developed around eight core principles: availability, affordability, due process, transparency and accountability, sustainability, intra- and inter-generational equity and responsibility (Sovacool and Dworkin 2015; Sovacool et al. 2016). Sovacool and Dworkin (2015) drafted an energy justice checklist supporting the decision-making function for practitioners to design an energy just policy and for researchers to assess existing energy policies on justice awareness. However, energy justice remains an academic concept that is not yet adopted by policy-makers to embed justice principles into energy policy design (Jenkins 2018). Heffron and McCauley (2017) highlight that little reflection is given to the energy justice frameworks of how it is translated into practice, creating just energy policies and resulting in equitable outcomes of energy policy interventions. At the same time, within the growing body of literature on energy justice, the intention to apply justice-oriented concepts in energy policy is emerging (Jenkins 2018).

These questions give rise to another question: can energy justice be used as a universal concept in striving to clean energy for all? Or, more specifically within the scope of this chapter, could it be applied to gender relations in both the Global South and North? Given the climate change challenges combined with the global commitment to provide access to sustainable energy for all, an increasing attention is paid to the ethics of decisions and behaviour linked to energy supply, demand and consumption (de Wildt et al. 2018; Graff et al. 2019; Sovacool et al. 2020c). As Jenkins et al. pointed out, energy justice is a field in development, in need for empirical examples outside energy poverty and the dichotomy between the Global South and North (Jenkins et al. 2016). There is a need to contextualise the abstract concepts of energy justice. Wiese (2020) questions the applicability of energy justice in socially unequal and culturally diverse contexts. Her research in Ethiopia demonstrates that although all three tenets of energy justice are identified, context influences justice implications. Furthermore, the meanings given to energy justice concepts change over time and they need to be placed into their social, economic, political and cultural contexts. The majority of the gender-energy nexus research is based on empirical data of the Global South and the energy justice debate mainly uses data from the Global North (Lacey-Barnacle, Robison and Foulds 2020). Juxtaposing these two streams creates a global understanding of both gender inequalities and broader social injustices in energy access and use, with room for contextualisation.

While energy justice is a global concern, it argues for policy interventions to ensure energy solutions that are contextually embedded (Jenkins et al. 2016). Contributions to the energy justice debate from an energy poverty perspective plea for increased attention to be given to contextual factors, such as the social determinants of energy consumption (Bouzarovski and Tirado Herrero 2017; Moniruzzaman and Day 2020).

The contextual dimension of energy justice was identified by Fuller and McCauley (2016) within the spatial and temporal dimensions of energy justice activism. Their empirical work demonstrated that energy justice activism involved temporary interventions in the energy system, which focused on energy production or consumption, rather than scrutinising the energy system as a whole. Sovacool et al. (2020c) add the concept of ‘decarbonisation divide’ to this debate: energy transition may contribute to decarbonisation in the Global North, but the environmental and social costs of the energy supply chain are outsourced to the Global South.

Bouzarovski and Simcock (2017) pinpointed that much of the energy justice literature and current debate focuses on social inequalities and energy deprivation that jeopardise energy justice. They added the spatial dimension of justice to the already existing socio-economic and politico-legal dimensions, claiming that spatial inequalities were operating throughout the energy system, causing a geographical spread of energy poverty. The spatial aspect of energy justice is an emerging dimension that intersects with all three energy justice tenets to analyse how they play out in public and private spaces. The contribution of this spatial dimension to the theoretical debate is that it disturbs the production vs. consumption binary positioning of the current energy poverty debate, and it reveals that all three energy justice tenets have a spatial aspect. The same argument holds for adding the gender element to the energy justice debate. The spatial aspect and gender dimension could be interlinked to strengthen the contextual understanding of inequalities and injustices in energy access.

Gender inequalities can be found at all levels in the energy system that create gender injustices (Clancy and Feenstra 2019; Kooijman-Van Dijk 2020; Winther et al. 2020). The gender-energy justice nexus could be criticised for adding another binary dimension to the supply vs demand binary that exists in the energy transition debate. Sovacool et al. (2020c) argue for a multi-scalar and whole system approach to energy transition and development pathways in order to have equitable outcomes. Their study shows the importance of ensuring justice in the energy supply chain as well, e.g., for the workers involved in e-waste processing in Ghana. The current divide of consumers vs producers in the energy system can be bridged by acknowledging women’s triple role (the producer, the decision-maker, and the consumer) as agents of change in the whole energy system (Winther, Ulsrud and Saini 2018; Clancy and Feenstra 2019).

2.2.1 The gender dimension of energy justice

Conventional social science research on energy was criticised for approaching energy issues as matters of national security, economic competitiveness or environmental degradation, but not as a matter of social justice (Sovacool et al. 2016). As an emerging theme, energy justice recognises the ethical dimension of

(re)allocating the societal outcomes of the energy transition (Miller 2014; Sovacool et al. 2017). Social justice focuses on two tenets: procedural justice, which addresses representation and participation; and, distributive justice, which focuses on the distribution of the benefits and costs of the energy transition (Miller 2014; Sovacool et al. 2016) Sovacool et al. (2016) applied procedural theories of justice to analyse governance and decision-making processes in the energy transition.

Table 2.1: The evaluative and normative contributions of energy justice to policy design

Tenets	Evaluative	Normative
Distributive	<i>Where are the injustices?</i>	How should we <i>solve</i> them?
Recognition	<i>Who is ignored?</i>	How should we <i>recognise</i> ?
Procedural	<i>Is there fair process?</i>	Which new processes to <i>develop</i> ?

Based on: Jenkins et al. (Jenkins et al. 2016)

Table 2.1 shows the evaluative and normative questions of energy justice across its three tenets. These tenets can also be applied to the gender-energy nexus. Acknowledging that humans' energy needs are determined by gender relations resonates with the recognitional tenet of energy justice. Further, participation and power both have a strong gender dimension, since gender relations are prone to cause power asymmetries between women and men and their unequal participation in decision-making processes (Moser 1993). Bell et al. (2020) argue that a feminist approach reveals these power asymmetries and injustices in energy systems. Procedural justice moves beyond the quest for an equal numeric representation in decision-making to an equal participation in all policy phases. That can still be challenging to achieve at all decision-making levels, particularly for national governments. For instance, as Fraune (2016) pointed out, the German government organised citizens' dialogue sessions to enhance public acceptance of the energy transition, but men were significantly overrepresented. According to the survey of Sorman et al. (2020), 51% of the female respondents believe that the role of women is excluded from the current Spanish energy transition decision-making. Clancy and Feenstra (2019) concluded that women were under-represented at all levels of decision-making in the energy sector in the EU and this led to gender inequality in the energy transition. Although equal representation of women and men is important, more factors are influencing engendering energy policy than only appointing women in decision-making positions (Wiliarty 2011).

Research on gender and energy has evolved in parallel and more or less unconnected to social science research on energy (Fraune 2016). This is remarkable since both scholarly streams investigate the relationships between individuals and energy systems within their context depending on time, location and governance structures. Some research has focused on women's representation in energy-

related occupations, with an emphasis on industrialised countries (Wiliarty 2011; Ryan 2014; Sovacool 2014; Fraune 2016; Clancy and Feenstra 2019). As Fuller and McCauley (2016) demonstrated through an energy justice perspective, specific normative claims of justice, such as identifying vulnerable groups, can be overlaid with questions about energy in a whole systems approach. Vulnerable energy consumers or marginalised groups, such as deprived households, migrant communities, and the poor, are the main research entities in energy poverty research in the Global North (Bouzarovski and Tirado Herrero 2017). Fuller and McCauley (2016) concluded that there is scope for a more comprehensive representation of injustice to reflect the expansion of energy issues. Lee and Byrne (2019) expanded the analytical and conceptual basis of the energy justice framework by adding the institutionalisation of dominant modern energy systems. Healy and Barry (2017) emphasised the political dimension of striving for a just energy transition as a response to existing injustices and unsustainability. By enlarging the scope identifying existing injustices, a deeper analysis of the representation of energy consumers will provide a nuanced understanding of vulnerable groups. If the unit of analyses goes beyond the entity of households, a gender gap in access to energy can be revealed, as women are disproportionately affected more by energy poverty than men (Clancy et al. 2017; Clancy and Feenstra 2019; Petrova and Simcock 2019). Thus, the injustice of energy policy in relation to gender relations in society calls for engendering energy policy. The effectiveness of energy policy improves when gender is acknowledged, optimising outcomes for all actors involved in the energy system (Kooijman-Van Dijk 2020; Lieu et al. 2020).

2.2.2 Towards a framework for engendering energy policy

The need for a framework is eminent in any attempt to analyse gender and energy policy from an energy justice perspective. A research framework reflects how the research problem is defined, the kind of questions to be asked in any analysis, and the type of solutions to be proposed to solve the problem. In their gender-energy nexus work, Khamati-Njenga and Clancy (2002) define a framework as a system of ideas or conceptual structures that help understand the social world. They pinpoint that a framework is based upon certain assumptions about the social world. Multiple frameworks can be developed to analyse a given problem, because people make different assumptions about the nature of the problem in particular contexts. Different frameworks that explain the same social phenomenon co-exist and, depending on the context, one framework can be more applicable than another. As Ostrom stipulated, 'given the multiple languages used across disciplines, a coherent institutional framework is needed to allow for expression and comparison of diverse theories and models of theories applied to particular puzzles and problem settings' (Sabatier 2007, p. 23). Following Ostrom's approach, we propose a framework for engendering just energy policy that reflects different

approaches to the gender-energy nexus research, brings together the concepts and ideas from multiple disciplines, and can be applied in different contexts.

To develop the framework, we first identify the main concepts in gender and energy policy with a focus on how gender approaches are included in energy policy design. By doing so, we might omit including aspects of the gender-energy nexus like gender politics and feminist derived leadership. These gendered aspects could be part of the operationalisation of the framework and the applicability in empirical data analyses. Since the 1970s, the gender and energy literature has evolved, demonstrating an epistemological shift from a gender-neutral to a more inclusive concept in energy research (Osunmuyiwa and Ahlborg 2019). The development of gender discourses in policy development since the 1970s has resulted in several gender approaches developed after United Nations (UN) conferences that aimed to build international commitment for gender equality. Figure 2.1 summarises this historical development of six gender approaches, which includes the welfare approach, women in development, gender in development, transformative approach, intersectional approach and social justice. These six approaches can be clustered into three gender discourses: women empowerment, gender mainstreaming and social inclusion.

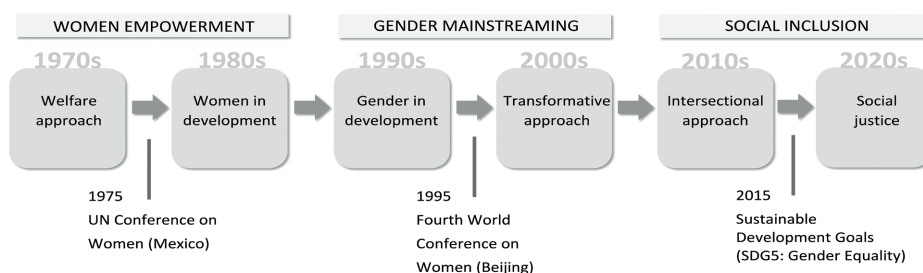


Figure 2.1: Historical development of gender discourses and international commitment

As shown in Figure 2.1, the historical development of gender policy and planning approaches is marked by three global milestones: 1) the First Global Conference on Women in 1975, 2) the Fourth World Conference on Women in 1995 and 3) the UN Sustainable Development Summit in 2015. These resulted in the adoption of the document 'Transforming our World: the 2030 Agenda for Sustainable Development' in which 17 SDGs are identified, of which SDG5 is – achieving Gender Equality⁶. In parallel to these global milestones, many countries have their own milestones in gender policy development, whether it is adoption of gender equality in legislation or a first female president. The most relevant developments for national gender policy were the UN declarations, such as the Platform for Action in 1995 and the

⁶ Paragraph 54 of the United Nations General Assembly Resolution A/RES/70/1 of 25 September 2015

eight Millennium Goals to eradicate poverty in 2000 (Feenstra 2002). All countries that rectify these UN declarations are part of the global commitment to implement them locally. While the SDGs are not legally binding, countries are being monitored in terms of their progress in achieving the targets.

A gender-neutral policy makes no distinction between women and men. It uses general terms, such as 'households', 'citizens', 'consumers', to identify its target group, and assumes that it equally impacts women and men (Clancy et al. 2007; Govindan et al. 2019; Osunmuyiwa and Ahlborg 2019). Engendering policy counteracts this gender-neutral approach. Within the engendering policy process, several stages can be identified towards reaching a gender-equal policy impact. As Figure 2.1 demonstrates for the 1970s and 1980s, a women-only approach results in empowering policies and a focus on women's rights: the women empowerment discourse. To develop an engendering policy framework, we start the historical overview in 1970, the year in which the seminal book by Boserup (1970) recognised women's contribution to the economy through agricultural production. The development of feminist research in the 1970s rapidly grew and penetrated the political process. Academics, practitioners and activists were engaged in the dialogue on women's rights and led to the first UN Conference on Women in 1975 (Moser 1993; Cecelski 1995). As Cecelski (1995) points out, the UN Conferences in 1992 and 1995 opened up the debate on the role of women in energy policy and research. She called for expanding the scope to demand analysis and management of the energy sector, shifting the focus to the end-user and the gendered differences in access to energy sources. The UN Decade for Women 1975 – 1985 focused on women's empowerment in taken a women-only approach.

At a certain point in the process, women are no longer seen in isolation and a shift to gender relations emerges as socially constructed relations between women and men. This is the start of the gender mainstreaming discourse in which gender-aware policies are developed. In 1995, the Beijing Platform for Action endorsed governments to achieve gender equality and the empowerment of women through gender mainstreaming of their policies (Moser 1993; Cecelski 1995; Feenstra 2002; Walby 2005). Gender mainstreaming was defined by the United Nations in 1997 as 'the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels' (United Nations 1997, p. 28). As this definition emphasises, gender mainstreaming is a process with multiple stages, each having its own obstacles for implementation. Clancy and Mohlakoana (2020) demonstrate that gender mainstreaming in national policy takes time and needs political commitment and institutional support for both developing and implementing gender mainstreaming.

However, gender equality might not even be the ultimate goal in engendering policy. With the recent aim of many international organisations, gender equality should be considered the starting point towards social inclusion. Social inclusion discourse acknowledges that the target group of a policy is diverse and that a policy should reflect the diversity of individual lives and the social practices of individuals (Davis 2008, p. 68). Social inclusion resonates with the concept of intersectionality in gender discourses, which moves beyond the binary 'women vs. men' distinction and acknowledges that differences in age, education, nationality, ethnicity, race, disabilities, social class, religion and marital status, equally influence the access of women and men to resources, their needs, interests and rights (Kimberle Crenshaw 1991; Osunmuyiwa and Ahlborg 2019). More recently, the social justice approach has been emerging with social groups claim their rights and position in policy (Martiskainen et al. 2020). However, aiming at social inclusion in policy might dilute intersectionality. This means the differences between social groups and, more specifically, between gender relations are not considered, since the overall goal of social inclusion is equality of all. This brings us back to the starting point of the gender and policy cycle: gender neutrality.

The historical overview in Figure 2.1 identifies three major discourses to engendering policy: women empowerment, gender mainstreaming and social inclusion. We define engendering policy as 'the process that creates a gender just policy in which the needs of both women and men are addressed and universal human rights are acknowledged leading to a gender just policy impact'. Although the gender discourses emerge in different eras, they can be identified in current policies and publications, and are often used interchangeably and inconsistently. Thus, different gender discourses co-exist and there is no hierarchy between them. As reflected in the above definition, the outcome of engendering energy policy process is a gender just energy policy. Our definition of a gender just energy policy is based on the gender-aware energy policy definition given by Clancy and Feenstra (Clancy and Feenstra 2006). A gender just energy policy 1) acknowledges that women and men have different energy dynamics, such as their roles in the household, decision-making areas, energy needs, responses to crises or coping mechanisms; 2) creates access to energy technologies and services that match those dynamics; 3) recognises women's and men's rights in policy processes that provide an enabling environment for equal participation.

2.3 A CONCEPTUAL FRAMEWORK FOR ENGENDERING JUST ENERGY POLICIES

Taking the engendering policy process as a reference point, the question is whether the stages of women empowerment, gender mainstreaming and social inclusion can be discerned in energy policy design. The energy justice framework provides sufficient anchor points to integrate the needs and rights of women and men into an energy policy. Energy justice recognises the ethical dimension of reallocation of societal outcomes of the energy transition (Miller 2014; Rasch and Köhne 2017; Jenkins, Sovacool and McCauley 2018; Allen, Lyons and Stephens 2019). Sovacool et al. (2016) applied procedural theories of justice to analyse governance and decision-making processes in the energy transition. Acknowledging the rights and needs of energy consumers in a demand-driven policy is central in the energy justice framework. This acknowledgment is represented both in a just distribution of energy services, equal recognition of all consumers' needs, and fair procedures for consumers to claim and exercise their rights to energy. The three tenets of energy justice resonate with the gender-energy nexus debate for acknowledging gender relations in energy systems. The challenge towards conceptualising the gender just energy policy is to integrate the gender discourses in energy policy into the energy justice framework. By reviewing and synthesising the relevant scientific literature, we made a first attempt to realize this integration and thereby to develop a gender just energy policy framework.

2.3.1 Review methodology

We conducted a conceptual review, which aims to synthesise the scientific knowledge that can contribute to a better understanding of the key ideas and debates, rather than an exhaustive review of all publications (Petticrew and Roberts 2006). To identify the publications relevant for the review, we applied four search strings in Scopus. Each search string was executed following the same procedure. The first step, 'searching', was a general search of publications between 1995 and June 2020. The year 1995 was chosen as a starting point for gender analysis as the number of publications increased after the Global Conference on Women (Moser 1993). This initial search included book chapters and peer-reviewed journal articles, and resulted in many publications, some of which were not relevant for the gender-energy nexus. The second step, 'scoping', set the main scope on gender and energy and excluded all publications that were written in languages other than English or referred to irrelevant energy uses, e.g., metabolic, spiritual and sexual. The third step, 'screening', was a limiting search to select the publications by reading the titles and abstracts. Furthermore, in this step we limited our review to peer-reviewed journal articles and publications that address both gender and energy. The final step 'selecting' was scanning the full-text versions of the remaining publications if they presented data or analysis that went beyond only mentioning 'women' or 'gender'.

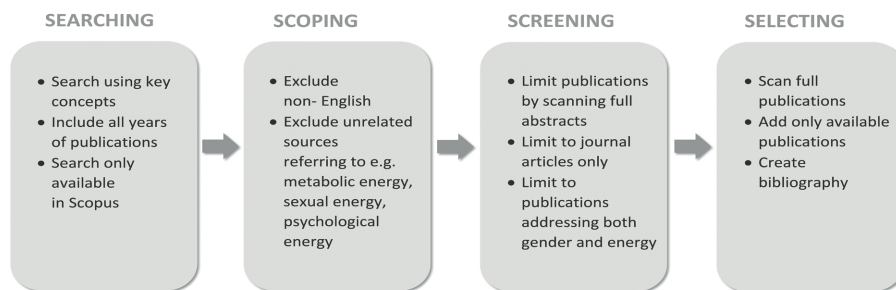


Figure 2.2: Selection of the publications for conceptual review

A potential limitation of this review is that it excludes grey literature. Numerous publications on gender-energy nexus exists in the grey literature, e.g., international organisations’ reports, policy briefs and governmental position papers. This literature mostly reflects the normative approaches of non-governmental organisations and funding agencies to gender mainstreaming in energy policy. Such normative approaches are not necessarily a limitation, but the grey literature often lacks methodological soundness and transparency, and such publications are often not peer-reviewed. Therefore, we chose to concentrate on peer-reviewed scientific publications to be able to critically review and synthesise the key ideas and debates in the current body of scientific knowledge.

The results of each search were saved under a numbered bibliography. Then the four bibliographies were merged into one and omitted the duplicated publications. We then checked the accessibility of remaining publications. If the full-text versions of the publications were not accessible, they were removed from the bibliography. This bibliography was cross-checked with a Web of Science search, using the same keywords and procedures as for the Scopus search strings. In this cross-check, no additional publications were found to include in the review. Figure 2.2 and Table 2.2 illustrate the steps and search strings leading to the final bibliography of 44 publications included in the full-text review. An additional 12 publications were added using a snowballing technique in which we used the references of the 44 reviewed publications.

Table 2.2: Steps and search strings for used for creating the database of publications

	Step 1	Step 2	Step 3	Step 4
Search string	Searching	Scoping	Screening	Selecting
I: gender AND energy	11,117	332	117	10
II: gender AND energy AND policy	624	318	49	39
III: gender AND energy justice	54	42	21	16
IV: energy justice AND energy poverty	158	96	22	6

A review matrix was developed and applied to systematise the review of the selected publications. The matrix is based on the concepts related to energy justice and gender discourses in energy policy. This provided a standard structure to review each publication according to their coverage of the gender discourses and the tenets of energy justice. Publications were analysed as to how they defined and applied gender as a concept, whether their gender approach belonged to one of the three engendering policy processes and, if not, the publication was identified as using a gender-neutral approach. Furthermore, publications were categorised based on the dominant energy justice perspective they used. Table 2.3 summarises the results of the review of the selected 56 publications of which 14 with the geographical focus North, 26 South and 16 with a global focus. Of the 56 publications, 17 make a conceptual contribution and 39 an empirical contribution.

2

Table 2.3: Overview of reviewed publications

author	year	engendering policy discourse	energy justice principle	contribution	geographical focus
Cecelski	1995	women empowerment	* all three	conceptual	South
Parikh	1995	women empowerment	* recognitional	conceptual	South
Nathan and Kelkar	1997	women empowerment	* recognitional	empirical	South
Palmer-Jones and Jackson	1997	women empowerment	* recognitional	empirical	South
Gaard	2001	women empowerment	* procedural	empirical	North
Wickramasinghe	2003	women empowerment	* recognitional	empirical	South
Clancy et al.	2007	gender mainstreaming	* all three	empirical	South
Parikh	2011	women empowerment	* recognitional	empirical	South
Goldthau and Sovacool	2012	gender mainstreaming	all three	conceptual	Global
Reddy and Nathan	2013	women empowerment	* distributive	empirical	South
Galvin	2015	gender mainstreaming	distributive	empirical	North
Reddy	2015	gender-neutral	* distributive	empirical	South
Willow and Keefer	2015	women empowerment	recognitional	empirical	North

Table 2.3: Continued

author	year	engendering policy discourse	energy justice principle	contribution	geographical focus
Jenkins et al.	2016	gender mainstreaming	all three	conceptual	Global
Simcock and Mullen	2016	gender mainstreaming	all three	conceptual	Global
Banerjee et al.	2017	gender-neutral	distributive	conceptual	Global
Bouzarovski and Simcock	2017	social inclusion	recognitional	conceptual	North
Bouzarovski and Tirado Herrero	2017	social inclusion	recognitional	empirical	North
Damgaard et al.	2017	gender mainstreaming	all three	empirical	South
Islar et al.	2017	gender mainstreaming	distributive	empirical	South
McCauley	2017	gender-neutral	all three	conceptual	Global
Rasch and Köhne	2017	gender-neutral	distributive	empirical	North
Sovacool et al.	2017	gender mainstreaming	all three	conceptual	Global
Bartiaux et al.	2018	social inclusion	distributive	empirical	North
De Wildt et al.	2018	gender-neutral	all three	conceptual	Global
Jenkins et al.	2018	gender-neutral	all three	conceptual	Global
Kumar	2018	women empowerment	distributive	empirical	South
Van Veelen and Van der Horst	2018	gender-neutral	all three	conceptual	Global
Winther et al.	2018	women empowerment	* all three	empirical	South
Allen et al.	2019	women empowerment	procedural	empirical	North
Ding et al.	2019	gender mainstreaming	* recognitional	empirical	South
Graff et al.	2019	gender mainstreaming	all three	conceptual	Global
Karanja and Gasparatos	2019	women empowerment	* distributive	empirical	South
Kumar et al.	2019	gender-neutral	distributive	empirical	South
Mohlakoana et al.	2019	gender mainstreaming	* distributive	empirical	South

Table 2.3: Continued

author	year	engendering policy discourse	energy justice principle	contribution	geographical focus
Osunmuyiwa and Ahlborg	2019	gender mainstreaming	* all three	empirical	Global
Petrova and Simcock	2019	gender mainstreaming	* recognitional	empirical	North
Pueyo and Maestre	2019	gender mainstreaming	* distributive	empirical	South
Sovacool et al.	2019	gender mainstreaming	all three	empirical	North
Sunikka-Blank et al.	2019	women empowerment	* recognitional	empirical	South
Thombs	2019	social inclusion	all three	conceptual	Global
Walker et al.	2019	social inclusion	all three	empirical	North
Wood and Roelich	2019	social inclusion	all three	conceptual	Global
Xu and Chen	2019	gender-neutral	distributive	empirical	North
Bell et al.	2020	women empowerment	* all three	conceptual	Global
Clancy and Mohlakoana	2020	gender mainstreaming	* recognitional	empirical	South
Kooijman-Van Dijk	2020	gender mainstreaming	* all three	conceptual	South
Lacey-Barnacle et al.	2020	social inclusion	all three	empirical	South
Lieu et al.	2020	gender mainstreaming	all three	empirical	Global
Moniruzzaman and Day	2020	women empowerment	all three	empirical	South
Sorman et al.	2020	gender mainstreaming	all three	empirical	North
Sovacool et al.	2020	social inclusion	all three	empirical	South
Sovacool and Griffith	2020	social inclusion	* all three	empirical	Global
Thoyre	2020	women empowerment	* distributive	empirical	North
Wiese	2020	gender mainstreaming	all three	empirical	South
Winther et al.	2020	gender mainstreaming	all three	empirical	South

(* = energy justice not used as a theoretical framework)

Table 2.4 shows how the publications intersect the three tenets of energy justice and the three discourses in engendering policy processes. The engendering policy discourses also includes a ‘gender neutral’ discourse, since some publications used gender-disaggregated data, but remained gender neutral in their conceptualization and conclusions. The three subsequent sections elaborate on how these intersections are addressed in the reviewed publications.

Table 2.4: Number of publications that intersect energy justice tenets and engendering policy discourses

		Engendering policy discourses				<i>total</i>
		gender neutral	women empowerment	gender mainstreaming	social inclusion	
Tenets of energy justice	distributive	5	4	4	1	14
	recognitional	0	7	3	2	12
	procedural	0	2	0	0	2
	all three	4	4	14	6	28
	<i>total</i>	9	16	21	9	56

2.3.2 Energy justice and women empowerment

Women empowerment emerged from feminist movement and is one of the key topics in feminist research. We identified a strong women empowerment focus in the early stages of the energy justice debate in the 1990s and 2000s. Eco-feminism is the frame that has often been used by feminist researchers engaged in the gender-energy nexus in those years. According to Gaard, ‘ecofeminism illustrates the way in which gendered, cultural assumptions about water, power and human relations have led to creating a water-power infrastructure that perpetuates environmental sexism, environmental racism, and environmental classism.’ (Gaard, 2001, p. 157). This ecofeminism frame is also applied outside the water sector, addressing that women are unequally affected by climate change and carry the burden of limited access to sustainable and clean energy sources (Cecelski 1995; Parikh 1995). These publications reflect the zeitgeist of the time when they were published, and their women empowerment approach resonates with the empowerment focus in the aftermath of the Beijing Conference in 1995. Their message is still powerful in the current energy transition debate.

The earliest publications included in the review demonstrate the activist motivations of the environmental justice literature, in which the gender-energy nexus was positioned within a broader environmental scope (Cecelski 1995; Parikh 1995). Since the 1980s, the objectives of energy were promoting economic growth and increasing households’ access to energy services in order to reduce poverty (Osunmuyiwa and Ahlborg 2019). Nathan and Kelkar (1997) and Palmer-Jones

and Jackson (1997) argued that innovative approaches to poverty alleviation and sustainable development are labour-intensive, unsustainable and not improving gender equity. They recognised the gendered division of labour concerning energy-intensive work in which women carried the heaviest burden. Gaard (2001), on the other hand, took an ecofeminist standpoint against the emerging problems of water pollution and energy production by hydropower plants impacting health and living conditions of women and deepen their poverty.

The other publications that build on the women empowerment discourse address the different energy justice issues at stake in the gender-energy nexus. Reddy and Nathan discuss the nexus between poverty, health, education, energy and gender, concluding that women are responsible for household fuel use without having the authority over fuel choice, technology adoption or usage methods (Sudhakara Reddy and Nathan, 2013b). Wickramasinghe (2003) focuses on health issues related to biomass energy use in the domestic sphere and argues that women were disproportionately affected, reporting physical exhaustion, psychological deterioration and ill-health related to their role in the biomass energy cycle from collection to end-use. Parikh (2011) argues based on a study in India of women's unpaid work to collect energy sources and the health impacts of indoor air pollution and walking to collect biomass that energy policy is not recognizing women's needs and their rights to health. Ding et al. (2019) conclude based on their quantitative case study in Tibet, that the traditional gender roles are affirmed by the current policy of the energy sector in distributing renewable energy sources, leaving women the sole responsible for household energy without reducing their drudgery in collecting biomass for cooking and their exposure to polluting smoke. As a response, numerous policy interventions and donor funded projects focus on the uptake of clean cookstoves. Their impacts on women's drudgery and health benefits are contested and women's involvement in these projects are limited, which can be overcome by integrated policy approaches (Karanja and Gasparatos 2019).

Sunikka-Blank et al. (2019) demonstrate the interlinkages of urban planning, domestic energy use and gender relations, and how current rehabilitation policies in India resulted in increased energy use and drudgery for women hindering their participation in society and work force. Thoyre (2020) in her research of uptake of energy efficient light bulbs in American households, finds that climate change solutions in households increase women's unpaid labour and expands gender inequality. Willow and Keefer (2015) follow an ecofeminist approach towards environmental justice concerns over shale energy. They argue that women who are opposed to shale energy were called to political action motivated by both personal and political arguments. From an energy justice perspective, both recognition as well as procedural justice, are essential to ensure distributive justice. Allen et al. (2019) focus primarily on women's role as decision-makers in the energy transition

process. They advocate for the critical role of women's leadership in accelerating the transition away from fossil fuels toward a renewable-based future. This has not been widely recognised or analysed in the social sciences. Allen et al. (2019) contribute to the applicability of the energy justice framework, not only to the demand-side of energy systems, but also equally to the supply-side (Allen, Lyons and Stephens, 2019). Winther et al. (2018) focus on the role of women as entrepreneurs and energy service providers and how women's involvement in the energy sector can contribute to their empowerment. Energy justice as a conceptual framework contributes to the women empowerment discourse, since it appeals to those wishing to improve women's position in energy policy decision-making, i.e., procedural justice.

The investigation of the gender-energy justice nexus within the energy poverty debate is uncommon. Moniruzzaman and Day (2020) provide one of the few empirical studies on the feminization of energy poverty from an energy justice perspective. They argue that applying the energy justice framework clarifies how feminization of energy poverty is contextual due to traditional gender roles and policies overlook and devalue women's energy needs. With the current acknowledgement of energy poverty in the energy justice debate, the gender dimension of poverty has only recently been picked up by donor organisations and international institutions, such as the EU (Clancy et al. 2017; Clancy and Feenstra 2019). Lack of gender-disaggregated data is among the main reasons that the gender dimension of energy poverty does not receive sufficient attention, despite the urgency of the problem. Furthermore, the female face of energy poverty is often portrayed as a development issue, assuming that only the women in the Global South suffer from a lack of clean cooking fuel options. This assumption ignores the fact that, even in the EU countries, women use biomass, despite the negative health consequences, as their only available and affordable energy option. This brings justice claims to the forefront of the energy poverty debate in the EU (Clancy et al. 2017; Clancy and Feenstra 2019).

2.3.3 Energy justice and gender mainstreaming

In the 2010s, a gender mainstreaming approach was chosen in the energy policy literature with a normative claim for addressing injustice in policies and their outcomes still stressing unequal power relations between women and men and the need to recognize women's unpaid domestic work. The more recent publications included in this conceptual review in this chapter present a solid analysis of the energy justice framework and, in the light of the SDGs, represent an awareness on gender relations and the need to mainstream gender in policy and practice. However, the reviewed publications that take a mainstreaming focus on the gender-energy nexus predominantly used the distributive justice tenet. They focus on energy consumption, tackling climate change, improving energy efficiency and

access to sustainable energy. These publications can also be distinguished as to whether they adopted an empirical or conceptual approach with either a focus on the Global North or Global South (see Table 2.3 for their categorisation).

The empirical publications that take a distributional approach to energy justice advocate for equal distribution of energy services among end users, acknowledging the marginalised position of deprived households. Analysing the distribution of energy access reveals social inequalities within the socio-cultural context. These inequalities have a strong gender face, reflecting the vulnerable situation, of say female-headed households, and the gender demographic gap resulting in more elderly women than men. Islar et al. (2017) demonstrate that the energy justice framework can serve to understand the energy system and its connectivity with other systems, such as political, social and economic systems, within a socio-cultural context characterised by normative values. This application of energy justice to conceptualise the gender-energy nexus is reflected in the work of Wiese (2020) and Winther et al. (2020). Wiese (2020) applies the energy justice framework in the Ethiopian context, studying gendered and differentiated energy access and use. She argues for further conceptualisation of energy justice to reflect gendered and intersectional dimensions of energy policy in the Global South. Winther et al. (2020) apply the energy justice framework at the micro-level to examine the wider implications of gender relations on using lights and electric appliances when households were connected to electricity.

Many of the publications that focus on gender mainstreaming in energy policy are based on empirical data collected in the Global South. Energy justice is not used by the majority of these scholars, but their work can be placed in a justice tradition and the tenets of energy justice are identified without being explicitly mentioned in the publications. For instance, the international network on gender and sustainable energy ENERGIA, did not use an energy justice perspective in their gender and energy research programme (Kooijman-Van Dijk 2020). Nevertheless, all three tenets of energy justice can be identified and are addressed in ENERGIA's call for engendering energy policy. Kooijman-Van Dijk (2020) concludes that appropriate energy interventions can benefit women, only if persisting gender inequalities are challenged. However, these gender inequalities are often invisible for policy makers due to the lack of gender-disaggregated data on energy use and energy needs (Clancy et al 2007). Clancy and Mohlakoana (2020) contribute to the engendering energy policy debate by demonstrating the use of gender auditing as a methodology to identify gender outcomes of energy policy. While they do not apply energy justice as a theoretical framework, gender auditing could be applied in monitoring procedural energy justice through a gender lens. Where the main body of literature is focusing on gender and household energy, a growing research field is gender and productive uses of energy. Mohlakoana et

al. (2019), Osunmuyiwa and Ahlborg (2019), and Pueyo and Maestre (2019) applied the gender-energy nexus perspective to small enterprises and the productive use of electricity focusing on women entrepreneurs. They all find the same gender inequality in access to clean and affordable energy sources as within households. Despite not using energy justice as a theoretical framework, their conclusions argue for distributive justice.

The conceptual publications included in our review highlight gender mainstreaming as essential for analysing energy justice from a normative and ethical perspective. Even though these publications touch upon all tenets of energy justice, the gender dimension was either conceptualised within recognitional justice (e.g., gendered energy needs and consumption patterns based on women's role in society) or distributive justice (e.g., access to energy services). Goldthau and Sovacool (2012) pleaded for including a gender dimension in the energy justice debate. They selected normative aspects, such as externalities or equity, in which justice provided a starting point for reaching out to neighbouring disciplines, such as gender studies. However, a conceptual debate on the gender-energy nexus was lacking in this publication. The systematic review of Lieu et al. (2020) provide a strong argumentation for including gender in all energy justice principles and how energy justice can be achieved only through gender justice.

Four recent publications on energy justice shift between engendering policy processes characterised by the discourse change of this area: Bartiaux et al. (2018), Galvin (2015), Kumar (2018) and Petrova and Simcock (2019). In all these publications, the authors argue that energy poverty is the main concern of injustice in energy policy. Energy use and energy consumption of vulnerable consumers and marginalised groups, such as female-headed households and elderly women living alone, reflects the engendered approach adopted in these publications. Kumar (2018) and Petrova and Simcock (2019) specifically focuses on the gendered division of energy needs and the gender inequality regarding energy services and resources, calling for gender mainstreaming in energy access and strengthening women's role as agents of change in overcoming energy poverty.

2.3.4 Energy justice and social inclusion

The number of publications that study energy justice from a gender lens have been increasing over the past decade. Out of the 56 publications reviewed, seven of them were published before 2010, while 49 were published between 2010 and 2020. This can be explained by the emerging applications of the energy justice concept in the energy poverty literature. However, the gender approach in such studies is often limited to addressing women's role in society, putting them in a marginalised position as vulnerable consumers. This reflects the policy discourse of social inclusion in the Global North, designing policy interventions to protect

the vulnerable consumers and the recent political agendas to address the energy poverty of marginalised groups.

The approach of Bartiaux et al. (2018) illustrates the recent social inclusion debate that focuses on vulnerable or marginalised groups. Bartiaux et al. (2018) implied that female-headed households were more represented in energy-poor households, but continued their analyses in a gender-neutral way, not elaborating on the gendered dimension of energy poverty. Although they used the energy justice framework, their incorporation of the gender dimension was limited to present gender-disaggregated data to categorise household consumption. By doing so, the analysis remained at the inter-household level, not the intra-household level by examining the gender relations within households. Taking a household level approach is contested due to the fluidity of households in western societies. With many single-headed households, separated couples, part-time caregiving responsibilities for children or elderly family-members, the commonly applied standard household entity of a male/female couple with children is no longer the standard. Therefore, Clancy et al. (2017) advocated for an energy poverty policy that moves beyond the front-door and considers the gendered relations within households.

Social inclusion can also dilute the gender debate towards gender neutrality. With the policy focus as highlighted above on vulnerable consumers, other marginalised groups claim, rightfully so, that their position in the political debate and research arena. An example of such research was conducted by Snell et al. (2015) on the lived experiences of the energy poor in England. They identified a strong link between energy poverty and disability. This form of distributional justice was grounded in the misrecognition of vulnerable groups and their energy needs, such as life-threatening situations, when people that depend on breathing support are disconnected from power. Snell et al. (2015) demonstrated that recognitional justice was elementary for distributional justice. By using an intersectional approach to social inclusion, vulnerable groups were identified using characteristics, such as age, ethnicity and religion. In the review of Lacey-Barnacle et al. (2020) acknowledging gender inequality and marginalised groups was identified as one of the core energy justice research themes in the Global South. However, gender is not one of these characteristics applied in an intersectional approach, but instead a crosscutting relation within all these groups. The social inclusion discourse could contribute to an intersectional approach to gender, moving beyond the binary distinction between women and men and recognising other intersectional characteristics. Sovacool et al. (2020c) demonstrates the inequalities due to gendered and power relations in the energy system through confronting testimonies of women, children and minorities involved in mining and e-waste recycling in the Africa. Their empirical research makes a strong conceptual

contribution highlighting that a just energy transition should challenge the global distribution of power to become more accountable, equitable and just.

2.4 CONCLUSIONS

Access to clean, sustainable and affordable energy services is a global commitment embedded in the SDGs and translated in national energy policies. However, it remains a challenge to integrate the social dimensions and address existing inequalities in energy policy. Lack of such integration leads to generic policy instruments which ignore and potentially exacerbate injustices among social groups and their access to energy (Pereira et al. 2011). Energy injustice has a strong gender face, especially women are struggling to have access to clean, sustainable and affordable energy services. Engendering energy policies is a concern shared by donor agencies with yet limited recognition in the global North. Accordingly, several engendering policy processes have been developed, mainly in the grey literature, and endorsed in programmes and policies by practitioners. A scholarly contribution to equal access to energy services is embedded in the energy justice debate that emerged in academic publications a decade ago and constitutes a growing body of research. This chapter bridges the gender-energy nexus in international policy documents of donor agencies with the energy justice concept to contribute to the conceptualization of engendering energy just policies.

The main research question we sought to answer was: *How can energy justice be applied to conceptualise engendering energy policy?* This question was broken down in two sub-questions: 1) Which gender discourses are used to contribute to engendering energy policy? 2) How applicable is energy justice for analysing energy policy through a gender lens? The first sub-question was answered by examining the historical discourses of gender approaches in energy policies. Three main engendering policy discourses were identified, starting with the women empowerment movement in the 1970s, the gender mainstreaming discourse of the Millennium Development Goals in the 2000s and the recent social inclusion policy reflected in the SDGs. Our focus was on engendering policy discourses in energy policy. As a consequence, we have not looked into all aspects of the gender-energy nexus, such as gender derived social factors of energy sustainability, gendered roles as change agents in the energy transition, etc. These aspects of the gendered face of energy policy are important in the context of gender discourses and could be further components into the operationalisation of the framework in future research. In parallel to the gender and energy research, the energy justice concept emerged in the 2010s, adding the principles of social justice to energy policy debates.

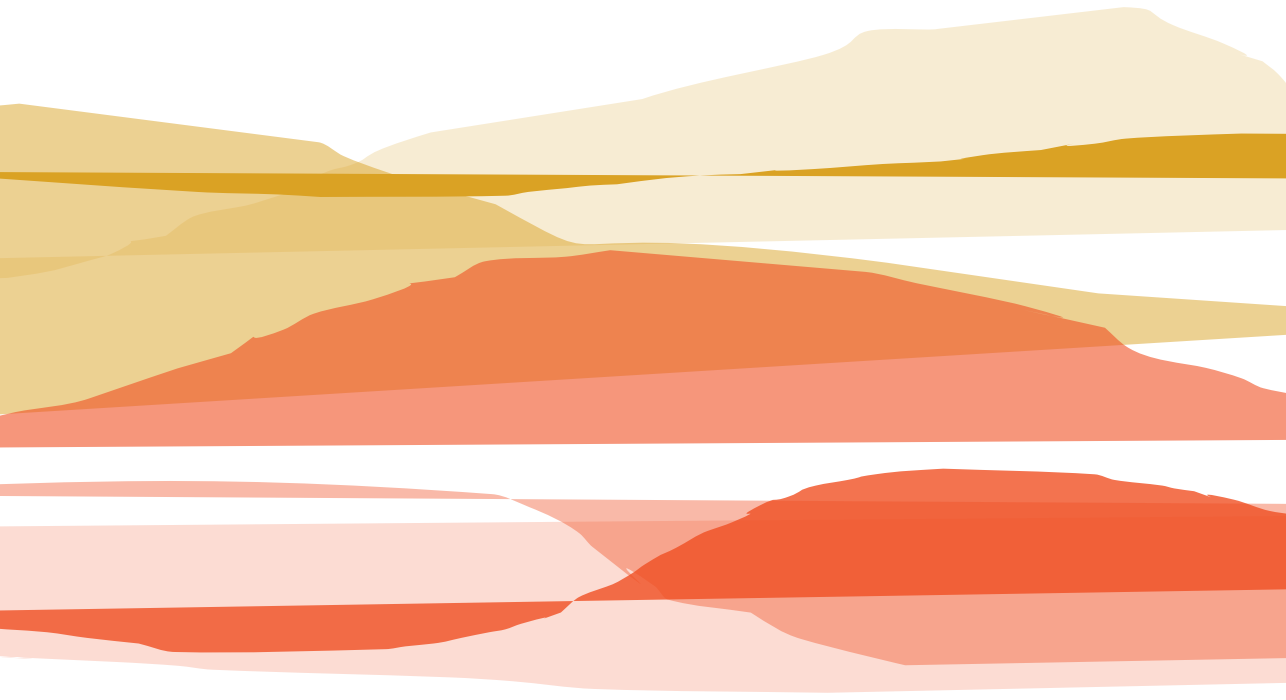
Our second sub-question addresses the applicability of energy justice for analysing energy policies through a gender lens. To this end, we developed a gender just

energy policy framework that integrates the engendering policy processes with the three tenets of energy justice. Within the scope of this chapter, we applied the gender just energy policy framework as a conceptual framework by reviewing and synthesising the scholarly literature of peer-reviewed journal articles. The review results show that the existing body of scientific knowledge addresses the possible intersections of energy justice and engendering energy policy, albeit to varying extents and depths. Out of the dataset of 56 publications, nine publications are considered gender-neutral in their approach, as their approach is limited to using gender-disaggregated data. The remaining 47 publications reflect the three discourses of engendering energy policy and address the three tenets of energy justice. However, energy justice was not applied explicitly in 23 publications (marked with * in Table 2.3). In these publications, the three tenets of energy justice can be discerned, but energy justice is not the underlying conceptual framework. This is especially the case in the publications that focus on a Global South context.

The current scientific literature on the gender-energy nexus is too limited to test the applicability of the analytical and a decision-making functions of the gender just energy policy framework, especially because the operationalisation of energy justice in empirical cases has only recently started, as observed in energy poverty literature (Mccauley 2018; Bouzarovski and Tirado Herrero 2017; Moniruzzaman and Day 2020). Nevertheless, our review revealed several illustrative examples of engendering energy policy based on previous research. A comprehensive application of the framework requires further empirical evidence and the development of indicators to assess energy policies from an integrated gender and energy justice perspective. Although the conceptual review presented in this chapter synthesises empirical and theoretical insights from both the Global North and South, the North-South nexus in gender and energy research needs to be further explored (Lacey-Barnacle et al. 2020). The gender just energy policy framework is open to contextualisation. Further, the spatial aspect of energy injustices and unequal access should be addressed, when operationalising the conceptual framework to reflect contextual and spatial aspects that intersect with all three tenets of energy justice. Such research would also contribute to testing the decision-making function of the framework for just energy transitions (Sovacool and Griffiths 2020). Future research is essential to operationalise the gender just energy policy framework for analytical use by researchers and to develop its decision-making function for designing and implementing gender just energy policy. This also resonates with the call from Jenkins et al. to consider the societal impact of energy justice and to motivate energy justice scholars and practitioners to 'practice what we preach' (Jenkins et al. 2020).

When the underlying premises of the gender just energy policy framework are applied to analyse energy policies in different contexts, the full potential of the

framework can be demonstrated. Given the limited research on gender and energy justice, the framework contributes to conceptualizing energy justice for researchers analysing energy systems in diverse political, social, cultural and economic contexts. The gender-energy nexus literature has roots in the 1970s and the more recent energy justice debate deepens the understanding of the gender-energy nexus. This chapter is a first attempt to conceptualise these debates. The gender just energy policy framework advances the understanding that the energy justice debate and the gender-energy debate are interlinked and intertwined. By conceptualising this juxtaposition, we invite for further elaboration and application of the framework to contribute to a just and sustainable energy policy that acknowledges, addresses and enables access to clean, sustainable and affordable energy services for all.



3

Gender injustices in energy access: the gender face of energy poverty in Europe

This chapter is based on the peer-reviewed publication:
Feenstra, M. and J. Clancy (2020) A view from the North: gender and energy poverty in the European Union, In: *Engendering the Energy Transition*, eds. Clancy, J., G. Özerol, N. Mohlakoana, M. Feenstra and L. Sol Cueva, Palgrave Macmillan.

ABSTRACT

Energy poverty in the EU has a gender face; more women than men are struggling to afford the energy services which they need. The structural causes of energy poverty between European countries vary as well as the policies to address access to energy services. A metric approach dominates attempts to define and measure energy poverty which overlooks social characteristics within and between households.

While the existing data are limited, the chapter shows that there are clear gender differences, linked to other social characteristics, in the causes of energy poverty and the derived outcomes. The chapter shows that while economic factors are a contributor to energy poverty there are also biological/physiological and socio-cultural factors which are more difficult to capture quantitatively. When tracking policy initiatives to address energy poverty, arguments are presented for including an indicator which reflects the gender dimension of energy poverty and the intersectionality of this issue.

3.1 INTRODUCTION

Energy poverty is a recognized issue in the Global South, but is a less well-known issue in the Global North. It is easy to assume that the figures cited by the UN of three billion people living in energy poverty, without access to electricity or cooking on biomass, relate to people living in the Global South. It therefore comes as a surprise to many people in Europe, including politicians, to find that some of these three billion energy poor are actually living in Europe. Within Europe a significant part of the political discussion in the energy sector is dominated by two interlinked themes: energy security and climate change which has led to focusing on policies to promote the transition to more sustainable energy systems. However, the emerging revelations, from research⁷, about energy poverty as a lived reality within Europe is causing a re-evaluation of energy policies, also in line with the SDGs and the SEforALL programme.

A sign that energy poverty has been recognised by policy makers within the EU can be seen in the vocabulary of the EU institutions when preparing for the Third Energy Package of 2009 (Bouzarovski et al. 2012). Indeed, between 2009 and 2018, a number of pieces of legislation designed to address energy poverty were enacted by the European Parliament (see Table 3.1). The link with gender came in December 2016 when the European Parliament, having acknowledged the existence of vulnerable consumers in energy poverty, adopted a resolution on access to energy which called for the EU to include a gender dimension in all its energy policies. This is in line with the EU's gender policies which require social inclusion for all Europeans in all EU legislation and policy implementation. The gender link was further strengthened in December 2018, when the Parliament adopted the package 'Clean Energy for All Europeans' in accordance with the EU's commitment to the SDGs and SEforALL. The SDGs are intended to be mutually reinforcing. Therefore, based on the recognised gender dimension of energy poverty (see for example, Clancy et al. 2003; Sovacool 2012; Pachauri and Rao 2013), an initiative on energy poverty (SDG7) would be expected to include a gender dimension (SDG5).

7 See for example Bouzarovski et al. 2012.

Table 3.1: Overview of EU legislation relevant to addressing energy poverty

Energy poverty in EU legislation	
7/2009	Third Energy Package: develop definitions, elaborate action plans and strategies to tackle energy poverty protect vulnerable customers
11/2010	EC: call on MS to replace direct subsidies for high energy bills with a support for improving the energy quality of the buildings
10/2011	EU Cohesion Policy 2014–2020: innovation, low-carbon economy, social inclusion
11/2016	Regulation on the Governance of the Energy Union: meeting the 2030 energy and climate targets
11/2016	Internal Market in Electricity Directive
05/2018	Energy Performance of Buildings Directive: 2050 decarbonisation objective for EU buildings
06/2018	Energy Efficiency Directive: article, 7 more explicit requirements to tackle domestic energy poverty in the annual savings objectives and Governance Regulation by mandatory monitoring of domestic energy poverty in the Nation Energy and Climate Plans
12/2018	Renewable Energy Directive: new rights for communities to set up local energy projects and to facilitate participation by households in energy poverty
12/2018	Clean Energy for All Europeans Package

This chapter is based on a commissioned study for the Committee on Women’s Rights and Gender Equality of the European Parliament, hereafter the ‘FEMM Committee’ (Clancy et al. 2017). The study explores the existing situation within the EU with respect to the way energy poverty is experienced by women and men. The aim of the study was to provide recommendations on appropriate policy measures to address energy poverty and to relieve the burden of vulnerable consumers in the EU struggling to afford the energy services they need. The objectives of this chapter are to: (i) explain the drivers, causes and effects of energy poverty within the EU; (ii) provide insights into the gender dimension of energy poverty within the EU; (iii) demonstrate an analytical approach that shows energy poverty has not only a gender dimension but is multi-dimensional over a range of social characteristics.

The chapter is structured as follows: after a brief description of the methodology used in the study for the FEMM Committee, there is an overview of how energy poverty is conceptualised as a basis of policy making. We then look at current understanding of the gendered nature of energy poverty in the European Union with a suggested analytical approach. The concluding section summarizes the main insights and reflects on the theoretical, methodological and practical contribution of this chapter to the existing body of knowledge on energy poverty.

3.2 METHODOLOGY

The data gathering methodology used in the research which forms the basis of this chapter was a mix of literature review, desk review of policy documents (both EU and national levels) combined with mapping the case study countries to identify positive examples of addressing issues related to gender and energy poverty are identified. The seven EU Member States (Bulgaria, France, Italy, the Netherlands, Spain, Sweden and the UK)⁸ were selected as case studies to identify existing initiatives on eradicating energy poverty and improving gender-equal access to energy services. The seven have different political backgrounds and institutional differences which are reflected in differences in legislation and policy measurements to eradicate energy poverty and to change energy policy to reflect social realities. The geographical spread of the case study countries reflects the different climate conditions in the EU. From a relatively mild sea climate without severe winters or extremely hot summers but with very humid conditions (France, the Netherlands and the UK), to land climate with cold winters and hot summers (Bulgaria) and including Mediterranean climate (Italy and Spain) with relatively mild winters but hot summers. The findings from the first phase of the research were combined with the insights from interviews conducted at the end of 2017 with twenty-five key informants representing a mix of academics, decision-makers, policy-makers and stakeholders. A small number of experts from the EIGE also contributed to the data gathering.

Gender relations are a dynamic concept depending on time, place and context. Hence the gender-dimensions of energy poverty we consider will vary across social, cultural, economic and political contexts. We recognise that women and men do not belong to two homogeneous groups – they vary across a range of social categories (for example, age, class, ethnicity, social status, marital status, economic group and sexual identity) and influenced by personal and contextual factors in choices they make. These differences exist not only between the two groups, but also within them, hence they may require specific targeted forms of action rather than generic policy instruments. Nevertheless, we are rather constrained by the available data to discuss gender differences in energy poverty other than mainly in terms of ‘women and men’ rather than a more nuanced analysis across social categories.

8 The study was carried out in 2017 before Brexit while the UK was still an EU Member State.

3.3 DEFINING ENERGY POVERTY

Although energy poverty exists in all EU countries, an EU-wide accepted definition of energy poverty⁹ is not yet developed. Developing a pan-European definition of energy poverty would form part of the standard policy making processes in the EU in which a European standard will be formulated by the European Parliament. Once formulated, responsibility for the implementation of the standard passes to the national governments of the EU Member States¹⁰. A definition of energy policy is an important step in the planning process to enable policy makers to develop indicators and metrics in order to establish baselines and measure progress towards the set policy objectives. A range of definitions of energy poverty are used in research and policy documents. However, two broad categories can be identified in which their focus is on either 1) households that spend a high share of their income on energy; or 2) households that have insufficient expenditure in energy¹¹.

Table 3.2 gives an overview of the energy poverty policies in seven EU member states which formed the case studies in the research conducted by Clancy et al. (2017). At the time of the study two countries (the Netherlands and Sweden) had no energy poverty policy, while Italy and Spain were in the process of drafting one. In 2021 the energy poverty policy in Italy and Spain are adopted by their parliaments and will be implemented in the upcoming years. The Netherlands and Sweden still do not have a national energy poverty, but a white paper on energy poverty in the Netherlands is published and is an invitation to the Dutch government to develop a national energy poverty (Middlemiss et al. 2020b).

9 Indeed, there is no agreed use of terminology, with some documents using the term ‘fuel poverty’ rather than ‘energy poverty’.

10 The formulation of policy at the central level, to be further developed at the national level is the principle of subsidiarity which is the basis for the relationship between the European Parliament and the member states. The principle of subsidiarity makes the European Parliament reluctant to interfere with Member States decision making.

11 Indeed, the formulation using ‘high’ or ‘insufficient’ are also problematic since these terms are pejorative.

Table 3.2: Overview of the energy poverty policies in seven EU Member States

	Bulgaria	France	Italy	Netherlands	Spain	Sweden	UK
Population (World Bank 2016)	7,127,820	66,896,110	60,600,590	17,018,410	46,433,960	9,903,120	65,637,240
GDP per capita (in Local Currency Unites) (World Bank 2016)	11,751	31,722	25,866	39,346	23,746	405,921	26,925
EU member	2007	1958	1958	1958	1986	1995	1973
Gender income gap (%; EIGE 2017)	79.5	92.3	84.6	95.4	81.2	93.1	85.6
Gender and Energy Policy conditions							
Non-discrimination and equality legislation	++	++	++	++	++	++	++
Institutional cooperation on energy poverty	++	++	+	-	++	nd	++
Energy poverty relief budget	+	++*	+	+	++*	++	++
Energy poverty policy							
Energy poverty definition	++	++	+	-	+	-	++
Energy poverty indicators used							
Vulnerable consumers	++	+	++	+	++	++	++
Energy expenditure gap	+	++	++	++	++	++	++
Housing quality	nd	+	+	-	nd	++	++
Energy poverty data	++	++	++	++	++	++	++
Energy poverty policy measures							
Financial relief energy costs	+	+	+	+	+	+	+
Energy consumer protection	+	+	+	++	++	++	++
Energy efficiency programme	-	++	++	++	++	++	++
Monitoring energy poverty	+	++	++	-	++	nd	++

Legend

+ - limited reference to gender issues, ++ more than one measure, or level of awareness with specific reference to gender issues, * gender-disaggregated data available, - no reference to gender issues and/or energy poverty, nd no data - not known. Source: Clancy et al. (2017, p.55)

Analysing national energy poverty definitions at the Member State Level, three categories of approaches measuring energy poverty can be identified. (i) A *metric approach* in which deprivation is linked to energy prices is the most commonly used approach (Pye et al. 2015). The UK¹² has a strong metric-driven approach, as can be seen in the official energy poverty definition of Wales stating that 'Fuel poverty is defined as having to spend more than 10% of income (including housing benefit) on all household fuel use to maintain a satisfactory heating regime. Where expenditure on all household fuel exceeds 20% of income, households are defined as being in severe fuel poverty.' (Welsh Assembly Government 2010). (ii) A second approach is a *consensual* one, which makes use of self-reported experiences of people living in energy poverty. The French official energy poverty definition uses this approach. It states that energy poverty is the situation in which a person who encounters in his/her accommodation particular difficulties in having sufficient energy supply to satisfy his/her basic needs (ONPE 2016). (iii) A third approach is an *outcome-based* approach in which the consequences of energy poverty are the basis upon which to develop an energy poverty eradication policy, for example, that individuals or households are able to heat or cool their homes to a level of desired comfort.

A pan-EU map of energy affordability, based on energy expenditures shares, shows large variations across the EU which questions the appropriateness of a pan-EU fuel poverty metric (Deller 2016). Deller (2016) concludes that the best way that the European Commission can support policy synergy is by making available high-quality data on pan-EU affordability and collating robust impact assessments that identify effective policy interventions. As we describe below, this type of data is lacking.

To identify and to have a deeper understanding of the circumstances of the potential targeted population group of a policy, sufficient data on key indicators are necessary as an input for policy design. The current data available within the EU Member States on energy poverty are limited, not gender-disaggregated and tend to be quantitative. This creates difficulties in identifying target groups and the cause of their energy poverty. For example, Eurostat expenditure share data are only available at 5 years intervals with a focus on household averages (Eurostat 2017a). This time interval means a slow response to one of the major causes of energy poverty: energy price increases. Focusing on households is also problematic since what constitutes a household is contested. Households are fluid entities with a dynamic structure, varying in income, class, ethnicity and education (Bell et al. 2015). We would add demographics and civil status. Divorce, where children are involved, creates families living across multiple households.

12 Responsibility for energy poverty policy in the UK is devolved to the regional governments in Scotland, Wales and Northern Ireland. England has no devolved government, so energy policy falls under the Department for Business, Energy and Industrial Strategy.

Demographic changes in the EU have led to a strong increase in the number of registered single-headed households. For example, in the Netherlands, 37% of the households have only one member (CBS 2019).

Additional arguments to demonstrate the inadequacy of a metric definition to fully address energy poverty comes from the conceptual map of the drivers, causes and effects of energy poverty in the EU developed by Trinomics (2016) (see Figure 3.1). The focus is the household energy system, consisting of energy service demand, energy use and expenditure, which is influenced by a range of variables. A household can afford a particular level of energy services depending on earned income as well as other factors such as expenditure priorities other than energy, and any policy measures to support households identified as vulnerable to energy poverty (for example, the UK's Winter Fuel Allowance (National Audit Office 2009)). How much a household spends on energy influences specific negative outcomes related to household finances (indebtedness, disconnection etc.) and the levels of energy services enjoyed, which, if insufficient, can result in negative outcomes (e.g., hypothermia or heat stress).

Trinomics identified six main drivers of energy poverty: income; socio-political system; policy framework; climate; market system; and state of the economy. These drivers particularly influence the affordability of household energy services, such as heating and cooling, which can lead both directly and indirectly to energy poverty. The previous and current political and economic systems influence energy market development, institutional structures, heating and cooling infrastructure, housing stock and tenure and energy supply. The type of energy market, including the extent of liberalisation and level of competition, influence the range of energy service tariffs / products available, and the type of measures for assisting with energy affordability. For example, the countries in Eastern Europe made the transition from a centrally planned economy with state owned utilities to a market-based economy with privatised utilities which has been accompanied by significant increases in energy prices. The social support measures targeted at groups regarded as vulnerable to these price increases have had limited success (Bouzarovski et al. 2012). Also, within countries with an established market economy there have been significant price increases. For example, in the Netherlands, due to an increase of taxation on natural gas implemented in 2019, energy prices for Dutch households are estimated to increase by around 17% (Pricewise 2018).

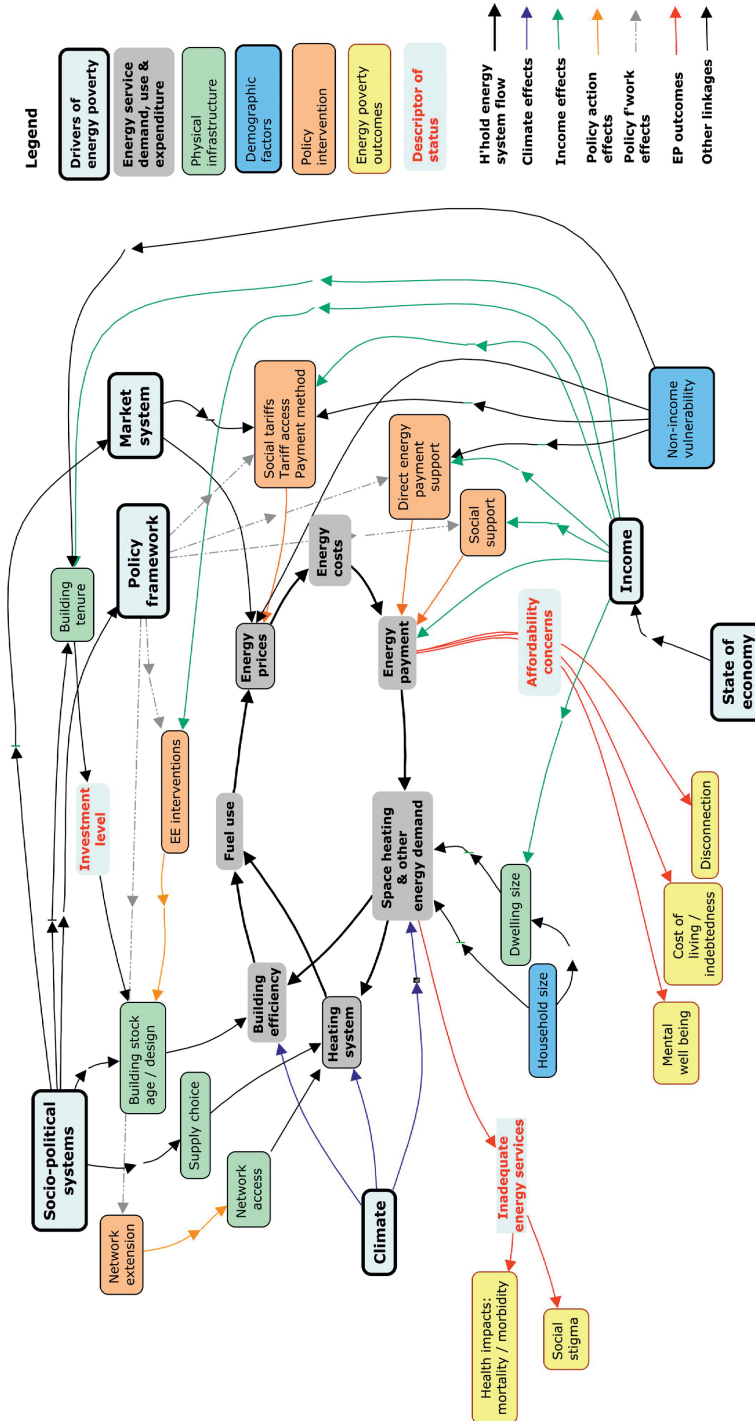


Figure 3.1: Conceptual map of the drivers, causes and effects of energy poverty in the EU

(Source: Trinomics 2016)

The ambient climatic conditions influence energy demand for heating and cooling, which in turn is influenced by the energy efficiency of the building. A building's physical structure, including construction materials, influence its energy efficiency and the cost of energy services. What people can afford to pay is directly affected by current economic performance for those in work and the past economic performance for retired people. Income level influences where a person or family can afford to live in terms of the type of house, both the physical structure and the form of tenure (owner/tenant). To adequately address energy poverty would require embedding these factors, not all of which are easy to measure numerically, into the policy framework.

Trinomics classify the key factors influencing or causing energy poverty into three groups: i) physical infrastructure (particularly the building stock); ii) policies that determine the types of measures to support households in energy poverty; and iii) socio-economic & demographic factors (such as retirement age, restricted mobility, rural communities, single parent households, etc.). Trinomics (2016) identified four characteristics of indicators which would enable addressing energy poverty:

1. Support a definition of energy poverty that is broadly accepted across key stakeholders;
2. The ability to be updated over time without excessive effort or cost;
3. Provide comprehensive spatial coverage, at least at the Member State level but potentially with additional spatial granularity;
4. Allow for comparability of the indicator(s) across Member States, and their effective implementation.

The one issue missing in this list, as with all of the EU countries' policies related to energy poverty, is gender. Nevertheless, an entry point for incorporating gender into the analysis is the concept of the vulnerable energy consumer which has been used both at the European Parliament level and within a number of Member States (e.g., the UK and Bulgaria). Some states already recognise the differentiation in the social characteristics of vulnerable energy consumers. For example, for assessing people's vulnerability to energy poverty and entitlement to support, Bulgaria uses a number of social characteristics, such as age (70+), living alone, pension as sole income source, children with mobility issues¹³. To take this a step further to incorporate a

13 Translated from Bulgarian from the Ministry of Energy website (News) 'Министър Петкова: Задължително условие за успешно преминаване към пълна либерализация на електроенергийния пазар е защитата на уязвимите клиенти в България' (Minister Petkova: An essential requirement for successful transition to full liberalization of the energy market is the protection of vulnerable consumers in Bulgaria)" <https://www.me.government.bg/bg/news/ministar-petkova-zadajitelnouslovie-za-uspeshno-preminavane-kam-palna-liberalizaciya-na-elektroener-2264.html>. (accessed 27th February 2021)

gender dimension into energy poverty interventions, requires a level of awareness of the nature and extent of the issues. In the next section we provide an overview of the current understanding of the gender issues of energy poverty within the EU.

3.4 GENDER DIMENSIONS OF ENERGY POVERTY WITHIN EUROPE

In this section we present the existing data to show that there is a relationship between gender inequality and energy poverty. We consider that the link between energy poverty and capacity to pay energy bills should automatically draw attention to gender, since, within the EU, there is a distinct gender income gap at all stages in the life cycle. By implication, it would be expected to find more women living in energy poverty than men. Having good data is the basis of policy making – it helps set the agenda and prioritises target groups and interventions. Although the data on gender and energy poverty in the EU are limited, that which exist point not only to a gender dimension of energy poverty but also to a more complex disaggregation of characteristics which reflect people's lived reality. For example, analysis of data from France, sampled in 2013, indicates that single-parent families and people living alone (often in older age groups) are the types of households more likely to be living in energy poverty. Out of the 5.6 million households who reported themselves as being cold, the largest category (38%) were women-headed households with or without children. Further disaggregation of the data shows that 65% of this group were tenants of a private landlord. More than a third were retired or in a pre-retirement phase (ONPE 2016).

To present the data we use the framework used by Clancy et al. (2017), which proposed three categories for data analysis: economic, biological/physiological, and socio-cultural. The factors described are either causal or consequential. The factors can be linked both within and between the three categories. We consider that this presentation of the data assists not only in the framing of the policy responses but also helps identify where responsibilities to act lie which may not always be in the first instance within the energy sector.

3.4.1 Economic perspective

As was pointed out above, the macro-economy has a direct effect on income which in turn affects the type of accommodation an individual or family can afford to live in, both in terms of tenure (owner-occupier or tenant) and the physical structure. The physical structure directly influences the energy efficiency of the dwelling in its response to the external climatic conditions creating heating or cooling demands. Creating a comfortable indoor ambient temperature will probably form the main part of a household's energy bills. How households respond to energy bills has specific outcomes in terms of energy poverty. For example, paying the energy

bill can lead to indebtedness due to insufficient residual income to pay other bills, while failure to pay the energy bill can lead to disconnection. As we show below energy poverty can also have negative health outcomes.

The economic factors influencing energy poverty, occur both at the micro- as well as the macro-level. At the macro-economic level, the past and current political economy influences the energy market, institutional structures, the housing stock quality as well as the balance between home ownership and renting. The housing stock quality will influence a building's energy efficiency. Measures a landlord takes towards maintenance of the building infrastructure, including any requirements for compliance with energy efficiency targets, will depend on national laws. Homeowner's capacity to finance energy efficiency investments will depend on their income as well as policies providing financial support. The type of energy market, including the extent of liberalisation and level of competition, influence the organisation of the energy supply and the range of energy service tariffs and energy efficient products available.

At the microeconomic level household income is considered one of the most significant factors in determining whether or not a household will live in energy poverty. Here there is a distinct gender issue. Women with low incomes are disproportionately found as heads of households either as single parent families or, due to their greater longevity than men, living alone at pensionable age. The EU average for single female headed households is 18.4% with significant geographical differences: the highest percentage are in the Nordic and Baltic Member States and lowest in Ireland, Malta, Cyprus and Spain. Eurostat data show that in 2016, in the EU, 32.5% of households¹⁴ were single-person households, with the elderly accounting for four out of every ten (Eurostat 2017a). Interestingly, over the last few years, there has been an increase in the number of single male households (14.1% in 2016). A range of factors, such as higher divorce rates and ageing of the population, contribute to the increase in numbers of Europeans living alone.

One of the few quantitative studies providing insights into the links between household income, gender, age and energy poverty comes from Spain (Tirado Herrero et al. 2016). Under the age of 65, there is not a strong difference in energy expenditure between woman-headed and man-headed households. However, when retirement age of 65 is reached, woman-headed households relying solely

14 Eurostat uses the term 'household' to mean a unit that has common arrangements to meet daily needs and pooling expenses in a shared residential space. This definition of a household excludes institutions such as prisons, military barracks, student accommodation, hospitals and residential care homes. https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Household_-_social_statistics. (accessed 27th February 2021)

on pensions spend from 10% to 15% of their annual income on energy which reflects an increase in their energy expenditure.

A gender income gap is found across all EU member states which has changed little since 2003 (EIGE 2017). In 2014, the gender gap in earnings was an average of 20%. However, this increases significantly on retirement, when the gender pension gap is an average of 40%. As the next section shows, there are health issues related to ambient indoor temperature which are more significant for older women than men in the same age group, although they are less likely to be able to afford appropriate levels of heating or cooling which promote good health. A less well-recognised issue of energy poverty relates to where a person is born. For people living within the EU, being born outside the EU, means that the risk of living in poverty is more than twice as high as among people born within the EU. In 2015, in the UK, 16.4% of ethnic minority households were living in fuel poverty¹⁵ compared to 10.4% of white households living in fuel poverty (EIGE 2017).

3.4.2 Biological/physiological perspective

Europe climates create the need for space heating and cooling for significant parts of the year. The ambient temperature has an impact on human physiology and its functioning. Human beings can function, with varying degrees of efficiency, across a range of temperature due to the body's self-regulatory mechanisms. However, there comes a point where the self-regulatory functions find it difficult to respond when the ambient temperature is too low or too high and people experience cold or heat stress both of which have serious impacts on the body's physiological functioning. Age is found to be a significant factor in dealing with heat and cold stress, with young children and older people being particularly vulnerable (Chard and Walker 2016). In northern temperate climates, more people die, particularly from circulatory and respiratory diseases, in the winter months compared to the summer months, a phenomenon known as *excess winter mortality or excess winter death (EWD)*¹⁶. Ambient temperature, particularly in cold energy inefficient homes, is recognised as a factor in EWD, although it is not the only cause of death (Boardman 2010). There is a link between EWD and Alzheimer's disease and dementia since an aspect of these conditions can be lack of attention to self-care which could include regulating ambient temperature.

The energy poverty conceptual map by Trinomics indicates that a building's physical structure (materials and spatial design) has an influence on energy poverty

15 The UK official documents refer to fuel poverty rather than energy poverty.

16 The concept has its origins in the UK in which the government compares the number of deaths that occurred in the winter period (defined as December to March) with the average number of deaths occurring in the preceding August to November and the following April to July (Office for National Statistics 2014).

and its outcomes. Certainly, with EWD there is distinct link. The highest EWD levels are found in the countries with the poorest quality housing stock (Portugal, Greece, Ireland and UK) (Healy 2004). The data for the EU show that more women heads of household live in older, less energy efficient homes (Elnakat and Gomez 2015). The age of these buildings is also significant in terms of levels of energy efficiency. Pre-1970s' homes, are likely to be made of building material with poor thermal efficiency. In England and Wales, in 2015/16, the gender distribution of the excess winter deaths was 47% men (11,400 EWDs) and 53% women (12,900 EWDs). The explanation for this gender difference is in part due to age. In England and Wales, 65% of the population aged 85 and over is female. Another factor is women's greater sensitive to ambient temperature than men. Insufficient levels of heating can produce other conditions such as damp or mould which have negative effects on people with existing health conditions and restricted mobility (Snell et al. 2015).

Deaths related to heat waves also exhibit age and gender differences. For example, in France between 1 and 20 August 2003, a number of 15,000 excess deaths were reported (Fouillet et al. 2006). Excess mortality is found to increase at 35 years of age. Although it is only at age 45 that a gender difference becomes more pronounced, at which point the number of excess deaths is 15% higher for women than men of comparable age. Self-reporting data for the eight EU states bordering the Mediterranean, show that 30% of the population are unable to keep their homes adequately cool in summer. Of this group, 70% are above 65 years of age (Bouzarovski and Tirado Herrero 2014).

3.4.3 Socio-cultural perspective

Many of the household care tasks, such as cooking, washing clothes and cleaning, are energy intensive. The gender division of labour across the EU member states, is similar to elsewhere in the world, women bear the burden of care work (80% of women are involved daily in unpaid household work compared with only 45% of men) (Brodolini 2011). While many of these tasks are mechanised, the outcome is not necessarily women spending less time on household tasks. For example, washing machines have not reduced women's time spent on laundry. Increased disposable income can result in family members owning more clothes with higher social standards of cleanliness requiring more frequent garment washing.

Another aspect of gendered care work and energy use relates to providing the household's meals. In the EU in 2016, 79 % of women cooked and/or did housework on a daily basis, compared with 34 % of men (Eurostat 2018a). A health issue relates to the energy source used. There is evidence to show that throughout the EU, particularly in Eastern Europe, wood can be the energy source for cooking (Bouzarovski 2009). The concern here relates to the significant body of epidemiological evidence related to the health impacts of exposure to household

air pollution (HAP) from burning wood inefficiently. Prolonged exposure to HAP is linked to a range of medical conditions including cardiovascular disease, eye diseases including cataracts and blindness, asthma, nasopharyngeal and lung cancers low birth-weights and perinatal mortality (World Bank 2012). Although the data are primarily from developing countries, it is not unreasonable to assume that these findings would be universally applicable. The evidence indicates that, if using wood as a fuel, women's health, because of their role in the household as cooks, are more likely to be affected than men. However, men can be affected by HAP if they spend time, for example as part of family socialisation, in a smoky kitchen or in households which use wood fuel for space heating. Men's health can be seriously impacted if they have underlying health conditions particularly linked to smoking tobacco.

Household energy use within the EU shows gender differences which cut across age and socio-economic status. In Germany elderly women tend to consume less energy than younger women (EPSECC 1997). Researchers offer a number of behavioural and socialisation patterns to explain this observation (Preisendoerfer 1999). Women of pensionable age change their behaviour patterns, for example, they cook less frequently. Many of these women grew up in a time of austerity when coping strategies might have been frugality, which remerge if they find themselves in later life with constrained finances. Younger women have grown up with a greater familiarity with technologies than older women, so using new pieces of energy efficient equipment, such as the microwave, is less daunting. In Sweden and in the UK, households with an older demographics own a small number of pieces of equipment compared to younger households. The former are more inclined than the latter to switch off appliances when not in use (Carlsson-Kanyama and Linden 2007).

The gender differences in energy consumption are also linked to household composition. Single-woman households in Germany, Norway, Greece and Sweden have a lower level of direct and indirect electricity consumption compared to single-man households which is attributed to differences in the level of appliance ownership (Räty and Carlsson-Kanyama 2010). However, in households with more than one family member, the reverse is found; woman-headed households consume more energy than man-headed households. The explanation links to a factor pointed out earlier - the type of buildings inhabited: woman-headed households are more likely than man-headed households to be living in pre-1970s homes, which are considered less energy efficient (Elnakat and Gomez 2015). In households of similar demographic composition and living in buildings of similar construction, behaviour is considered an important factor in explaining variations in electricity consumption (Bell et al. 2015).

Household composition also influences energy demand, in terms of quantity and the energy services required. Research in the Netherlands found that energy use per capita was more with a working female partner than when the female partner did not work or was a working woman living alone (Broek et al. 1997). Time at home also influences energy use for unemployed or retired people since both groups tend to spend more time at home.

The energy poor are considered statistically more likely, than those people not living in energy poverty, to report poor health and emotional well-being (Thomson et al. 2017). Research by Snell et al. (2015) finds people living in energy poverty with a range of mental health issues such as anxiety, stress and depression which are associated with living in poor housing conditions, unable to heat or cool their homes, balancing bills, and coping with debt. Anecdotal evidence from the energy poor shows feelings of isolation and loneliness, due to the shame of not being able to invite people to visit because of the uncomfortable ambient temperatures in their homes¹⁷.

In households with a range of age groups there can be intergenerational tensions. Older household members consider that younger members use energy services (such as hot water for showers and electricity for computer use) without regard for their levels of energy consumption. Research in Greece (Petrova 2017), Sweden (Carlsson-Kanyama and Linden 2007) and Germany (Röhr 2001) finds that women are responsible for energy management in the household. If a coping strategy is to reduce energy consumption it is possible that women will bear the brunt of any resentment at measures to reduce equipment use. A gender issue arises when determining the setting the thermostat, given women's greater sensitivity to ambient temperature than men.

Coping strategies towards energy poverty or its avoidance (for example through energy management) show variations between genders and across social categories. In the Netherlands, motivation to invest in energy efficiency for men was based on environmental reasons, reducing energy wastage and cost-saving. Whereas women were motivated to improve comfort of their homes and to become more independent of utility companies (Tjalma 2016). Women were considered to be more likely than men to respond to social pressure to adopt energy efficiency measures (Straver 2017).

Whether or not you own your own home has an influence on your capacity to act to avoid energy poverty. In the UK, owner-occupiers were strongly motivated to invest in energy efficiency when it increased the value of their property (Sunikka-Blank et al. 2018). However, social tenants had no control over investments to improve

17 EnAct Cold at Home <http://www.coldathome.today/> (accessed 27th February 2021)

the energy efficiency of their homes. The data from France cited above, give an indication that the majority of social tenants living in energy poverty were women.

3.5 CONCLUSION

With one out of seven European households struggling to pay their monthly energy bill, it can be concluded that energy poverty in the EU Member States is an existing problem and an emerging concern for policy makers. There are signs at the level of the European Parliament and in some member states, that there is a growing awareness of the social dimension of energy poverty with a focus on the protection of vulnerable energy consumers. However, recognising that these consumers are not a homogeneous group is taking time to emerge, in particular that there are gender-related issues within the group of vulnerable consumers influencing the access to clean and affordable energy services. Indeed, the language of the policy documents related to energy poverty tends to be gender neutral, for example, 'consumer'. The outcome is a lack of understanding that the causes of energy poverty can be different for women and men. This understanding is needed to ensure the correct policy initiatives are put in place to ensure that all vulnerable women and men energy consumers are removed from energy poverty. Commitment to the SDGs is not leading to a more integrated approach to improved outcomes for all citizens.

The first step to greater awareness by policy makers of a societal issue is to have data on the nature and the scale of the problem. The unfamiliarity with the gender dimension of energy poverty is partly caused by the lack of gender-disaggregated data that move beyond the household as the entity of analysis. Eurostat, the main source of data for EU policy makers, does not collect gender-disaggregated data across the EU on the gender dimension of energy poverty. Good data are the basis of policy making; data allow the setting of goals, establish baselines for monitoring, enable comparison of policies and tracking progress of implementation. In this chapter, we have shown that gender-disaggregation of data is only the first step in the analysis of energy poverty. Gender combines with other social characteristics, such as age, to create a typology of energy users at the household level for whom the causes of energy poverty and their responses vary – both between and within households. To aid in increasing the awareness of policy makers, we recommend adding a fifth characteristic to Trinomics' list of characteristics of indicators to measure energy poverty: reflect the gender dimension of energy poverty and the intersectionality of this issue.

Even though the data on energy poverty in the EU are limited and even more so in respect of the gender dimension, this chapter has shown that there is clearly a gender dimension. The EIGE index (EIGE 2017) has shown the gender gap that

persists across all thematic policy fields, in all EU member states, is intersectional. Based on the existing data, Figure 3.2 indicates the particular aspects of the drivers and causes of energy poverty which have a distinct gender dimension. We accept that there could be more aspects which may emerge when more comprehensive gender-disaggregated data, presented intersectional, are available.

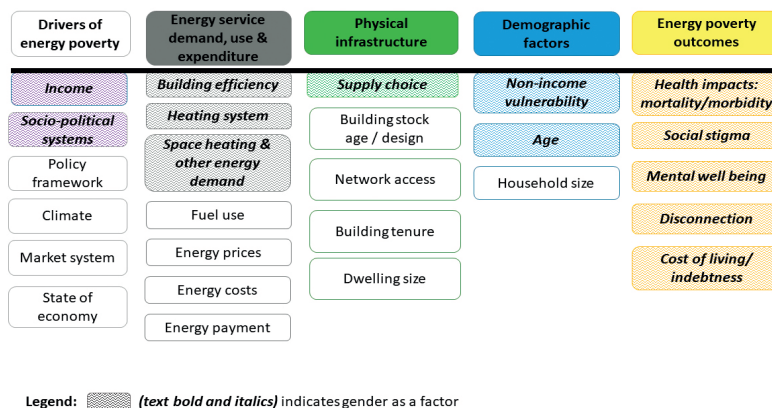
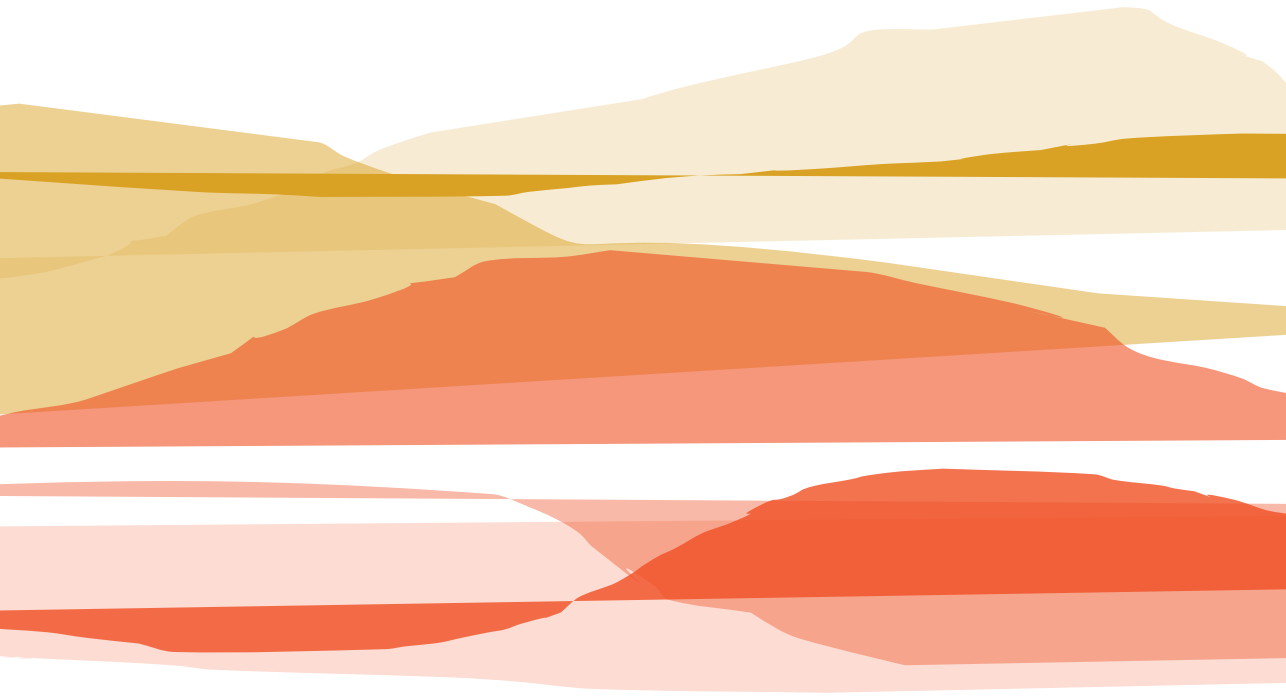


Figure 3.2: Set of gender indicators operating in the drivers, causes and effects of energy poverty

What Figure 3.2 does not show is how the effects of energy poverty are influenced by economic, physiological and socio-cultural factors, which also need to be taken into the analysis. As shown in the section on gender dimensions of energy poverty in the EU Member States, these factors influence the experience of energy poverty between men and women and impact the effect of energy poverty on everyday lives. We recommend the use of the set of gendered indicators developed by Clancy et al. (2017) for the formulation of indicators and framing of the policy responses which helps identify where responsibilities to act lie. This set of gender indicators shows that the energy sector is not always the sole actor responsible for addressing the causes of energy poverty which has a range of drivers, causes and effects with complex, cross-sectoral interlinkages. Energy poverty can be the result of poor-quality housing with inappropriate insulation and low-incomes which would require actions from the housing sector and economic policy.

Further research is needed to create a deeper understanding of the gender dimensions of energy poverty. Existing policy measures aiming at elevating vulnerable consumers out of energy poverty are too generic and do not reflect the gendered differences. The current emphasis of European energy policy on climate change mitigation by stimulating increased energy efficiency and the energy transition to cleaner energy sources is lacking a demand-driven approach which reflects addressing the social inequalities of energy consumers. The energy policy transition from a supply-oriented towards a demand-driven approach requires a

more holistic understanding about energy consumers, moving beyond a model, as the basis for policy making, of the household as a homogenous entity with only household income as a variable to influence energy poverty. Adding gender analysis to the existing theoretical frameworks used by energy policy researchers, will enlarge the knowledge base on the gender and energy nexus. Furthermore, adding the gender component to the existing methods to measure energy poverty will increase the availability of gender-disaggregated data giving greater insight into the gender face of energy poverty. As a contribution to a more holistic understanding of the social dimensions of energy poverty we recommend the use of indicators that include a gender dimension, linked with other social characteristics.



4

A gender just energy policy framework to engender the energy transition in Europe

This chapter is based on:
Feenstra, M. and G. Özerol (under review) A gender just energy policy framework to engender the energy transition in Europe

ABSTRACT

The quest for a just energy transition requires, among others, policy interventions that address and eliminate the gender injustices in the energy sector. However, in many countries the limited awareness and understanding of these injustices results in gender-blind energy policies that leave social inequalities untouched and injustices unchallenged. This chapter bridges these knowledge gaps by defining gender just policy choices for energy transition in Europe. Building on the recently developed gender just energy policy framework, we identify seven elements that reflect a whole system approach by incorporating the perspectives of consumers, producers and decision-makers across the multiple levels and sectors of energy transition. To assess these elements, we define a set of 12 criteria that address the interlinkages of the three tenets of energy justice (recognitional, distributional, procedural) and three main engendering policy approaches (women empowerment, gender mainstreaming, social inclusion). The application of the criteria with empirical data from the energy and climate plans of five European countries (Bulgaria, France, the Netherlands, Spain and Sweden) reveals multiple opportunities for improving social inclusion, gender equity and gender equality within national energy policies.

4.1 INTRODUCTION

A just energy policy reflects the energy needs and rights of all energy users, taking into consideration the causes and effects of social inequalities. Designing and implementing just energy policies constitutes a major challenge for all actors of the energy sector in both public and private domains. Despite the Paris Agreement outlining the need and importance of the energy transition, national governments are struggling to design adequate policies and to implement them effectively. There is a growing concern that the transition from fossil fuels to renewable energy sources increases existing social inequalities, creating winners and losers of the energy transition (Wood and Roelich 2019; Sovacool et al. 2017). A just energy transition is in danger when there is gender inequality, resulting in unequal access to energy services and unequal representation in energy transition processes between women and men (Søraa et al. 2020; Pueyo and Maestra 2019; Galvin 2015). Gender analysis of energy policy contributes to ensuring a just energy transition by providing insights into the heterogeneity of social inequalities and understanding of the intersectionality of the energy users as well as creating spaces for women's voices to be heard (Parikh 1995).

The European Commission aims for sustainable and inclusive growth in the European Union (EU) as formulated in the 'Europe 2020' strategy (European Commission 2010). To implement this strategy, the Commission strives for a just energy transition by combining decarbonisation with the access of all users to clean and affordable energy resources (European Commission 2019a). Energy services, such as heating, cooling, lighting and charging electric appliances, are essential to ensure a decent standard of living. Having insufficient access to these services is identified as energy poverty by the EU Energy Poverty Observatory.¹⁷ Energy poverty is a global problem, but it is also highly contextual (Boardman 1991). It calls for policy makers to design national energy policies that both enable access to clean energy services for all users and reflect local circumstances. The variety of definitions in policy documents and the lack of a pan-European definition further indicate the contextual character of energy poverty in Europe as described in chapter 3 of this thesis. While the existing data are limited, there are clear gender differences regarding the causes of energy poverty and the derived outcomes (Sareen et al. 2020, Meyer et al. 2018). An improved understanding of these difference is needed to design and implement policy interventions that can alleviate energy poverty for women and men.

In the search for a just energy transition, the EU Member States have been developing national policies to ensure clean and affordable energy services for

¹⁷ <https://www.energy-poverty.eu/about/what-energy-poverty> (accessed 25 February 2021)

all their citizens. Both the local advocacy from civil society organizations as well as the EU legislation hold national governments accountable to respond to injustices and inequalities in the energy transition. For instance, the Member States are required to submit National Energy and Climate Plans (NECP) in support of the EU climate action and energy transition objectives (European Commission 2018). The NECPs communicate each country's objectives, targets, policies and measures along five dimensions: decarbonisation, energy efficiency, energy security, internal energy market, and research, innovation and competitiveness. By December 2019, all Member States had to submit their final NECP, which have been translated into English and made publicly available. The NECPs therefore provide an accurate and recent picture of the policy choices and emerging agenda regarding the just energy transition in the EU Member States.

In this chapter we analyse the NECPs of Bulgaria, France, the Netherlands, Spain and Sweden with an aim to provide insights into policy perspectives that address and respond to gender inequalities and in energy access. In doing so, we also aim to contribute to a better understanding of gender inequalities and inequities that result from unjust policy choices, which has been identified as a knowledge gap (Sovacool et al. 2020b). To this end, we apply the in chapter 2 developed gender just energy policy framework, which juxtaposes the gender approaches in energy policy with the tenets of energy justice. We further develop and apply the gender just energy policy framework by identifying and assessing the elements that allow for a systemic analysis and comparison of national energy transition policies.

The outline of the chapter is as follows: Section 2 provides the theoretical underpinning of the gender just energy policy framework. In Section 3 we explain the methodology that we adopted to analyse the national energy transition policies. The results from the analysis and comparison of the NECPs of the selected five EU Member States are presented in section 4. We conclude in section 5 with reflections on the results, policy implications and directions for future research.

4.2 THEORETICAL BACKGROUND: ENERGY TRANSITION THROUGH A GENDER LENS

Women and men are unequally affected by limited access to energy services, and they have different energy needs and interests within households (Standal et al. 2019). There is ample evidence on the relationship between household-level energy poverty and women's health burdens, use of time, education, access to information, and other factors (see for instance the reviews by Winther et al. (2017) and by Rewald (2017)). However, limited attention has been paid to analysing national energy policies using gender analytical frameworks. Studies on gender and energy has instead focused on the household realm, where women suffer heavily from

the burdens of energy poverty (Clancy et al. 2017). Even if such studies address national energy policies, they lack an analytical framework to reflect upon how these policies could address gender inequalities in energy access (Feenstra 2002).

Women and men reveal different preferences for energy policy options, especially when it comes to the energy transition and the adaptation of renewable energy sources (Fraune 2016; Ryan 2014; Clancy et al. 2012; Köhlin et al. 2011). Furthermore, energy consumption is not gender-neutral (Räty and Carlsson-Kanyama 2010; Winther et al. 2018; Standal 2018; Bell et al. 2015; Carlsson-Kanyama and Lindén 2007). Purchasing power, preferences, needs and everyday practices, and routines are shaped by social norms that differentiate access to income and resources (Standal et al. 2019; Winther et al. 2018; Standal 2018; Fraune 2016). The ways in which energy consumption is gendered also effect how the benefits and costs of energy transition are distributed among women and men. Women are usually responsible for the energy-related domestic work (Winther et al. 2018; Standal et al. 2019; Bell et al. 2015; Carlsson-Kanyama and Lindén 2007; Scott and Clery 2013). In contrast, men have more decision-making power over the technology purchased and used in the household (Standal et al. 2019; Winther et al. 2019; Standal 2018). Furthermore, as pointed out in chapter 3, the recent attention to energy poverty reveals a strong gender face, with women being more affected than men.

Recently, the awareness on enabling equal access to sustainable energy services has improved within the context of international conventions, such as the Sustainable Energy for All programme (SEforALL) and the Sustainable Development Goals (SDGs), reflected in the policy statement 'Clean Energy for all Europeans' (Clancy et al. 2017). As a research framework energy justice questions the cost and benefits of the energy systems. The concept of energy justice has been developed as a conceptual, analytical and decision-making framework around three principles: distributive, recognitional and procedural justice (Sovacool and Dworkin 2015). The energy justice discourse offers a fertile ground to include the gender-energy nexus, which is lacking in the scientific debate on energy policy. Justice dilemmas are in the forefront including concerns about material infrastructure of energy technologies, access and cost of energy services and intergenerational equity. When energy justice is applied to policy research, central concepts are energy production and energy consumption in terms of procedural decision making and distributive outcomes (Moniruzzaman and Day 2020; Fuller and McCauley 2016). Consideration of the justice dimension is a vital decision-making tool to make informed choices (Sovacool and Dworkin 2015). Energy justice through a governance perspective attempts to find answers to questions like: where should resources be focused, whose needs should be recognised and how democratic legitimacy should be focussed? (McCauley et al. 2013). The focus on justice in energy policy provides insights into the multiple sites of injustices throughout global

energy system and can lead the way to a more just energy policy (Jenkins 2018; Jenkins et al. 2018).

To ensure a just energy transition, a normative discussion clarifies the objectives of transition policy and identifies the intended socio-cultural impact of these policies. The concept of energy justice stimulates this normative analysis of how society should recognise individuals, allow meaningful participation and fairly distribute benefits and costs. However, this normative analysis also requires a deep understanding of existing societal challenges and social inequalities. A lack of awareness and knowledge of injustices creates gender-blind policies leaving social inequalities untouched and injustices unchallenged (Galvin 2015). Within the literature on social inequalities in energy transition, gender has been a core concept for the analysis of inequalities regarding the design, implementation and evaluation of energy policies. Gender analysis and gender approaches deepen the understanding of societal challenges and reveal inequalities and injustices. Based on the historical development of the gender and energy policy nexus, three major approaches can be discerned: women empowerment (e.g., Cecelski 1995), gender mainstreaming (e.g., Islar et al. 2017) and social inclusion (e.g., Bartiaux et al. 2018). All these approaches identify policy engendering as a process, and have a common goal, which is to develop a policy that acknowledges the gendered differences of the needs and interests of women and men.

The concept of energy justice facilitates the understanding of how benefits, costs and risks of the energy transition are distributed in the society (Islar et al. 2017; Sovacool et al. 2016; Miller et al. 2015). Using a gender lens is essential to understand how the energy transition may unevenly distribute these benefits, costs and risks, producing new inequalities or exacerbating the existing ones. We make a distinction in gender analysis between gender equity and gender equality. Gender equity can be defined as the process of being fair to women and men (World Bank 2014). Gender equality requires equal enjoyment of woman and men of socially-valued goods, opportunities, resources and rewards (World Bank 2014).

The gender just energy policy framework has been developed by incorporating the engendering processes in energy policy (women empowerment, gender mainstreaming and social inclusion) and the energy justice principles (distributive, recognitional and procedural justice). The framework presented in chapter 2 juxtaposes the three engendering processes on one axis of a three-by-three matrix and the three principles of energy justice on the other. The concept of energy justice is not only a theoretical framework; it can also be used analytically to identify policy choices towards just energy transitions (Jenkins et al. 2016). With a similar motivation, this chapter contributes to the

analytical function of the gender just energy policy framework by defining elements and criteria that facilitate empirical analysis and comparison.

4.3 METHODOLOGY

We conducted a comparative policy analysis of selected European countries. For this purpose, we operationalised the gender just energy policy framework by identifying the different elements of the conceptual framework and how they can be defined and assessed using multiple criteria. To test and improve the analytical applicability of the framework on energy transition policies, we conducted two rounds of policy analysis. Multiple case studies combined with theoretical underpinning can be a base for theoretical generalisation in which the case study aims to expand and generalize theories (Yin 2009). Although we take the whole of Europe as our geographical focus, time constraints and accessibility of data necessitates a case selection. Therefore, we selected five countries that reflect the pluriform identify of the EU, namely Bulgaria, France, the Netherlands, Spain and Sweden. These countries have different political backgrounds and institutional structures. Furthermore, they differ in terms of the extent to which gender equality is achieved and how gender inequalities are addressed in national policies. Another difference among the selected countries is the level of energy poverty, ranging from almost non-existent (Sweden and the Netherlands) to the highest level of the EU (Bulgaria). Their distinctive context reflects differences in policy choices in the energy transition and policy incentives to aim for just transitions to reflect social realities. Further, the geographical spread of the selected countries illustrates the different climate conditions in the EU, which have significant implications on energy needs for cooling and heating houses. From a relatively mild climate without severe winters or extremely hot summers but with very humid conditions (the Netherlands, Northern France), to a more severe climate with cold winters and hot summers (Bulgaria) and including Mediterranean climate with mild winters but hot summers (Spain, Southern France) to Nordic climate with cold winters (Sweden).

In order to analyse the gender and energy justice components of national energy policies of the selected countries, we examined their NECPs. We coded the documents using computer-assisted qualitative data analysis software (Atlas.ti). The use of such software was essential, as it facilitates conducting qualitative data analysis in a systematic and transparent way (Friese 2019). In the first coding round, the three energy justice tenets and the three engendering gender approaches of the gender just energy policy framework were used. The three gender approaches included in the gender just energy policy framework have their own vocabulary, as reflected in the choice of target groups of policy interventions.

Out of the first coding round, a set of 7 elements were defined as presented in Figure 4.1. Analysing the national energy transition policies by using the gender just energy policy framework resulted in seven elements: energy users, energy poverty, energy consumption, energy production, energy governance, energy participation and energy rights. Each of these elements are defined by multiple criteria based on the review of relevant literature as elaborated in the next section. The criteria are based on two main characteristics: being practically applicable in different political contexts, and being functional in the policy cycle and across all engendering policy approaches. Further, the criteria need to reflect that the gender just energy policy framework accounts for the multi-layer, multi-disciplinary and multi-actor complexity of energy transitions. This multi-faceted analytical function of the framework deepens the insights on how to engender energy transitions. A second coding round of the same NECP data set used the 12 criteria as codes to verify the applicability of the gender just energy policy framework.

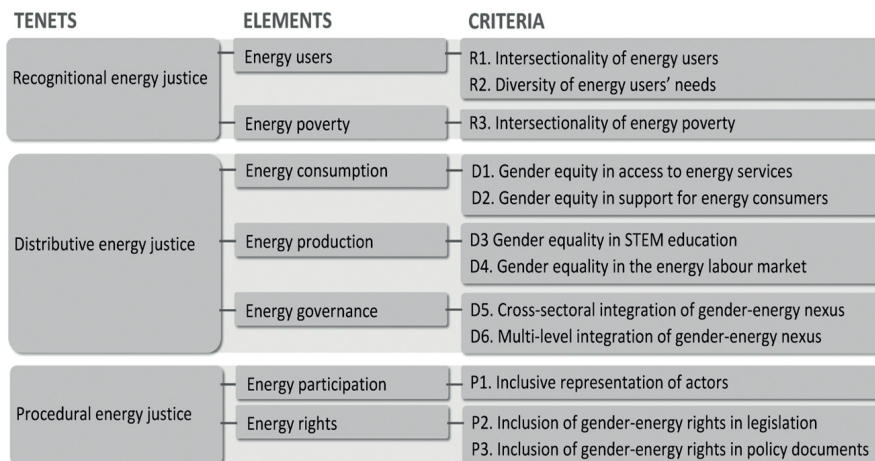


Figure 4.1: The elements and criteria of the gender just energy policy framework

4.4 RESULTS

This section presents the analysis of the energy transition policies of Bulgaria, France, Netherlands, Spain and Sweden using the elements and criteria that are defined based on the gender just energy policy framework. We present the findings in three sub-sections according to the energy justice tenets, each presenting the results of the policy analysis for the corresponding elements.

4.4.1 Recognitional energy justice: intersectionality of users and energy poverty dimensions

When designing energy policies, policymakers recognise households as the end-users in the energy chain. Energy transition calls for a better understanding of consumers' energy use and their energy needs at household level (Bouzarovski 2017). Since energy poverty primarily takes place in the 'home' – one of the most gendered spaces of society – addressing inequalities at this level is critical for a gender-just energy transition.

Energy users: Understanding, recognising and targeting the needs of energy users is the core of recognitional justice. Therefore, the analytical framework starts with this microlevel in which the energy user is the main policy target. Therefore, the understanding of a household should go beyond 'a homogeneous entity' by following an intersectional approach that recognises social relations and identities, such as gender, age, class, ethnicity, socio-economic status, marital status and sexual preference. Failing to recognise this complexity may lead to a limited recognition of the differential causes of energy poverty for different people (Day et al. 2016). Gender-just approaches are thus necessary to ensure the access to clean and affordable energy through targeted and contextualized forms of action rather than generic policy instruments. We identify two elements that resonate with the gender just energy policy framework: energy users and energy poverty using an intersectional lens. Intersectionality acknowledges that differences in age, education, nationality, ethnicity, race, disabilities, social class, religion and marital status, equally influence the access of women and men to resources, their needs, interests and rights (Crenshaw 1991; de Chavez 2019; Osunmuyiwa and Ahlborg 2019).

Energy poverty: Looking at energy poverty in Europe through an intersectional lens, it can be argued that due to their lower average income, women are at a greater risk of energy poverty than men. Energy poverty is caused by many factors, such as household income, household composition, energy prices and energy efficiency of dwellings, and is linked to multiple policy issues, such as urban planning, social protection, and decarbonisation (Cauvain and Bouzarovski 2016; Trinomics 2016; Clancy et al. 2017; Meyer et al. 2018). Energy poverty has a strong gender face. As demonstrated by EIGE (2020), due to the gender pay gap, women are at a higher risk of poverty than men, and combined with the demographic gender gap, women live longer in poverty than men. In the EU, this gender dimension of poverty implies that more women than men are living in energy poverty (Clancy et al. 2017). Gender and energy poverty can be analysed from three interlinked perspectives that are either causal or consequential:

- Economic perspective: e.g., women with low incomes are disproportionately found as heads of households either as single parent families or, due to their greater longevity than men, living alone at pensionable age;
- Biological/physiological perspective: e.g., age is a significant factor in dealing with heat and cold stress, with young children and older people being particularly vulnerable. Women are also considered to be more sensitive to ambient temperature than men;
- Socio-cultural perspective: women's energy needs and consumption patterns differ compare to men but also among women, factors like marital status and employment influence energy consumption.

Policy choices of the Bulgarian government reflects the combined recognition of the intersectionality of energy users and their needs. The Bulgarian NECP outlines that the national government has created an intersectional system of energy subsidies to support vulnerable consumers in covering their energy costs during the winter months, i.e., the heating season (NECP Bulgaria). Their classification of vulnerable consumers is the same as for those citizens eligible for social welfare. The energy subsidies are designed for different categories depending on multiple intersectional factors, such as income, age, household composition and reduced ability to work. The heating allowance also gives the option to select the type of fuel between solid fuel, electricity, gas or heat. Thus, the Bulgarian NECP acknowledges the diversity in energy needs of consumers to choose the fuel that is accessible, affordable and preferable.

Reporting on energy poverty became an obligatory section in the NECP format provided by the European Commission after the first round of revisions of the draft NECPs in which many EU Member States did not report or reflect on energy poverty, like in our case studies Bulgaria, the Netherlands and Sweden (European Commission 2019b). In the final versions all EU Member States included a section on energy poverty but the length and the depth of reflection and reporting is highly diverse. The shortest section in our analysis is that of Sweden which is quoted here in full: 'Sweden makes no distinction between energy poverty and poverty in general. As a result, the term energy poverty is not used, and there are no targeted policies to deal with it. The issue is addressed within social policy.' (NECP Sweden, p. 38). This quote very well demonstrates that countries with a long legacy as a welfare state are slow in recognizing energy poverty as a concern for a just energy transition (Middlemiss et al. 2020b). Those countries that do address energy poverty in their NECPs address it both as an economic and a socio-cultural phenomenon caused by inequalities in society. France and Spain explicitly link living in energy poor conditions with health. In Spain the health benefits of climate and

energy measures to individuals laid down in the NECP estimates a decrease of around 2.400 premature deaths by 2030 as a result of the air quality improvement (NECP Spain). The National Strategy against Energy Poverty was approved on 5 April 2019 and forms one of the pillars of the Spanish NECP with a strong gender focus acknowledging the intersectionality of energy users and the diversity of their needs (NECP Spain).

4.4.2 Distributive energy justice: consumption, production and governance

Distributive justice is the second tenet of energy justice that is included within the gender just energy policy framework. From a policy level perspective, the distributive energy justice moves from the micro-level of the private sphere of individuals and households (consumption) via the meso-level of interaction between organisations and individuals (production) to the macro-level of relations between the state, organisations and individuals (governance). We identify three areas in which a distributive energy justice perspective addresses inequalities and inequities in energy transitions: energy consumption, energy production and energy governance.

Energy consumption: The distributive energy justice through a gender lens can identify unequal energy access of women and men (Muniruzzaman and Day 2020), which is the energy consumption element of the gender just energy policy framework. Energy transition policy promotes the uptake of energy efficient technologies by providing subsidies for homeowners (Gillard et al. 2017). Research on energy efficiency programmes shows that women lack control and ownership of the technology implemented, although it demands financial resources from both women and men (Standal 2018; Standal et al. 2019; Winther et al. 2018). Switching from fossil fuels to renewables or cleaner energy sources is also stimulated in energy transition policy. However, the use of firewood is still widespread in Europe as it offers the most affordable option for many households suffering from energy poverty, despite the negative health impacts from using firewood. Distributive energy justice is in jeopardy when not all energy services are available for consumers at an affordable price.

The two criteria for assessing energy consumption are gender equity in access to energy services and gender equity in support for energy consumers. Gender equity in energy consumption is challenged in Europe through unequal access to energy services as the phenomenon of energy poverty demonstrates (Clancy et al. 2017). The causes of this unequal access are a complex interplay between contextual and socio-demographic factors (Meyer et al. 2018). For instance, the high urbanization rate in Bulgaria, combined with the legacy of energy inefficient housing stock and the wide use in cities of district central heating systems using gas, means that access to sustainable, affordable and clean energy for all remains a

policy concern as reflected in the NECP of Bulgaria. Energy efficiency of residential buildings are a concern for all governments as reflected in the analysed NECPs. The French and Dutch governments acknowledge the correlation between socio-economic vulnerability and deprived living conditions, such as energy inefficient housing and dependency of landlords to invest in retrofitting (NECP France; NECP Netherlands). According to their NECPs, both governments plan to implement a variety of policy measures to improve the energy performance of existing buildings, such as financial support for renovations through tax benefits, grants for low-income households and zero-rate loans.

Several policy instruments are implemented to foster gender equity in access to energy services. To analyse these policy instruments, we apply the criterion of gender equity in support for energy consumers. The Swedish government aims to protect energy consumers by facilitating them in more actively choosing energy suppliers and increase transparency in billing by giving suppliers the authority to bill both consumption and grid costs (NECP Sweden). The French NECP specifically mentions the benefits of the installation of smart meters for monitoring gas and electricity consumption for both energy consumers and producers. Consumers benefit from insights in their energy consumption and bills based on actual rather than estimated data and easier switching contract or supplier. Suppliers could prioritize renovations in the highest-consuming buildings or neighbourhoods or diversify their tariffs based on actual consumption patterns (NECP France). When these data are disaggregated, consumer support could be tailored to the needs of different customers. The liberalisation of the electricity market in Bulgaria initiated policy measures to ensure adequate protection to vulnerable household consumers to exposure of price volatility. This protection mechanism guarantees full year cover of minimum electricity needs for identified vulnerable consumers (NECP Bulgaria).

Energy production: For analysing the energy production element of the gender just energy policy framework, we focus on the distribution of gender equality in the energy sector. Two interlinked criteria are defined to assess this element: gender equality in Science, Technology, Engineering and Mathematics (STEM) education and gender equality in the energy labour market. Energy production is addressed in the gender just energy policy framework through the gender equality in the labour market of the energy sector and in STEM education. The energy sector is as a producer responsible for the supply, distribution and maintenance of energy services. One reason for the unjust distribution of jobs in the energy sector is the difference in enrolment of male and female students in STEM subjects. Promoting STEM programmes to girls at schools and creating support networks for female STEM students are policy measures that can stimulate more women to study STEM and to enrol in STEM industries, such as energy and mining (Clancy and Feenstra 2019; IEA 2019; IRENA 2019). Bulgaria has strong legislation removing all

discrimination to enter the workforce and to enable all citizens to pursue the career that fits their abilities (see chapter 5). This enabling legislation makes Bulgaria one of the European countries with the highest number of women working in STEM (52%) compared to the average of 11% in the rest of the EU (Eurostat 2020). The Spanish government promises a strong commitment to equity and solidarity, as expressed in the introduction of their NECP. However, when the Spanish NECP does mention gender explicitly, it is only in reference to employment and the underrepresentation of women in the energy labour market (NECP Spain). Through promoting education in STEM for female students and stimulating equal conditions for women in the renewable energy sector, the Spanish government anticipates that the percentage of women employed in the renewable energy sector will increase. The same ambition to support gender equality in STEM education as a strategy to stimulate more women to enrol in the energy labour market is identified in the other four NECPs.

The European Parliament adopted a resolution recognizing gender equality as a key component in a sustainable economy (European Commission 2010). However, the distribution of positions with policy influence and decision-making power shows a persistent gender gap with men dominating the boardrooms and overall participation in the energy sector (Clancy and Feenstra 2019; IRENA 2019). Women's involvement in the energy sector is limited by cultural obstacles, such as traditional childcare roles that put the burden mostly on women, as well as legal obstacles for mothers to combine childcare with building a career (Clancy and Feenstra 2019). A study by IRENA (2019), reveals that the employment of women in the energy sector depends on the sort of energy produced, with women having a preference for the renewable energy industry. In that perspective, the French energy production is dominated by nuclear energy 48% (compared to 18% renewable energy production (NECP France)) where women are more reluctant to work for than men (IRENA 2019). An extension of the renewable energy sector might open new opportunities for more women to work in the energy sector since a variety of skills, like marketing and communication, are demanded in addition to STEM educated employees (IRENA 2019; Ryan 2014). In the European energy renewable energy sector, women represent approximately 35% of the total workforce (Clancy and Feenstra 2019).

The third element of distributive justice in the gender just energy policy framework is energy governance. The question of how power is attributed and manifested in decision-making is an energy governance issue identifying distributional injustices (McCauley et al. 2013). Spatial inequalities were operating throughout the energy system, causing a geographical spread of energy injustice (Bouzarovski and Simcock 2017). Spatial justice occurs when geographical location is no factor to benefit from or be eligible for policy support. We define two criteria regarding the distribution of energy governance: multi-level integration of the gender-energy

nexus between the different governance levels and the cross-sectoral integration of gender-energy nexus between the different policy domains.

Energy governance: Another key element of the energy system is energy governance. The multi-level Dutch policy landscape with a high decentralization of mandate for policy implementation to regional and local authorities demonstrates the challenge of distribution of power to ensure energy justice (Dijkhof 2014; Middlemiss et al. 2020b). At the local level, municipalities are accorded with executive and decision-making power in the implementation of the energy transition while at the same time under the so-called 'Participation Law' they have been given extensive responsibilities for decentralized social service provision, including expectations of tailoring policy solutions to households' needs (NECP Netherlands). The involvement of both municipalities and provinces in mitigating energy poverty is contrasted by the absence of a national policy on energy poverty (Middlemiss et al. 2020b). This Dutch example demonstrates that decentralizing energy transition benefits of tailoring to local needs and circumstances. It could on the contrary also contribute to spatial injustice, due to the varying capacities of different municipalities (Rasch and Köhne 2017).

Spatial injustice is partly caused by multi-level governance (Bouzarovski and Simcock 2019; Bouzarovski and Tirado Herrero 2019). As the Dutch and the Spanish cases demonstrate, the high level of decentralisation and autonomy of regions to implement energy transition and to develop policy interventions create a pluriform policy landscape in which residency determines whether citizens are supported to participate in the energy transition. The Spanish government accompanies their NECP (2020) with a Just Transition Strategy based on the criteria of equity and solidarity. The Just Transition Strategy addresses spatial injustice that could occur when implementing the transitions of the NECP (NECP Spain). The Spanish governance model implies a distribution of powers stressing the coordination between the General State Administration and autonomous communities. The high level of decentralisation in Spain made it necessary to coordinate with the autonomous regions through the Climate Change Policy Coordination Commission in order to identify the interlinkages of the NECP with regional policies. The Swedish government uses the regional energy management agencies and municipalities to support local initiatives that are contributing towards the effort to meet Sweden's national climate goals, also identifying them as major employers at the local level (NECP Sweden).

To ensure a gender just energy policy in European countries, cross-sectoral collaboration between disciplines and different sectors is considered to break the silos in energy policy-making and governance (Clancy et al. 2017). Spain reacts to this challenge of breaking the silos through creating an Inter-ministerial Commission on Climate Change and Energy Transition that ensures the involvement

of the different ministries in Spain (NECP Spain). Bulgaria has created institutional collaboration between the three ministries responsible for protecting vulnerable consumers. The Ministry of Labour and Social Policy cooperates with the Energy and Water Regulation Commission and the Ministry of Energy (NECP Bulgaria). The development of energy poverty eradication policies in Europe is only possible when social welfare policies and energy transition policies are both tackling energy poverty. Too often energy poverty is seen as a poverty issue that should be dealt with under social welfare policies. This is the leading argumentation of The Netherlands and Sweden, both countries with a long track record in social welfare. Cross-sectoral collaboration is limited to urban planning and housing departments without mentioning the social welfare departments (NECP Sweden, NECP Netherlands). However, when social welfare policies are created to reduce social inequalities, an energy transition that is not just will cause the Matthew effect (Merton 1968), based on the biblical verse of Matthew in which the poor are getting poorer, the rich are getting richer, which refers to this effect of cumulating advantages. To prevent such an effect, coordination across policy sectors is a crucial criterion of a gender just energy transition.

4.4.3 Procedural justice: participation and rights

Sovacool et al. (2016) apply the lens of procedural theories of justice to analyse governance and decision-making processes in energy transition research. From procedural justice we draw on McCauley et al. (2013) and emphasise three key elements: who is recognised as an actor, who gets to participate in decision-making processes and how is power distributed and manifested in decision-making arenas. As Jenkins et al. (2016) interpreted procedural justice, the evaluative question is asked whether there is a fair policy process in which actors can equally participate. The procedural justice resonates with the governance structure within a country and the legal frameworks and institutions enforcing and implementing the right of energy users. Using the gender just energy policy framework, the elements of procedural energy justice are identified as energy participation (the involvement of actors in decision-making processes) and energy rights (and their reflection and enforcement in the legislation and policy documents).

Energy participation: The goal of the energy transition is set within a larger shift in energy systems, from a regulative government (tariffs, regulation) to a facilitating government (subsidies, stakeholder participation), a shift that in many countries has been in process. In this context new actors enter the energy market, pushing the government into the role of broker between the energy sector and consumers. Energy projects are increasingly characterised as public-private-partnerships involving companies, governments and the civil society. This creates a shift in energy systems for governments from acting as public service providers in pre-liberalized areas to governments becoming facilitators of the energy transition

and the various partnerships. Such a shift challenges procedural justice in the energy sector, as the governance landscape becomes more fragmented with new actors emerging, especially when they operate with a decentralised structure (Jenkins et al. 2016). The possibility for procedural justice in the governance of energy transition relies on the governance structure within a country being open to collaborative working strengthened by legislation and institutions enforcing and implementing such processes. Furthermore, the existence of a well-organized and collaborative civil society together with space for stakeholder participation in the energy system relies on recognition of the needs and rights of actors within that system (Lennon et al. 2020).

Inclusive representation of actors would give both women and men from different social-economic background equal opportunities to be involved in decision-making procedures to create and implement energy policy (Søraa et al. 2020). The European Commission instructed to specifically report in the NECPs of the consultations and involvement of national stakeholders in the drafting of the national NECPs. All five analysed NECPs report on this consultation with a wide representation of the actors involved in the energy system. For consultation purposes, all NECPs were written in their own language and later translated in English. This was explicitly mentioned in the feedback the Swedish government received after using a draft English version in their first consultation round that inclusive representation would be hindered if not using the native language (NECP Sweden). It can be observed that the national governments mainly consulted organisations representing decentralised governments and labour market representatives. The labour market focus can be explained through the authorship of the NECPs, mainly Ministries also responsible for economic affairs. Their network exists of representatives of employers and employees like trade unions and sector organisations.

The Dutch 'poldermodel' is a stakeholder participation model, consulting major stakeholders when a new policy or agreement is designed (Van Veelen and Van der Horst 2018). The energy sector is no exception to this political tradition (Rasch and Köhne 2017). The Dutch NECP is based on the Energy Agreement of 2013 and the Climate Agreement of 2019. Both agreements were established by consultation of stakeholders, including government (national, provincial, regional and local level), employers, trade unions, environmental organisations, financial institutions and social organisations, but no women's organisations, such as the Dutch Women's Board (de Nederlandse Vrouwenraad), were involved (NECP Netherlands). France and Sweden also organised several consultations rounds with also the possibility for a public consultation online (NECP France, NECP Sweden). In the case of Spain, the public consultation on the NECP resulted in almost 1200 comments and was complemented with a series of participatory meetings, where social organisations were among the invitees (NECP Spain).

There is a division in the society between support for climate actions, such as multiple climate marches pushing for ambitious climate policy, and protests on the other side warning for rising energy costs and opposition to wind farms or solar panel fields (Martiskainen et al. 2020). The Dutch government acknowledges in their NECP that participation and acceptance is vital for the spatial integration and exploitation of energy projects. In order to facilitate the participation of stakeholders, guidelines are developed and included in implementation agreements. The Dutch government aims to disconnect residential areas from the natural gas distribution network in order to promote more sustainable household energy sources (NECP Netherlands). The programme includes an extensive participatory element in which the suitable form of participation – information provision, allowing citizens to have a say, consultation or coproduction – responds to the socio-cultural profiles of districts. In close collaboration with municipalities, provinces and the water boards, the participation principles are developed and assessed. However, social inclusion and vulnerable energy consumers are not addressed within the programme and their representatives in NGOs and communities were not involved in designing and implementing the participation principles. Furthermore, there are ample provisions in the participation guidelines for diversity and ensuring social inclusion. Hence, as long as there is no monitoring and enforcement mechanism, participation remains as a policy intention.

Energy rights: Setting appropriate ambitions for the realization of a just transition in Europe should include national goals for equitable and affordable access to the energy services to guarantee basic living standards (Bouzarovski and Petrova 2015; EU Electricity Directive 2019/944). Access to clean and affordable energy services is also increasingly recognised as a human rights issue, for example through the EU Pillar of Social Rights, or in relation to the interpretation of the right to adequate housing protected by several international conventions that the EU Member States are a party to, such as the SEforALL and SDGs, the Clean Energy for All Europeans and the EU Covenant of Mayors for Climate and Energy. The right to energy as such is distinctive from the human right of access to energy services because the right-approach empowers individuals as consumers and support their entitlement to uninterrupted energy supply to all eligible without discrimination (Tully 2006). Enforcement of the right to energy and monitoring the reflection of international human rights conventions in national legislation is a responsibility for national governments as legislators.

In contrast with international conventions, gender or intersectionality appears rarely in national energy legislation. For many governments being party to international conventions and having gender equality embedded in the national constitution is sufficient. However, to protect consumers rights legislation is adopted in the energy sector. For instance, the Swedish Energy Agency is the supervisory authority on

behalf of the energy sector of the Information Security Act to secure privacy of energy users and their energy consumption data (NECP Sweden). But there is no specific mentioning of vulnerable consumers with less access to information and how to protect their rights. Even when the right to energy is mentioned, it is often linked to energy poverty mitigation policies in the NECPs.

The Swedish coalition government of ministers from the Social Democratic Party and the Green Party stated in their NECP that their ambition is to become the world's first fossil fuel-free welfare state, investing in off-grid renewable energy sources, hydropower and nuclear energy (NECP Sweden). In June 2017, the climate policy framework including the Climate Act and the instalment of the Climate Policy Council was adopted with a broad majority in Swedish Parliament. The NECP of Sweden has a specific section on gender mainstreaming mentioning that 'women are under-represented in positions of authority and sometimes lack the conditions or opportunities to influence climate-related policy, planning and implementation.' (NECP Sweden, p. 72). The Swedish government emphasises that they have a 'feminist foreign policy which means that it always adopts a gender equality approach to its international relations' (NECP Sweden, p.73). However, the Swedish NECP can be considered rather gender-blind and there is in the gender mainstreaming section only the vague ambition that the Swedish government intends to embed gender equality in their national climate policy.

4.5 CONCLUSIONS AND POLICY IMPLICATIONS

The quest for just transitions creates opportunities to address gender injustices in the energy sector. Limited awareness and knowledge of injustices contribute to gender-blind energy policies leaving social inequalities untouched and injustices unchallenged. Within the literature on energy transition, gender has been a core concept for the analysis of social inequalities and injustices regarding the design, implementation and evaluation of energy policies. However, gender analyses, which create a deeper understanding of societal challenges and reveal inequalities and injustices, are still lacking. In this chapter we further developed and applied the gender just energy policy framework to analyse the national energy transition policies of Bulgaria, France, the Netherlands, Spain and Sweden. We identified seven elements that contribute to a gender just energy policy and defined multiple gender-sensitive criteria that guide the analysis of the energy transition policy choices of the five selected countries as reflected in their NECPs.

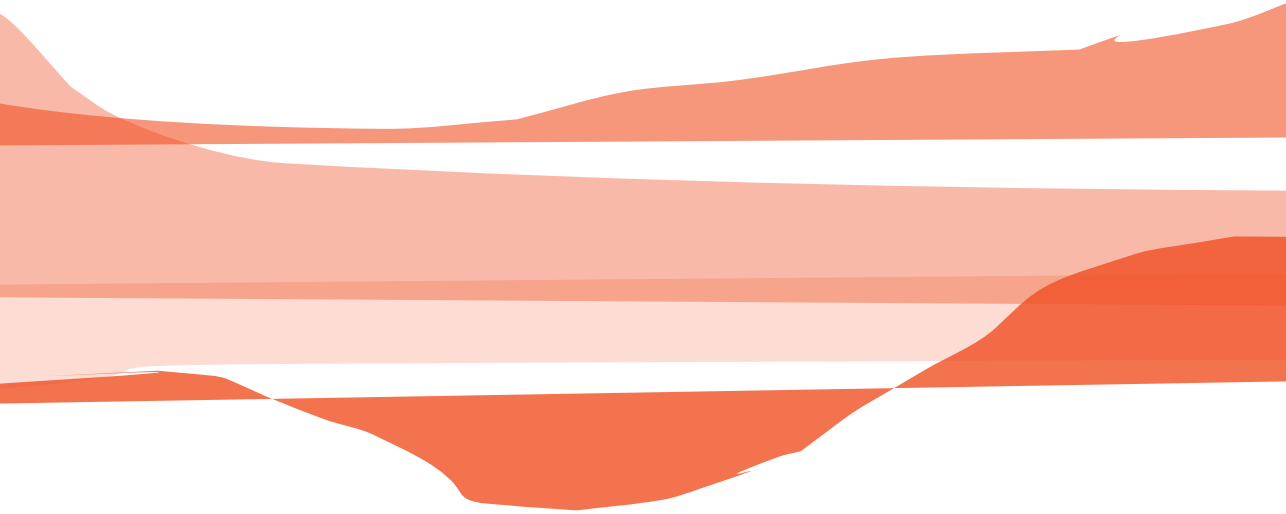
We are critical that the analysed NECPs hardly use gender-disaggregated data or refer specifically to engendering policy approaches, i.e., women empowerment, gender mainstreaming and social inclusion. If we had to identify the engendering energy policy approach that the majority of the NECPs adhere to, it would have

been the social inclusion approach. This does not come as a surprise, since social inclusion is one of the main pillars of the EU policy on sustainable growth together with decarbonisation and innovation (European Commission 2010). Nevertheless, the specific mentioning of social inclusion is only sparsely found in the five NECPs, and 'gender' and 'women' are not mentioned in the NECPs, except for the NECP of Sweden. Without using the gender just energy policy framework, the opportunities towards a just energy transition that includes gender approaches in the NECPs would have been difficult to identify, since 'women', 'gender' or 'social inclusion' are often not specifically mentioned in energy policy documents. At the same time, there are opportunities for gender justice within the existing policy choices in energy transition. By taking a holistic approach over all three energy justice tenets using the three gender approaches, we identified the opportunities for policy choices towards a gender just energy policy.

To date there have been limited attempts to examine the relationships between energy justice, energy poverty and gender equality. The majority of research on this topic focuses on monitoring the distribution of access (distributive justice) and understanding how that affects different people in different places (recognitional justice) with little insights on the representation of vulnerable energy users in policy processes and the reflection of their rights in legislation and their needs in policy documents (procedural justice). It can be concluded that energy poverty is an existing problem in the EU and is becoming a concern for policy makers as reflected in the mandatory addressing of energy poverty in the NECPs. A growing awareness is available on the social dimension of energy poverty, but insights on the gender dimension, whether they are economic, biological/physiological or socio-cultural, is overlooked by decision-makers. The unfamiliarity with gender and energy poverty is partly caused by the lack of gender-disaggregated data that move beyond the household as an entity of analysis. The emphasis of the EU policy on vulnerable consumers is paving the way for an increased awareness of gendered energy consumption. The aim of the EU to tackle climate change and promote energy transition resonates with the SDGs and their mutually reinforcing effects. An energy policy design that is socially-inclusive, and hence more gender-sensitive, is essential. The attempts of EU Member States to draft energy poverty eradication policies is a promising development towards relieving the struggle of many Europeans to afford the energy they need. This chapter contributes to understanding gender inequalities and reveal inequities as a result of unjust gender-blind policy choices. We provided insights into policy perspectives that address gender inequalities and contribute to overcoming inequalities in energy access in the context of the EU.

Three future research directions can be discerned to build on the methodology and results presented in this chapter. Firstly, applying the gender just energy policy framework by elaborating indicators for each criterion and using other types of

data collection methods would contribute to a more comprehensive assessment of energy policies. The second future research direction includes cross-sectoral policy analyses, which would bring together the evidence from not only gender policy and energy policy, but also other relevant sectors, such as urban planning, housing, health and social welfare. Finally, the use of the gender just energy policy framework for decision-making and policy analysis in other regions than the EU, particularly in the Global South, would strengthen the applicability of the framework in diverse contexts.



5

The energy transition targeting women: a historical perspective from France and the Netherlands

This chapter is based on the peer-reviewed publications: Feenstra, M. and R. Guyet (accepted, in publication 2021). The uptake of new domestic energy technologies in the 1950s and 1960s: how France and the Netherlands involved women. In: *Home and Hearth: Gender and Energies within the Domestic Space, 19th–21st Centuries*, special issue of the Journal of Energy Histories

Feenstra, M. and F. Hanke (accepted, in publication 2021). Creating an enabling policy framework for inclusive energy communities: a gender perspective. In: *Renewable energy communities in the face of low carbon energy transition in Europe. Lessons on the role of citizen and renewable energy communities' empowerment in the light of the revised EU Renewables Directive*. Frans Coenen and Thomas Hoppe (eds). Palgrave, Macmillan

ABSTRACT

Access to clean and affordable energy services and technologies is a global concern as stated in global conventions and goals. Different energy needs and interests are identified between men and women. In the search for a just energy transition, the question emerges how to design an energy policy that reflects and needs of energy users. This chapter aims to create insights based on a comparative gender analysis of household energy technology uptake in France and the Netherlands in the 1950s and 1960s when the households took up new electrical appliances in their homes. The analysis of this period in France and in the Netherlands shows that women were chosen as the target group in order to make the households' uptake of new technologies and uses successful. Lessons can be learnt from the history of electrification of households' demand in the Netherlands and France that put women at the centre of energy technology adoption in households, given that the uptake of the new technologies and behaviour change required by the current energy transition targets households as homogenous entities.

5.1 INTRODUCING THE GENDER AND ENERGY NEXUS

Globally, 1 out of 10 people do not have access to electricity and cannot light their homes, store their food in refrigerators or wash their cloths in washing machines. In 2010, the SEforALL initiative has been launched, calling for global commitment and action and aiming to achieve three goals by 2030: 1) ensuring universal access to modern energy services, 2) doubling the rate of improvement in energy efficiency and 3) doubling the share of renewable energy in the global energy mix (AGECC 2010). At the same time, the SEforALL comes with the challenge to make access to sustainable energy universal, for all men and women, in the Global South as well in the Global North. With the global commitment made in 2015 for the SDGs, access to sustainable energy for all has become the challenge for energy policy-makers world-wide.

Current gender-energy nexus research is rooted in development studies with empirical data mainly from the Global South. The clean cooking debate is an example of this type of research in a Global South context. However, this chapter focuses on women's role in electrification and uptake of new energy household technology in the Global North. Post-world war, electrification of the home was a promise to relieve women's burden in their everyday life referring to the same arguments as those framing the clean cooking debate in the Global South today. Gender approaches are developed and applied to analyse unequal access to energy and to reveal injustices in energy policy and programmes. However, injustice and inequality in energy access between women and men are not limited to the Global South. Women in Europe also face issues of energy access through the increase in energy poverty affecting around 83 million people in 2018 (EPOV 2020). Energy poverty is the lack of adequate warmth, cooling, lighting and the energy to power appliances as essential services needed to guarantee a decent standard of living and citizens' health (EPOV 2020).

The scientific literature that centres at the household level has provided a strong evidence on the relationship between energy poverty in the household and women's health burdens, use of time, education, access to information, and other factors (see for example review by Winther et al. 2017). A report prepared for the European Parliament in 2017 shows that energy poverty is experienced differently between men and women mainly because of the particular energy needs of women (Clancy et al. 2017). Lower income, physiological characteristics and socio-cultural dimensions influence the gender-energy nexus in Europe as explained in chapter 3 of this thesis. This leads us to discuss if women's energy needs are recognised in the European energy transition and if their right to energy is embedded in the objective to leave no one behind as expressed in the EU Green Deal (European Commission 2019).

Considering free market economy and non-discrimination law, policymakers make the assumption that industrial countries have gender-neutral energy policies. In the definition of Khamati-Njenga and Clancy (2002), a gender-neutral energy policy is based on the assumption that a good policy, programme or project will benefit women and men equally in meeting their practical needs. However, the few scientific publications on gender and energy policy in the North conclude the opposite (Clancy and Röhr 2003; Clancy et al. 2017; Fraune 2016; Wiliarty 2011). As Fraune (2016) points out, women and men reveal different preferences for energy policy options, especially when it comes to energy transition and the adoption of renewable energy. Furthermore, energy consumption is not gender-neutral (Clancy and Röhr 2003; Rätty and Carlsson-Kanyamaa 2010; Beltran 2018). Purchasing power, preferences, needs and everyday practices and routines are shaped by and shaping norms of social institutions (Fraune 2016; Beltran 2018).

5.2 GENDER-ENERGY NEXUS IN FRANCE AND THE NETHERLANDS

This chapter aims to create insights on the role of women in energy transitions based on a comparative historical analysis of household energy after WWII in France and the Netherlands through a gender analytical lens. Energy transition means in reality that a new energy source is introduced in society often complementary to already existing energy sources (Beltran 2018). Both countries went through a shift in energy policy during the oil crises to become more self-sufficient as nations and less depending on import of their energy sources. This resulted in strengthening the national energy production; the development of nuclear energy in France and the mining of natural gas in the Netherlands. National energy companies started promoting national energy sources for both commercial and household use to secure sufficient demand and to boost the economic recovery post WWII. When electricity was first deployed in France after the war, *Électricité de France* (EDF) sent female energy advisors to the households to stimulate the proper use of electric appliances addressing mainly women's needs. The Netherlands used a similar approach to promote the uptake of new energy technologies in households to secure domestic energy demand. Companies like Philips used their marketing of household appliances to stimulate access to electricity and the use of natural gas for heating and cooking. Marketing of these companies considered women as the main target group recognizing their role as the main users of household energy.

We identify from this historical comparison similarities with the current debate on energy transition in which communication is an important intervention to stimulate consumers for the uptake of energy efficiency measurements. In energy history, consumers are less studied than energy consumption, while differences of consumption patterns between consumers can be identified (Bouvrier 2018). Our

gender analysis of the current interventions of energy transition shows a strong emphasis on households as a homogeneous entity, not reflecting the reality of a more fluid and diverse system (Clancy et al. 2017). In both countries, single female-headed-households are increasing due to demographic aging and they have needs and energy consumption patterns that are not considered within the policies. As a consequence, energy transition policies may miss their targets in the end.

We aim not only to analyse, but also contribute to the current debate on energy transition globally. Do the lessons learned in the long energy history of France and The Netherlands provide policy recommendations for the uptake of new technologies? Gender inequality, social injustice and unequal access to energy are global concerns embedded in the SDGs that call for action at the national level. The approaches for promoting energy technology applied historically in the Global North are still widespread in the Global South: the combination of tariffs, marketing and education/training. Stimulating more energy efficient energy sources, will benefit especially the women who are traditionally responsible for household energy. However, traditional policy assumptions that switching to clean and efficient energy sources will save women time and contribute to their empowerment is contested, leaving the question of freedom of choice by women for energy sources. In reality, different energy sources are used in households simultaneously and energy transitions are not linear processes in which a new energy source fully replaces the old one (Beltran 2018; Bouvier 2018).

We argue that lessons can be learnt from the history of electrification in the Netherlands and France that put women at the centre of energy technology adoption in households, while the uptake of the new technologies and behaviour change required by the current energy transition targets households as homogenous entities. At the time of electrification in France the energy supplier put in place an organisation based on housewives' councillors who were able to address the concerns of women. In the Netherlands, housekeeping schools and information campaigns for new household technology targeted women specifically. We see that addressing women as the main household energy user is missing in the current changes in the energy system which tends to overlook women as key domestic stakeholders of the current energy transition. In our analysis of the post-WWII uptake of new energy sources in France and the Netherlands, we see parallels in the gender-energy nexus literature in which electrification programmes are researched in the Global South. We find conceptual anchors in the gender-energy nexus literature to develop our gender analysis for a historical comparison. We argue that the current challenge of how to increase the participation of households in the energy transition towards decarbonisation can be enhanced through the lessons learned in the previous energy transition towards electrification.

The remainder of this chapter is divided into three parts: the first theoretical part introduces gender analysis of energy policy by describing the needs- and rights-based approaches. The second comparative historical part is dedicated to a gender analysis of the historical uptake of new energy technologies in both France and the Netherlands. Two interviews were conducted with a key respondent in both countries to verify our findings from the literature review. Finally, we conclude on the lessons we can learn from both European countries to compare with the specificities of the gender roles in energy transition and when new energy programs are developed.

5.3 THE NEEDS AND RIGHTS OF FEMALE ENERGY USERS

In the search for a just-energy transition, the question emerges how to design an energy policy that reflects the rights and needs of energy users. Energy technology innovations, such as renewable energy sources and reducing energy consumption, are core aspects of this aim of universal access to sustainable energy. Increasing awareness on the lack of access to sustainable and affordable energy services in the European Union, is reflected in the Right to Clean Energy for all Europeans in the EU Electricity Directive 2019/944 of 14 June 2019. The rights and needs of vulnerable energy consumers are gaining attention from policy makers at all levels within the EU, as demonstrated in Chapters 3 and 4 of this thesis. On the policy level, there has been an emerging focus on engaging consumers to foster sustainable energy consumption and to empower people to become managers of their energy needs (Standal et al. 2019). However, energy policy discourses often lack a clear notion of who the energy consumers are and as a result they fail to recognize gender specific needs. Analyses of energy policies through a gender lens indicate a gender gap in energy access (Clancy et al. 2017; Clancy and Feenstra 2019). Women are over-represented among the 'energy poor', those energy consumers that lack sufficient access to energy sources to use the energy they need for heating, cooling, cooking and using appliances. This is mainly caused by the income gap between women and men, women being over-represented in single-parent households and the demographic gender gap that puts more women at risk of poverty than men and for a longer lifetime (EIGE 2017).

However, very little gender-disaggregated data on energy use is available to inform policymaking and track progress of implementation of interventions (Clancy et al. 2017). A policy, programme or project failing to recognise that the needs of men and women are different, can be considered gender-blind (Khamati-Njenga and Clancy 2002). The gender-blindness of energy policy is also manifested within its strong emphasis on households as a homogeneous entity, reflecting neither the reality of more fluid and diverse systems nor the complexity of intra-household gender relations. A gender approach in energy policy will contribute to meeting

the needs, acknowledging the rights of all energy consumers and bridging the gender gap in energy access. The question remains how to design such a policy that recognizes both women's and men's needs for and rights to energy services.

This section dives deeper into using gender analysis to include gender in energy transition. Based on the historical development of gender analysis of energy programmes and policies, we identify women's role in the energy transition and how gender rights and needs to energy access are addressed by actors involved in the energy sector. Two gender-analytical frameworks are instrumental to understand the gender-energy nexus: the needs-based approach and the rights-based approach. Both approaches address social justice in energy policy, by creating awareness on the different energy needs of women and men and the rights that entitle them to equal access to energy services.

5.3.1 A needs-based approach

Over the past two decades, extensive research has shown the interdependencies between gender relations and energy policy (Clancy et al. 2012; Köhlin et al. 2011; Ryan 2014). The energy needs and interests of men are often given higher priority in energy policy than those of women (Cecelski 2004; Clancy et al 2002). The needs-based approach is predominantly used in gender and energy research in the Global South but provides equally a conceptual framework to understand energy needs in a Northern context (Cecelski 2004; Clancy et al. 2002; Clancy et al. 2012; Köhlin et al. 2011; Pachuari and Rao 2013; Parikh 1995). Women's needs are categorized in a needs-based approach around their triple role in society: as reproducers and family caregivers, as producers and as community members. This results in three corresponding needs categories: practical needs, productive needs and needs to carry out community tasks. A further specification can be made in interests. These interests can be grouped in practical interests, meeting practical and productive needs, and strategic interests necessary to participate in society (Clancy et al. 2002). Table 5.1 illustrates this categorization of needs and interests with examples of electricity technology uptake from Europe in the 1950s. In needs-based approaches, an energy policy should reflect women's needs in order to enable them to fulfil their reproductive tasks in less labour-intensive and healthier ways (Clancy et al. 2012). It does not challenge the traditional division of tasks between men and women, but recognizes the needs and interests and calls for designing an energy policy that acknowledges the needs and interests.

Table 5.1: Examples of energy projects to address women's needs and interests using the needs-based approach

Energy Form	Women's needs and interests		
	Practical needs	Productive needs	Community tasks
	<i>Practical interests</i>		<i>Strategic interests</i>
Electricity	-Improved comfort and personal hygiene: hot water at home and heating -Domestic burden relief: use of washing machine, vacuum cleaner -Improved working conditions at home: lighting	-Increased possibility of activities during evening hours -Provided refrigeration for food production and sale -Power for specialised enterprises	-Street lights made streets safer allowing participation in other activities (e.g. women's group meetings) -Opening horizons through radio, TV and telephone

Source: based on Clancy et al. (2002) examples own source.

The needs-based approach reflects the complexity of the energy system by focusing on the use and consumption of energy services. As demonstrated in Table 5.1, energy is an essential source for food production, water supply, lighting and housekeeping. With the extension of the electricity grid and the gas connections in France and the Netherlands, women's needs and interests were comparable with the situation in the Global South as mentioned in Table 5.1. Practical interests were served when electricity became more affordable, technological interventions created household appliances and economic welfare provided the financial means to purchase those appliances to ease the burden of everyday time-consuming household tasks, like washing. The extension of the natural gas network provided a cleaner and cheaper energy source for women to cook and heat their homes than the polluting biomass like coal and firewood they used before (Cockburn and Fürst-Dilić 1994). Although women's practical energy needs might be met by the accessibility of energy services, the question is whether the strategic interests of female energy users are recognised in energy policy.

Women are the primary users and managers of energy at home. In countries that use biomass for cooking and heating, women are also the main suppliers of energy services by collecting firewood or dung. Therefore, Makan (1995) argues for an energy policy based on an interactive process directly informed by women and men and their respective needs, interests and knowledge. In current energy policy design, there is little room for interactive processes that can reflect the needs and interests of users (Feenstra 2002; Clancy et al. 2017). Energy policy formulation seems to take place entirely at the national level and in a top-down manner. This is

partly explained by the supply-oriented focus of energy policy until the 1990s. In the aftermath of the global oil crisis the security of energy supply was the main focus of national policymakers. They did not feel the need to consult users, although citizens might have varying preferences about what energy services to use (Feenstra 2002). The needs-based approach lacks the enforcement tools to ensure a policy design that acts upon the identified needs. In search of an approach that can be used to integrate end-users' needs in an energy policy, a shift from needs to rights emerged in gender and energy analytical frameworks.

5.3.2 A rights-based approach

Rights-based approaches emerged in development studies in the 1990s in response to the failure of development assistance to reduce poverty and inequality (Mukhopadhyay and Meer 2008; Boesen and Martin 2010). Although originated in the Global South context, the claims for the right to energy is universal. It resonates with the energy justice framework in which recognitional and procedural justice are two main tenets next to distributive justice (Sovacool and Dworkin 2015). Energy justice was developed in a Global North context in the last decade. Danielsen (2012) developed a gender and rights-based approach applied to energy access as an analytical and strategic framework for researchers and policymakers. This approach recognizes access to energy as a right and acknowledges the institutional barriers women face in realizing energy rights due to unequal gender relations. Mukhopadhyay and Meer (2008) position the approach in the engendering policy discourse of gender mainstreaming, providing a decision-making tool for policymakers to include gender in energy policy design.

Rights-based approaches distinguish right-holders from duty-bearers (Mukhopadhyay and Meer 2008; Boesen and Martin 2010; Danielsen 2012). The state, international community, civil society and the market are identified as duty-bearers. They have the obligations to realize access to energy services for all. Beneficiaries of energy services are transformed into right-holders. This transformation is challenging the position, the relation and the outlook of the duty-bearers to the right-holders (Boesen and Martin 2010). This approach is used to analyse how gender and other social relations influence the realization of people's right to access energy. Institutional barriers to women's access to energy are considered as rights failures. These failures concern the lack of recognition of women's energy needs, knowledge and contribution (i.e., recognition failures) and the unequal distribution of control over energy resources and benefits between women and men (i.e., redistribution failures). Different rights failures can be translated into rights claims at different institutions (Danielsen 2012). Furthermore, rights might be difficult to claim due to a lack of knowledge about these rights with the institutions that need to enforce them.

Rights-based approaches focus on achieving basic entitlement for all. Gender analysis reveals the unequal power relations amongst disadvantaged people and between social groups. The gender and rights-based framework focuses on rights failures, i.e., identifying barriers to realising rights through governance mechanisms at different levels. Danielsen (2012) analysed four decades of gender and energy in development using the gender and rights-based framework. She identified persistent rights failures in the energy system over forty years (1970–2010). Table 5.2 provides a comprehensive overview of fifty-year energy and development work.

Table 5.2: Persistent rights failures in the energy system

Energy and development focus	Rights failures emerging over time				
	1970s	1980s	1990s	2000s	2010s
The crisis of biomass degradation					<ul style="list-style-type: none"> *Lack of recognition of unequal gender relations in the energy system *Gender inequitable access to and control over resources and benefits from energy related development interventions *Lack of recognition of women’s knowledge in energy management *Gender inequitable decision-making at all levels in the energy system and the exclusion of women from energy related decisions that affect their lives
The crisis of women’s time					<ul style="list-style-type: none"> *Lack of recognition of the economic value of women’s work making their labour contribution invisible in the energy system at all levels *Lack of addressing women’s total energy needs for reproductive and productive purposes
Poverty alleviation					<ul style="list-style-type: none"> *Gender disparity in ownership of productive assets required to access and control energy services *Displacement of women’s informal user rights to natural resources *Insufficient legal and regulatory frameworks to promote gender equitable access to energy through the market
Climate change					<ul style="list-style-type: none"> *Gender inequitable access to financial services resulting in unequal access to and benefits from renewable energy
Urbanization					<ul style="list-style-type: none"> * Gender inequitable access to modern energy in poor urban areas

Source: Danielsen (2012)

Although energy needs are different for each individual, many energy projects target users as homogeneous entities. The historical overview in Table 5.2 demonstrates that gender and energy issues need to be addressed as a public policy problem to overcome persistent rights failures. Danielsen (2012) stipulates that from a gender and rights perspective, the persistency of rights failures in the energy system represents governance malfunctions in general and accountability malfunctions specifically, particularly at national and international levels. When taking a right-based approach, the scope moves beyond the individual and makes access to energy a policy concern. To overcome replication of gender rights failures, energy policy should reflect on gender barriers to the access to energy.

Applying a gender-rights-based approach in energy policy can change this pattern of rights failures. According to Danielsen (2012) gender-rights-based energy policy has a transformative perspective, in aiming to empower women and transform gender relations to be more equal. The underlying theory of change is that in order to create more equitable energy governance structures and institutions, the rights content of energy policy needs to be strengthened. Citizens have rights and responsibilities in the energy system, that moves beyond the unequal power relations between individuals. A rights-based approach leads the way to analyse energy access from a social justice perspective. In the 2010s, the concept of energy justice has emerged in energy policy research to analyse the ethical dimension of the distribution of costs and benefits of energy transition to society and actors involved in the energy system (Miller 2014; Sovacool et al. 2016). Energy justice is developed as a conceptual, analytical and decision-making framework around three tenets: distributive, recognition and procedural (Sovacool and Dworkin 2015). The rights-based approach is the feeding ground for the application of the energy justice framework in gender analysis of energy policy.

5.4 RECOGNIZING WOMEN'S NEEDS AND RIGHTS IN THE ENERGY TRANSITION

Societies have been constantly experiencing energy transitions. In the 1950s and 1960s, electrification and the introduction of electrical appliances have been a key turning point in the economic and social development of Europe. The current energy transition towards decarbonization represents a steppingstone to tackle pressing issues such as access to clean and affordable energy for all citizens. In order to be just, the current energy transition has to be inclusive and 'leave no one behind', as expressed in the EU Green Deal (European Commission 2019). The rights- and needs-based approaches to gender analysis are instrumental to reveal the inequalities and injustices in energy transition. In this section the electrification history of households in France and in the Netherlands are analysed using a gender lens. Women's needs and rights as domestic energy users were

addressed in the energy interventions promoting electrification. The uptake of electricity and electrical appliances was aimed not only to the benefit women but more generally to the benefit of welfare, economic development and utilities (Cockburn and Fürst-Dilić 1994). Over the years, new issues appeared in household energy policy such as energy poverty and climate change impacts. Can the history of electrification help draw lessons on how to address energy needs and rights of women within this new framed context? This section creates insights on this question by analysing the French and Dutch cases of household energy access in the post-WWII era.

5.4.1 Women in the energy history of France

The “*fée electricity*” (electricity fairy) is a noteworthy gendered symbol of how electricity in France promised well-being and modernity to women and was associated with their emancipation (Foucart 1983). As early as the 1920s electricity starts to penetrate the homes and to replace domestic servants, which in turn transforms the daily life of traditional bourgeois housewives. If this transformation starts with small appliances such as vacuum cleaners on the eve of the second world war, bigger appliances slowly appear twenty years later (Werner 1984). Indeed, after WWII each family everywhere in France was promised a new age of modernity thanks to the services electricity was going to bring in the homes. The rhetoric of progress and well-being dominated the post-war years and created the framework allowing state, market and society, including women, to adjust and adopt the new technologies (Frost 1993). Electricity was representing a formidable technical progress that was likely to transform the life of the French and especially of the women who were to be empowered to make good use of these technologies. With the development and affordability of domestic appliances, electricity enters the home of the French. But using electricity requires to change the domestic traditional behaviours (Beltran & Carré 2016). The electrification transition in France had to benefit all households and all members of the households. Since the introduction of electricity and the development of electric household appliances mainly targeted the kitchen and aimed at easing the domestic chores, women had a key role to play in the uptake of the new technologies. But how to encourage women to change their habits related to their everyday domestic chores (heating water, bringing wood or coal to heat the stoves, hand-washing clothes etc.)?

Against this background, EDF started developing the education of women in order to inform them on the proper use of electricity when equipped with electric household appliances in the 1950s. To achieve this task EDF created the position of housewives’ councillors within the departments of the company as early as 1953. The company recruited women in the main distribution centres of the company and trained them to deliver knowledge about the company and the technical side of electricity (connections, energy tariffs etc.) as well as know-how on the use of

electric household appliances. The company had up to 109 housewives' councillors among its staff between the 1970s and the 1980s following up the evolution of the electric household appliances and the changing practices (from hot water heaters and electrical stoves to washing machines and deep freezers in the sixties and the dish washers and dryers in the seventies) (Faure 1992). Because of the quick evolutions of the technologies, housewives' councillors were offered continuous training to be kept up to date as confirmed by our interviewee: 'Every year we [housewives' councillors] also attended the Home Exhibition and training was offered to us for a week, we were also invited by manufacturers that wanted to show us their new appliances.'. This was part of the electrification process of the country. Housewives' councillors were entrusted with at least two main missions.

First, they were responsible for training female teachers from the housekeeping schools for girls that educated girls to become good housewives, who were granted a recognized degree (CAP d'Arts ménagers). Attending these schools for all girls was made mandatory by a law in 1942 but the schools dated back to the end of the 19th century (Lebeaume 2014). In the sixties, these schools adapted to the societal evolution and focused more on the education of the consumers, including the users of electricity and gas and of electric household appliances. As early as 1953 EDF signed a partnership with companies manufacturing electric household appliances and created training centres dedicated to the teachers from the housekeeping schools so that they could test the new appliances. The main aim of EDF training centres was to show the teachers of housekeeping schools how to use the new kitchen equipment and how the new electric devices could improve the life quality of women and their satisfaction when using these new devices (Faure 1992). Housekeeping schools and their teachers were expected to have a multiplier effect on the diffusion of information regarding the proper use of electric household appliances and electricity in the homes.

The second mission of the housewives' councillors was to welcome visitors in the distribution centres and inform them about the new energies and equipment, while showing them around the exhibitions. The housewives' councillors would also organise home visits and home conferences, especially in remote rural areas in order to encourage women to use electricity (Faure 1992). This practice was based on the experience in Sweden in the thirties to support rural electrification (Olsson 1992). As quoted by the French interviewee: 'in cooperation with the EDF commercial agent, we had a van equipped with a facsimile of a kitchen and went to all rural exhibitions at the end of the summer, when local people had the money from the harvest and were able to invest in the improvement of their homes and kitchens or of their farms with water pumps for example, and this was all made possible thanks to the electrification of the countryside.'. Although they were not selling any electrical devices, they were advising women on the use of the right appliance

adapted to their needs, on the electrical consumption of the devices and on their rational usage. Such advice could be delivered during home visits especially in social housing in urban areas or in rural areas when they were electrified. They then explained to housewives what electricity was for, how it was metered and billed, how to use electricity properly and how to adjust their behaviour to this new technology in order to improve their comfort at home and their satisfaction.

The role of 'these women talking to women' gradually disappeared by the end of the eighties when the domestic sphere was no longer the focus of the EDF company (Faure 1992). However, the history of housewives' councillors at EDF shows how women were targeted in their role of agent of change within the household consumption practices, in their role as decision maker regarding the household purchases of equipment and in their role of main energy users in the management of households. The diffusion of affordable electricity together with the development of cost-effective electric household appliances were combined with bank credit systems that allowed households to upgrade their homes and kitchens. Such a conjunction of factors created a lot of expectations among women to improve their daily life. The electrical usage helped women meet their practical needs through better lighting at home, easier cooking, facilitating domestic chores and saving time, while it did not modify the gender-balance among the household (Clancy et al. 2002). The time spent on the domestic chores may have diminished but the time saved was used for diversifying domestic tasks and looking after the children (Olsson 1992).

It also contributed to change the representations of the role of women inside and outside the home and to boost their emancipation (Trédé 1993). Women were not only expected to stay at home and to be overburdened with home caring; instead, electricity and modern equipment were supposed to make them equal with men since they were now considered as liberated from domestic chores and able to work outside in the men's world. However, these new representations had no effect on the distribution of domestic roles within the households nor on the existing social model since women were still responsible for all home duties, although the new appliances made them less burdensome (Cockburn and Fürst-Dilic 1994; Clancy et al. 2012). While reproducing the traditional distribution of domestic roles between men and women (Olsson 1992), electrification brought French women to work in factories which added new responsibilities upon them and increased competition between women and men at work (Reynaud 1992) and created new forms of domination (Perrot 1983). Nevertheless, the electrification endeavour represents a striking example of how female needs were taken into consideration and addressed. At that time, they were acknowledged as stakeholders in the decision-making process at the household level.

Today the energy transition of decarbonisation is the new frame shaping the relationship between energy and women. The context is undoubtedly different from the history of electrification. It is no longer a matter of equipping the kitchen, but rather a wide range from taking up new energy technologies, such as renewable energies and smart meters, to the fabric of the building (insulation, retrofitting) and to reducing energy consumption in the homes (buying energy efficient equipment, changing practices and behaviours, saving energy). We argue that unlike the electrification phase, the current transition is less interested in addressing women as agent of change.

How are women's needs and rights considered in France in the current energy transition? A study carried out on the perception of the energy transition by the French showed a clear distinction between men and women: 79% of women considered that France should be more committed in the climate change policy, 87% of women thought that France should make more efforts towards energy saving, 78% of women prioritise investment in renewable energies (Foundation Heinrich Böll 2017). Although the survey shows a greater awareness of woman towards climate and energy transition issues, women' participation or recognition as decisionmakers in the energy transition is still limited.

The current uptake of renewable energy technologies considers them as a male profession and male products (Clancy and Feenstra 2019). The elements of the energy transition that entails consumption behaviour change at home are lacking the involvement of women. Because of their domestic role, women spend more time at home and therefore are more dependent on energy services which should give them a voice in the domestic energy choices. Since the energy efficiency and energy saving pillars of the energy transition need to be promoted, women can be considered as key agents of change since they are still managing the domestic chores of the households despite the slight evolution of the distribution of roles between men and women. However, this gender aspect seems to be overlooked in the current information and promotion campaigns focusing on 'households' rather than on specific members of households, thus illustrating the gaps left by the disappearance of the housewives' councillors.

It is crucial to recognize the specific energy needs and rights of women as they are more vulnerable to energy poverty than men. A communication presented to the Delegation for Women's Rights and Equal Opportunities for Women and Men in 2014 show that while 14.1% of French households are considered energy poor, 26.3% of single woman households and 20.9% of single mothers are affected by energy poverty. Single poor women are twice as likely as men-living-alone

to report feeling cold (Assemblée Nationale 2014)¹⁸. Women appear to be more vulnerable to meeting their energy needs than men. However, the lack of recent and available disaggregated gender-data leads to drafting gender-blind energy poverty mitigation policies and energy transition policies (Clancy et al. 2017). This illustrates rights failures as identified by Danielsen (2012) in terms of unequal access to modern energy systems and comfort, to investment opportunities and to an equal share of energy transition-related benefits.

5.4.2 Women in the energy history of in the Netherlands

Economic development, technological innovations and household welfare are the characteristics in the decades after the recovery of WWII in the Netherlands (Oldenziel and Bouw 1998). As mentioned by our Dutch interviewee 'Owning household appliances, like washing machines and refrigerators, was an indicator of welfare and social status. It implied a relief of everyday drudgery of housewives and women working as professional cleaners and food processors, like employed housemaids.'. The uptake of new appliances was enabled by different interventions both by the government and the market. Illustrative is the introduction of refrigerators in the Dutch homes. The Dutch law for liberation of retail establishment (*Vestigingswet*) from 1961 created the possibility for all retailers to sell dairy products. If supermarkets wanted to compete with the door-to-door retailers with dairy, it became necessary for households to refrigerate their food they would buy in bulk from supermarkets. Therefore, Albert Heijn, one of the leading supermarkets in the Netherlands, created a saving system for their customers and closed a deal with an appliance provider to enable households to buy a refrigerator with a discount, which was at that time the price of a month salary. In 1962 only 19% of the Dutch households had a refrigerator; ten years later this increased to 88%. The uptake of vacuum cleaners went even faster, 3% of the households owned one in 1957, while in 1964 96% of the households owned an electric vacuum cleaner (Van Bergen 2018).

The appliance that brought the most relief for women in daily drudgery is the washing machine. The family laundry would take women roughly two days' work every week. Despite the much-needed support and ease of this time-consuming work, the first imported washing machines were extremely expensive, equalling almost two-month salaries (Van Bergen 2019). An option offered by the appliances stores was the possibility to lease a washing machine. If a couple of neighbours would share the costs, a leased washing machine was in reach of women from the working class. A Dutch plumber developed the Bico washing machine, more affordable than the imported Hoover. Demonstration shows and cabaret performances were organised in the local theatres and community halls,

18 These figures are based on the housing survey of 2006.

to introduce and learn this new technology to the housewives with a separate meeting for their husbands to arrange payment schemes¹⁹.

In the same era, feminism and women empowerment gained new followers. Dutch feminist Joke Kool-Smit – and with her a new generation of feminists – criticised domestic technology for not challenging the traditional gender roles and division of tasks within households (Kool-Smit 1967). At the end of 20th century, Dutch mothers spent on average four times as much time on domestic tasks as fathers (Van Lenning et al. 1996). 30% of the Dutch fathers increased their participation in family housekeeping but would take up more satisfying chores like doing groceries and cooking. 90% of the fathers delegated cleaning and laundry to their spouses (Van Lenning et al. 1996). Even today the Dutch households are dominated by traditional gendered division of tasks. In 2018 men reported to do 40% of the domestic chores, but those included family administration, maintenance, gardening and home-improvements (Sociaal Cultureel Planbureau 2018). Women are still considered as the main caregivers and responsible for raising children, as reflected in the preference of Dutch women to work parttime. In the Netherlands, 75 % of the working women have an average working week of 26 hours (Sociaal Cultureel Planbureau 2018). With that hardly unchallenged gendered division of housekeeping labour, women remain the main domestic energy user.

A unique role in the Dutch history is assigned to the housekeeping schools (*huishoudscholen*). These girls-only vocational training schools were established in 1888 and quickly spread through the country to become one of the main vocational schools for girls after WWII until they disappeared in the 1970s. The housekeeping schools were founded to train those that were responsible for cooking food and cleaning in households: girls as potential housewives and housemaids. The feminist movement was a strong advocate for this educational opportunity for girls since it improved their possibilities to find a better position as a housemaid (Kloek 2009). Women's groups advised housekeeping school on their curriculum and their members were frequent guest lecturers or even employees. One of the most influential women's organisations (*Nederlandse Vereniging van Huisvrouwen*, NVVV) was founded in 1912. They served as a trade union and formal representative of housewives and household labour both in corporate and political decision-making processes. Unique is their authority as certifier of household appliances. In close cooperation with designers and manufacturers, they advised on design, use and safety of household appliances. Their certificate "approved by the NVVV" is used extensively in marketing campaigns and promotion of many new household appliances that entered Dutch households in the last century (Oldenziel and Bouw 1998).

19 <https://www.haagshistorischmuseum.nl/tentoonstelling/de-spinazieacademie-125-jaar-haags-huishoudonderwijs> (accessed 27 February 2021)

After the WWII, fewer households had staff for their housekeeping. Nevertheless, the housekeeping schools remained popular. The modern household technology was considered as too technical and complex to be taught from mothers to daughters (Oldenziel and Bouw 1998). In the academic year 1976–1977 there were 629 housekeeping schools registered in the Netherlands with a total of 209,000 students (all girls)²⁰. New technologies, such as cooking on gas stoves, and using microwaves, vacuum cleaners and washing machines, were taught and salespersons of producers gave demonstrations and guest lectures (Kloek 2009).

The housekeeping schools supported the traditional cultural belief in the stereotypical Dutch breadwinner-model: the man works fulltime outside the house in a paid profession and his wife takes care of the housekeeping and raising the children. The housekeeping schools professionalised housekeeping, without the financial independency and empowerment if women would work outside the house. It is among the reasons why the Netherlands has one of the lowest participation of women in the workforce within the EU and the popularity of part-time positions for women (EIGE 2017). During the economic boost of the 1950s, women were discouraged from entering the workforce. On the contrary, the social status of families was decreased when the woman had to work, implying that the husband was not able to provide for his family (Kloek 2009). This breadwinner-model is still persistent, with the average workweek being 36 hours for men and 26 hours for women (CBS 2019).

Women were effectively targeted as energy users in households in the decades after WWII. Their role as housekeepers was recognised. Their needs to reduce the drudgery of time- and manual labour-intensive household tasks were acknowledged through rapid innovation and widespread introduction of household appliances. As Winther et al. (2020) demonstrate in the Global South, appliances are highly gendered, demonstrating unequal power relations between men and women over purchase, use, custody and decision-making. They contest the assumption that the availability of appliances reduces women's drudgery to save their time, providing the opportunity for education and empowerment. It is however an enabling factor for women's empowerment and participation in society but it not challenging socio-cultural gender relations, as was already addressed by Dutch feminist movements in the 1950s (Kool-Smit 1967).

The above short history of the uptake of electrical appliances in the Netherlands demonstrates that the importance of access to energy increase when households have the means to purchase and the knowledge to use energy using appliances.

20 <https://www.digibron.nl/viewer/collectie/Digibron/id/498dbe3094fe9dc9c75542d968e324c0> (accessed 27th February 2021)

With the uptake of new domestic technology, increased connectivity to electricity and economic welfare made access to electricity more affordable. Since 1950 each year the total use of electricity in the Netherlands increased with an average of 4.5 %, from 7 mld kWh in 1950 till 119 mld kWh in 2013 (CBS 2015). In the 1950s the access to electricity grew even faster than the economic growth (CBS 2015). The current energy transition focuses on decarbonisation and energy efficiency of households. The Dutch government implements a combination of financial incentives and information campaigns to stimulate energy efficiency for home-owners through tax benefits and retrofitting subsidies aiming at zero-emission households and all-electric households to outsource the use of natural gas (Ministry of Economic Affairs and Climate Policy 2019). These policy interventions target homeowners or households, without acknowledging the diversity of households and the energy needs and rights of the individual household members.

Women's role is invisible in the current energy transition of the Netherlands. The number of women working in the energy supply sector is limited to 7000, occupying 24% of the jobs (CBS 2019)²¹. Combined with the low participation of women as scientist and engineers²², it is assumed that women working in the energy sector are represented less in decision-making and more in supporting roles (Clancy and Feenstra 2019). Research on participation in local energy initiatives in the north of the country found that women considered themselves to be time poor and so did not want to be involved in committees, and even when they were involved, they did not volunteer for leadership roles (Clancy et al. 2017). On the other side of the energy system, women as energy consumers are equally invisible. Energy poverty reveals the inequalities within society and has a strong gender face. Energy poverty is only an emerging concern in the Netherlands with no gender-disaggregated data and no special attention or policy interventions to mitigate the feminization of energy poverty (Clancy et al. 2017). However, women in the Netherlands face the same gender inequalities as other European women: a gender income gap (partly due to the 'breadwinner' culture), ageing, and over-representation as single-parents (EIGE 2017).

21 <https://www.cbs.nl/nl-nl/visualisaties/dashboard-arbeidsmarkt/banen-werkgelegenheid/toelichtingen/werkgelegenheidsstructuur> (accessed 27th February 2021)

22 https://ec.europa.eu/eurostat/documents/4187653/9451024/Women_in_science_MS-s/87daf6ba-33b5-4455-9a2b-dbb979e38dcc?t=1548852611502 (accessed 27th February 2021)

5.5 WOMEN'S PARTICIPATION IN THE CURRENT ENERGY TRANSITION

The example of the 1960s in France and in the Netherlands illustrates how women were targeted in order to make the electrification successful. This is a key lesson to draw for the current energy transition. The current energy system transformation requires an uptake of new energy technologies and a change in consumption behaviour to reduce the use of energy. Indeed, the decarbonisation of energy is a source of new technologies that need to be adopted by households. However, the role of women as right-holders is disregarded by the duty-bearers as the government and the market. Energy policy design and implementation remain gender-blind, assuming that they benefit both men and women equally. However, the decisions are dominated by male professionals following the traditional segmentation of the labour market between technical male jobs and non-technical female jobs (Allens et al. 2019; Clancy and Feenstra 2019). Even if the renewable energy sector attracts more female employees than the traditional energy sector, they are still employed in positions with little decision-making responsibility, indicating a failure in recognizing unequal gender relations in the energy system and in the influence of women in policy-making decisions (Clancy and Feenstra 2019).

Most energy efficiency technologies currently introduced are targeting men. Men are considered as the main decision-makers regarding the maintenance work at home leaving the women in the 'routine reproductive' activities aiming at reducing energy consumption (Petrova and Simcock 2019). Motivations of women to participate in energy transition, e.g., saving the future generations, green responsibility, producing well-being at home, etc., are different from those of men, who tend to be more interested in energy efficient technology for innovation motivations and saving on energy expenditure (Tjalma 2016). That is also the reason why women can act as key drivers of innovations within the households to make the use of energy greener and more efficient in the home, thus serving their needs (improving the environment), interests (reducing the energy bills) and capacities (using a variety of technologies from low tech to high tech, including apps). Linking a gendered preference to energy sources, like women prefer renewable energy, requires systematic academic studies and are highly contextual (Bouvier 2018).

Even renewable energy communities, which are likely to promote the empowerment of people to claim their right to energy, are dominated by male members. Participating in renewable energy communities (REC) is a voluntary act that requires time, energy and skills. Although the RECs are open to all members with no discrimination, women face barriers to commit themselves because of the other duties they have within the household and their lack of available time

(EIGE 2017). Another obstacle for women to participate as prosumers in energy communities is their limited investment capacity for membership shares because of the low paid jobs they occupy more often than men (Fraune 2015).

Clancy et al. (2017) demonstrate that since more women live in poverty and occupy energy inefficient houses as tenants, women face both financial and legal (as tenants) obstacles to invest in energy efficiency. The EU Green Deal asserts that no one should be left behind in the energy transition process. To recognize women's needs and to acknowledge their rights to clean and affordable energy services, energy policies need to overcome their gender-blindness. But the implementation of such encompassing plan is still faced with a number of challenges.

The first challenge concerns the lack of data on women's needs regarding access to adequate energy services. Such data would help decision makers recognize that women have different energy needs than men due to different economic, social or biological situations. Disaggregated data would contribute acknowledging that there is not *an* energy consumer but rather energy consumers (Bouvier 2018). Data on energy needs and access should be gender disaggregated to allow a better knowledge of these specificities. Without this first step, women's energy needs won't be recognized as a policy object and won't be put on the policy agenda (Clancy et al. 2017; Clancy and Feenstra 2019). It also requires acknowledging the fact that women have lower income than men and therefore face financial obstacles when it comes to invest in energy efficient appliances, retrofitting measures and/or renewable energies. Policy interventions, such as special tariffs and subsidies, should account for gender differentiations to ensure a just and inclusive energy transition. This also implies recognizing that women are more vulnerable to energy poverty and that energy efficiency measures and renewable energy programmes should target them to allow them to reduce their energy consumption and costs.

The second one refers to the limitations of the current enabling framework to allow women to be part of the energy transition. As shown by the energy communities, participation of women is very limited because of the lack of time they have due to other tasks they have to carry out at home. In the Netherlands, social housing cooperatives invest in refurbishment of their housing stock and try to encourage the participation of tenants in stakeholder meetings and training of energy efficiency measures at home. Women rarely volunteer to participate (Straver et al. 2017). Besides the lack of available time, women often have the feeling that they don't have the adequate technical knowledge and as such consider that they are not legitimate to join these meetings (Standal et al. 2019). Even energy communities, that are recognized as being more open and approachable for community members, are far from showing gender equality. Women still face issues with their time management, financial restrictions but also their own self-imposed limitations

and women do not express their voice in the matter of energy transition. They don't claim their participatory rights.

More generally, systemic factors, such as the institutional and political arrangements underpin the organisation of the energy sector. The permanence of business-government-consumer relations result in limited recognition of women's energy service needs and rights and therefore the lack of adequate inclusive policies. It is not only a matter of equal energy access but more a matter of how to promote equal possibilities for each individual to guarantee a healthy and comfortable functioning in the daily life by ensuring the adequate level of energy services meeting their individual needs. The energy justice framework shows the necessity to guarantee participation, empowerment and choices of all in energy decision making at different levels, from households, to communities to national and EU policy making as well as ownership of energy production units by prosumers. Energy becomes an essential condition to allow the development and the achievement of other rights (Tully 2006). Hence, energy intervention needs a gender focus to go deeper the understanding of women as energy users in households and communities.

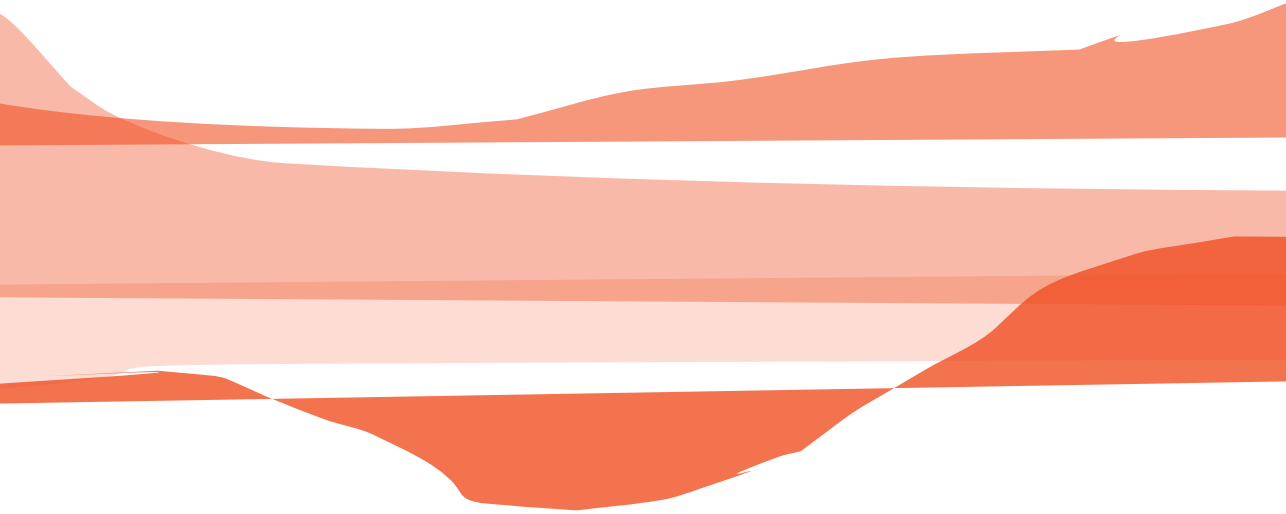
5.6 CONCLUSION

This chapter analysed the uptake of electrification and the access to energy in households through a gender lens. Women as household managers receive little attention in current energy transition policies and their potential as change agents to scale up and implement energy efficiency measurements in households is invisible. Given the ambition of national governments to comply with international conventions to provide clean and affordable energy to all citizens, the scholarly debate on just energy transitions gains momentum for integration in energy policy. The energy justice framework advocating for distributive, recognitional and procedural justice finds support in the gender-energy nexus research. The needs-based and the rights-based frameworks demonstrate the relevance of gender approaches in energy policy and how gender inequality in energy access prevails.

Despite their origins from empirical research in the Global South, these gender approaches resonate with the electrification process and access to energy for households in the Global North during the decades after the WWII. France and the Netherlands were chosen to illustrate the uptake of electricity in the Global North. They developed different pathways for the uptake of electricity, yet both targeted women as household energy managers. Marketing campaigns, education and training, even house visits were used to promote the new technology and the use of electricity. How different is the current promotion of energy technologies, such as retrofitting, energy efficiency measures, deployment of domestic renewable

energies, smart meters and energy communities? The current energy transition has a male-oriented focus without acknowledging women's energy needs and rights.

The work of Winther et al. (2020) in the Global South illustrates how renewable energy programmes can be shaped to empower women and transform gender relations at household and community levels. It is an interesting echo of the current transformation in the Global North. Especially in the light of the feminization of energy poverty due to the strong gender face of poverty, the income gap between men and women in the EU, the increase in single-female-headed-households and the demographic ageing gap putting more elderly women in poverty than men. If we want to achieve an inclusive and just energy transition, the time is right to learn from the past and include women as stakeholders in energy policy. When the right to energy is universal, the policy should recognize the needs and interests of all energy consumers. This does not need to be a new endeavour, as we can use both the experiences of the past in the Global North as well the lessons learned from energy transition in the Global South.



6

Women's involvement in the Bulgarian energy transition

This chapter is based on the peer-reviewed publication:
Feenstra, M. (2020) Women as change agents of the Bulgarian energy transition, in:
From Economic to Energy Transition: Three decades of transition in Central and Eastern Europe, eds. M. Misik and V. Oravcová, Palgrave Macmillan.

ABSTRACT

Both gender equality and energy transition are topical issues in Bulgaria. The question to be answered in this chapter is how women can be involved in engendering a just energy transition. Three roles for women as actors are addressed: producer, consumer and decision-maker. Many women as energy consumers face serious issues of not being able to pay for clean and sufficient energy sources, struggling with cold homes and having to use poor quality polluting wood for cooking and heating. This gender dimension of energy poverty is limiting a just energy transition in Bulgaria. Nevertheless, there is a strong representation of women as energy producers and decision-makers. Gender equality is strongly embedded in the Bulgarian legislation, as well as being enforced in national labour and social welfare policies and institutionalized by a governance structure at the national level. However, implementation and enforcement of gender equality legislation and policies are limited by weak political support and economic and demographic challenges that claim a higher priority. As such, a just engendered energy transition remains a concern in Bulgaria.

6.1 INTRODUCTION

Bulgaria is a fascinating country from a gender perspective. According to the World Bank, it is among the highest performing economies with respect to women's legal rights affecting work (World Bank Group 2020). Women's participation in the workforce and STEM educated women rank amongst the highest percentages in the EU; 53% in Bulgaria, compared to the 41% EU average (Eurostat 2019d). Gender equality is strongly embedded in art. 6 (2) of the Bulgarian Constitution and other national legislation. Supportive legislation might be of some comfort for many Bulgarian women struggling to make ends meet. However, with the collapse of the Soviet Union and the economic instability that followed, the country has experienced new demographic trends as the resident population has decreased and aged as the young leave the country.

Bulgaria is the poorest EU member state with a GDP per capita of € 7,435 in 2020 (World Population Review 2020). It has the highest poverty rate in the EU, with 32.8% of Bulgarians being at risk of poverty or social exclusion (Eurostat 2019b). Access to affordable energy sources is a challenge for any Bulgarians living in poverty. The steep increase in energy prices since joining the EU means one-third of the households in Bulgaria have been struggling to afford their energy consumption. Energy poverty occurs when a household suffers from a lack of adequate energy services in the home. Energy poverty is recognized as having a strongly gendered face and particularly affecting women living alone and female-headed households in poor housing conditions with high energy prices (Clancy et al. 2017). In Bulgaria energy poverty coping strategies, such as switching to the most affordable energy source for the task needed, can be identified that are known from studies in the Global South. For instance, using firewood to cook and heat homes in winter is still widespread in Bulgaria, especially in rural areas (Clancy et al. 2017), causing health issues for women due to the extensive use of polluting firewood (Matinga and Clancy 2020).

Against this background, this chapter analyses the Bulgarian energy transition through a gender lens and shines a spotlight on women's role as actors and their agency in the energy transition. The importance of agency is defined as 'tackling poverty and boosting shared prosperity demand that all people – women and men, girls and boys – have the opportunity to realize their potential and participate fully in all aspects of life' (World Bank Group 2014, p. 1). This notion of agency can be used to contribute to the design of policy interventions to mitigate energy poverty and to create equal opportunities for people to participate in the energy transition. The Agents of Change theory is rooted in development studies and the gender equality literature. Social inclusion and energy justice are two key emerging themes in the energy policy literature that, as yet, has paid little attention to gender

equality. A just energy transition can be engendered by highlighting women's agency in the energy system. As such, this chapter aims to contribute to the energy justice and just transitions debate and to the growing body of literature on the gender-energy nexus in the Global North.

I apply triangulation methods to analyse women's role as actors in the Bulgarian energy transition. Triangulation here is used according to Toshkov's (2016) meaning that the same phenomenon is approached with different methods or through different types of data sources. I apply a combination of desk review of data collected from academic literature, grey literature from international organisations and policy documents. Bulgaria was chosen as a case study because it offers intriguing conditions, where it shows relatively well performing on gender-equality indicators, whilst it also struggles with a high poverty rate and social inequalities. Yin's (2006) advice was to use the case study method to examine real-life phenomenon in-depth and within its contextual conditions. Feenstra (2002) identified six enabling conditions that support or hinder the process of engendering energy policy. These factors are summarized in Table 6.1 as they are used in the Bulgarian case study to identify the enabling conditions engendering a just energy transition.

Table 6.1: Conditions of an enabling environment for engendering energy policy

Enabling condition	Description
Participatory planning	An approach involving a range of actors (including civil society) is considered more likely to create a greater opportunity for women's voices to be heard than traditional approaches to policymaking.
Gender methodology	Involves having a gender strategy, collecting gender-disaggregated data and conducting gender analyses to develop a gender-aware energy policy.
Legislation on gender equality	Form and scope: e.g., is gender equality enshrined in the constitution?
Political commitment	Putting pledges into practice: e.g., the existence of a National Gender Policy.
Institutional support	This support can come from within government, for example a Ministry for Women's Affairs or a Gender Ministry, or from civil society, for example, NGOs active in gender and energy.
Financial commitment	Allocation of sufficient resources to implement gender-aware policies.

Source: Feenstra (2002)

A diverse terminology, using terms such as 'gender-sensitive', 'gender-mainstreaming' and 'gender-aware', is used to address gender in policy making (Feenstra 2002). This chapter uses the term 'gender-aware' that draws on the definition of Clancy and Feenstra (2006) where a gender-aware energy policy (i) recognises that women and men have different energy dynamics (role in the household, decision-making areas, energy needs, responses to crises or coping mechanisms); (ii) makes available energy technologies and services that match those dynamics; and (iii) employs appropriate policy instruments (such as taxation) to provide an enabling environment.

Engendering energy policy is defined as the process that aims to create a gender-aware energy policy (as just described in the definition above), in which the needs and the rights of both women and men are addressed to realize a gender-equal policy outcome. Engendering energy policy resonates with the prevailing academic debate on energy justice and equal access to energy services as is reflected in international commitments and national policy plans towards a just energy transition.

This chapter starts in Section 6.2 with the theoretical framework that describes the role of women as actors to engender a just energy transition. Three roles are discussed: as producer, consumer and decision-maker. Section 6.3 explains the theory of energy justice and the concept of just energy transitions. Three dimensions of just energy transitions are distinguished: the technology, policy and governance dimensions. The conceptual frameworks of section 6.2 and 6.3 are then used to describe the role of women in the Bulgarian energy transition. Section 6.4 introduces the energy transition in Bulgaria as seen through a gender lens. Sections 6.5, 6.6 and 6.7 link the three different roles of women as change agents to the energy transition in Bulgaria: Section 6.5 for women as consumers and the gender dimension of energy poverty, Section 6.6 for women as producers and their participation in the energy sector, and Section 6.7 for women as decision-makers in the energy policy in the context of the legacy of the socialist state. Section 6.8 concludes the discussion by synthesizing the overall chapter content.

6.2 WOMEN AS ACTORS TO ENGENDER A JUST ENERGY TRANSITION

Women are acknowledged as agents of change within development agencies to boost socio-economic development and cultural change (World Bank Group 2014). The gender-energy nexus literature gives women's role in influencing the energy transition more critical attention. Three roles of actors have been identified in the energy transition (Clancy and Feenstra 2019):

- 1) producer – i.e., producing and supplying energy services to end-user (a productive role),
- 2) consumer – i.e., demanding the use of energy services (a consumptive role),
- 3) decision-maker – i.e., governing the energy sector (a decisive role).

Agents of change is a social phenomenon embedded in a socio-cultural context. Gender is a socio-cultural phenomenon too and women and men can manifest agency in different ways. Looking at agency in energy access from a gender perspective, a gendered difference in the rights and needs of women and men in the energy system can be identified. Engendering energy transition is a way to reflect and support the agency of men and women towards a just energy transition.

Globally, energy access, consumption, and services are gendered. Therefore, the aim is to establish an energy system that reflects gender differences and is aware of gendered social relations. Acknowledging the socially constructed and dynamic nature of gender relations, an energy policy should acknowledge cultural differences in their social context and should contribute to the overall aim of gender equality (Feenstra 2002).

The national level is a suitable scale to formulate a gender-aware energy policy. National governments are urged to acknowledge the universal declaration to provide Sustainable Energy for All (SEforALL). This as a global commitment that requires local action and nationwide implementation under country action plans supported by international partners (AGECC 2010). The SEforALL initiative has three major targets to achieve by 2030: 1) ensuring universal access to modern energy services, 2) doubling the rate of improvement in energy efficiency, and 3) doubling the share of renewable energy in the global energy mix (Sustainable Energy for All 2016). To understand the extent to which gender is being mainstreamed in SEforALL-related activities, Prebble and Rojas (2017) analysed 61 SEforALL country action plan documents from 52 countries. Their main finding was that 82% of these documents included gender considerations to some extent and, in which, women were mentioned as potential beneficiaries of activities and actions, but seldom were they characterised as agents of change.

The methodology used by Prebble and Rojas (2017) included a framework for context-specific analysis using a characterisation of women in policy documents. These characterisations are recognisable in the terminology used in national policy documents. Four characterizations of women are identified: vulnerable, beneficiaries, stakeholders, and agents of change. The first two mostly refer to women as end-users or a target group for a specific programme or policy outcome, without an element of their participation or them influencing the policy at stake. On the contrary, documents that referred to women as stakeholders identified women's role as decision-makers or as a group targeted for participation in decision-making. As demonstrated by Prebble and Rojas (2017), only a few policy documents described women as driving sustainable energy development activities as agents of change that also had a voice in policy making.

Recognizing women's knowledge and capacities is a key objective of agency theories. Ignoring women's agency hinders their access to sustainable and affordable energy services and limits their participation in the energy sector. The World Bank defines agency as 'an individual's or group's ability to make effective choices and to transform those choices into desired outcomes' (World Bank Group 2014). Acknowledging the potential of women as actors in the energy transition is receiving growing interest in the gender-energy literature (Clancy and Feenstra 2019). However, the main body of literature on gender-energy nexus is based on empirical data from the Global South and has limited the applicability of the agents of change theory to the European context. Clancy and Feenstra (2019) warn that it might be too early to correlate between gender equality and a just energy transition. Too little empirical data is available to draw conclusions whether women currently are change agents in the energy transition in Europe, but in future research specific attention to women's role as actors in the European energy transition could deepen the understanding of the correlation between women's involvement as actors and the implementation of just energy transitions. Scholars that have been studying the gender-energy nexus in the Global South are shifting their focus to the Global North, applying the same methodology and using similar theoretical lenses to research women's role in the EU energy transition. This is demonstrated by Clancy et al. (2017), who drew on their experiences in studying energy access of women in the Global South to analyse the gender dimension of energy poverty in the EU.

6.3 ENERGY JUSTICE AND JUST TRANSITIONS

The quest for a just energy transition is rooted in the energy justice debate. Energy justice is an emerging framework in energy social science that has developed over the last decade to analyse energy transition and energy policy. Three main tenets of energy justice have been discerned: distributional, recognitional, and procedural

justice (Sovacool and Dworkin 2015). Energy justice has three applications: (i) a conceptual framework, (ii) an analytical framework for energy policy feeding into the use of energy justice, and (iii) a decision-making tool to enable a move towards a just energy transition. The aim of energy justice is to contribute to a just energy transition with a just distribution of rights, recognition of needs and just decision-making within the energy system (Sovacool et al. 2016).

The energy justice framework is contributing to the development of a just energy policy design by asking the normative questions as presented in chapter 2 in Table 2.1: The evaluative and normative contributions of energy justice to policy design. The evaluative questions could be asked to monitor and assess a just energy policy in the implementation phase. However, designing a just energy policy needs an agenda setting and political awareness to energy justice issues. The questions of Jenkins et al. (2016) can contribute to agenda-setting to formulate a just energy policy. The evaluative questions can be asked to assess the status quo of an energy policy system in any given country and identifying the injustices that should be addressed in the political agenda. The answers to the normative questions can contribute to the design of a just energy policy in order to accelerate a just energy transition.

Transition is a complex phenomenon with multiple dimensions that demands a holistic view, including an intersectional approach. The energy transition can be considered a triple transition with three dimensions: the technological dimension - aiming at decarbonisation; the policy dimension - creating a policy-shift; and the governance dimension - asking a different governance perspective from the actors involved in the energy system. All three dimensions can be analysed using an energy justice lens. The three tenants of energy justice can be embedded in the three dimensions of energy transition.

The most common understanding of the energy transition is in the technological dimension of decarbonisation, i.e., moving from fossil fuels to renewable energy sources (RES). Decarbonisation has a strong distributional focus by enabling a just distribution of, and access to, clean energy sources. RES can foster off-grid solutions for those communities not previously connected to the grid and so renewable energy transitions have the potential to increase connectivity to energy sources and access to the benefits of electricity (Miller et al. 2015). Decentralised systems require more of the end-user in skills and motivation to take over the role of energy producer and distributor previous done by the local power stations. However, distributional justice needs to be assured to prevent unequal distribution of risks, cost-benefits and energy rights. Decarbonisation is also the policy aim of many energy efficiency programmes implemented in the EU member states. The Bulgarian Residential Energy Efficiency Credit Line (2020), funded by the EU and Bulgarian government, provides loans and investment incentives through local

participating banks to help Bulgarian households to upgrade their homes and become more energy efficient. Distributive energy justice is acknowledged in the programme by providing financial support, such as low interest rates, to enable homeowners to invest in energy efficiency.

The policy dimension of energy transition highlights the shift from supply-oriented towards demand-driven policy. The questions at the core of recognitional justice that should be answered given this shift are: Who is the end-user? Who represents demand? How can the needs of the consumer be fulfilled? (McCauley et al. 2013). Policies often recognise households as the end-users. However, the household is a contested entity for its use in a demand-driven energy policy. Policy often has a homogenous approach to households as end-users and designs policy interventions with a rather simplistic approach – i.e., one size fits all. Whereas, in reality, there is no standard end-user and households are more complex than assumed. As Bell et al. (2015) explained, a household is a fluid system with a wide variety in their composition and particularly with the everyday dynamics of diverse caring arrangements with extended family members. Clancy et al. (2017) argue for a demand-driven energy policy that looks behind the front door of households and invests in recognising the diversity of consumers and their behaviour.

Governance can be considered as the third energy transition dimension. From a governance dimension, we see a shift from a regulative government approach characterized by tariffs and regulations, towards a facilitating approach that promotes subsidies and stakeholder participation. With the shifts in the energy sector, combined with the energy transition, more actors enter the energy market, pushing governments into the role of broker between the energy sector and the community. Energy projects have been increasingly characterised as public-private-partnerships (Miller et al. 2015).

This governance shift challenges procedural justice in the energy sector. As Jenkins et al. (2016) interpreted procedural justice as to whether there is a fair process and whether actors can participate in decision-making processes equally. The procedural justice resonates with the governance structure within a country and the legal frameworks and institutions enforcing and implementing the legal framework. Furthermore, the existence of an organised civil society and stakeholder participation in the energy system calls upon recognitional justice of the needs and rights of actors within the energy system. Stakeholder participation also enables procedural justice and strengthens a just energy transition. While decarbonization is seen as mainly a technological dimension with distributional implications, the issue described in this governance paragraph, i.e. the neoliberal shift, also has distributional and behavioural implications for the actors involved in the energy transition and as such challenges existing inequalities and injustices.

6.4 GENDER AND ENERGY JUST TRANSITION IN BULGARIA

The complexity of transitions is being keenly felt in the countries of Central and Eastern Europe (CEE), where the multi-faceted challenges of a political, economic and socio-cultural transition have been experienced after the end of the communist area. Bulgaria is one of these countries. In 1946, Bulgaria became a one-party socialist state and part of the Soviet-led Eastern Bloc. Multi-party elections were established through the revolution in 1989 and, since then, Bulgaria has transitioned into a democracy and a market-based economy. Since adopting a democratic constitution in 1991, the sovereign state has been a unitary parliamentary republic with a high degree of political, administrative and economic centralisation.

Bulgaria has participated over many years in the international community as a member of the UN (1955), the Council of Europe (1992), North-Atlantic Treaty Organisation (2004) and the EU (2007). It was a founding state of the Organisation of Security and Co-operation in Europe (1975) and has taken a seat in the UN Security Council three times. This international co-operation comes with the commitment to adhere to international conventions and agreements, such as the SDGs, SEforALL and, more recently, the EU internal regulation under the Clean Energy for All Europeans Package. At the European level, the Regulation on the governance of the energy union and climate action (EU) 2018/1999 is pushing its member states to adhere to the ambition of Clean Energy for All Europeans Package by developing a NECP (European Union 2018). The NECP is a national endeavour to deliver on commitments to reduce greenhouse gas emissions and to provide secure, affordable and sustainable energy for all citizens. The draft NECP of Bulgaria has been submitted to the EU Commission in adherence to New Energy Directive of the EU. The final version was submitted in Bulgarian and, at the time of writing, was awaiting translation into English.

Gender equality is embedded in the Bulgarian Constitution and in several international agreements that the country is party to. For instance, Art. 6 (2) of the Bulgarian Constitution of 1991 guarantees equality before the law for all citizens regardless of, for example, gender, and ethnicity and prohibits discrimination. The EU accession process in the 2000s resulted in significant development in institutionalising gender equality. In 2016, the parliament adopted the Law on Equality between Women and Men and started the National Strategy for Promoting the Equality of Woman and Men 2016-2020. This National Strategy obliges the state to undertake gender impact assessment when drafting laws, policies, plans, and programmes (Republic of Bulgaria 2019). The Ministry of Labour and Social Policy (MLSP) and the National Council on Equality between Women and Men are the enforcing and monitoring institutions in Bulgaria. The Law on Equality between

Women and Men provides guarantees of equality through long-term state policy. However, this is without provisions for enforcement or sanctions (EIGE 2019).

The international pressure from the energy transition is set against this backdrop of ongoing democratisation and economic transition in Bulgaria where the energy transition has a top-down policy with a high level of centralisation (Andreas et al. 2018). The driver for a change in the energy system is mainly external linked to global commitment and adherence to international conventions. With an energy mix heavily dependent on coal and gas, the technology transition of decarbonisation is pushing the Bulgarians to adopt clean energy technology. Where the technological dimension of the energy transition is given attention, with the development and implementation of the NECP, the policy and governance dimension of the energy transition is focusing on internal drivers and enabling environments within the country.

6.4.1 Women as consumers: gender dimension of energy poverty

The Bulgarian government has the obligation to provide its seven million inhabitants with clean and sustainable energy services, with the challenge that 75.2% are living in urban areas (World Population Review 2020). Urban areas face a higher degree of energy poverty, due to a dependency of energy sources that need to be purchased. Bulgarians living in rural areas have the option to use cheap firewood or other forms of biomass for heating and cooking. This makes them less dependent on purchased gas and oil. Heating in the winter and cooling in the summer is a necessity to manage the wide range of temperatures. The lowest recorded is -38.3°C and highest $+45.2^{\circ}\text{C}$. In these weather conditions the question is: can Bulgarians afford to keep their homes at an adequate temperature?

Energy prices differ between member states, partly due to tax differences. Households in Germany pay by far the highest electricity prices ($\text{€}31/\text{kWh}$), while people in Bulgaria pay the lowest ($\text{€}10/\text{kWh}$; Eurostat 2019a). Residential energy prices in Europe have been rising steadily since the beginning of 2010 (Ecofys 2016). There are also large differences between member states regarding the proportion of income that households have to pay for their electricity bills. However, when expressed in relation to a household's purchasing power, Bulgaria is the place with the most expensive electricity, followed by Latvia and Sweden (Eurostat 2017b). Bulgaria, in the first half of 2018, had the highest increase in household gas price in national currencies (+18.3%), whereas Danish consumers faced a decrease of -1.7% (Eurostat 2019a). The high increase of Bulgarian energy prices was due to the transition to a market-based economy, which forced the Bulgarian government to lift the governmental support for the energy sector and to increase the taxation (Andreas et al. 2018).

The overview of electricity prices compared to income for single-person household highlights a gender issue, given the fact that women dominate the single-person households (EIGE 2017). The European average monthly amount spent on electricity by a single-person household is 1.9% of their income, whereas a Bulgarian single-person household spends approximately 3% of their monthly income on electricity bills. The average monthly income in Bulgaria was €791 in 2019; an increase of 4.9% compared to 2018. The numbers are only for expenditure on electricity and do not include heating costs (usually gas). With the cold winters, plus knowing the challenge of old housing stocks, affording the energy services needed for a comfortable home is challenging for many Bulgarian households as demonstrated by Eurostat data that one third of the Bulgarian population are not paying their utilities bills on time (Eurostat 2020a). The use of firewood for cooking and heating never fully disappeared in the Bulgarian household energy mix, but partly because of the affordability of cleaner and more sustainable energy sources. Bouzarovski (2009) provided evidence of income-related switching to poor quality fuelwood, which means that families, primarily women who still have the major responsibility for cooking, are exposed to the polluting wood smoke.

The implementation of energy efficiency programmes is the Bulgarian response to realise its decarbonisation policy targets and to improve the current housing situation in its cities. In Bulgaria, before the political changes of 1989, publicly owned apartments were sold to the sitting tenants, resulting in a privately owned housing stock of 97.6% and only 2.4% belong to the central government of municipalities (World Bank 2017). 18% of the Bulgarians are tenants and 82 % of the Bulgarians are homeowners (World Bank 2017). 80% of the homeowners are not having an outstanding loan or mortgage for their house (Eurostat 2019c). This would imply that investing in energy efficiency measures or renewable energy systems could be an independent decision of the home-owner that could be contrary to the interests of tenants. With mortgage or loans for their houses already paid, homeowners might be able financially to invest in energy efficiency. However, when home-owners are not living in a detached house, energy efficiency measures, such as solar panels, need to be negotiated with neighbours. Roughly 50% of the residential buildings are flats and 40% are detached houses (Eurostat 2019c). Given the widespread use of district heating and block-heating, many Bulgarian citizens living in flats cannot control or change their heating consumption based on individual decisions. Investing in energy efficiency measures needs to engage the joint decision of all inhabitants in the building block.

From 2011 until 2017, the poverty rate in Bulgaria decreased almost 10%. However, still 32.8% of the Bulgarian population are at risk of poverty (Eurostat 2017b). Equally, the share of population reported to be unable to keep their homes adequately warm also decreased by 10% in the same period. However, Bulgaria reported an energy

poverty level of 36.5% of their population, which is the highest energy poverty rate among all EU member states (Eurostat 2019b). Another indicator for poverty is the housing overburden rate. This means that households spend more than 40% of their disposable income on housing. This percentage is among the highest in the EU.

Does the Bulgarian energy poverty have a female face? Eurostat data from 2017 showed that the risk of poverty rate in Bulgaria was 23.4% and the second highest in the EU. Women have 3.8% higher risk of poverty than men in Bulgaria. Households composed of one adult, without dependent children, have a 45% risk of poverty. In this group, single women are dominant, particularly female pensioners, due to their longer life spans. The poverty rate of pensioners in Bulgaria is 32%, which is amongst the highest in the EU (Eurostat 2017b). Early retirement can widen the potential gender gap in pension levels and increase women's risk of poverty in old age. The Social Insurance Code (art. 68) regulates the age at which women and men, who depend on social welfare, can retire with full pension benefits (women 61.4 and men 64.2 years of age). The Labour Code Act art. 328 (1a) sets the mandatory retirement age for employers: women at 60.3 and men at 63.2. At those ages, the partial retirement pension benefits under the Social Insurance Code (art. 68a) are provisioned. It then depends on a women's career as to whether there are sufficient and additional pension benefits on top of the low state-provided pensions. The Social Insurance Code (arts. 9 (2) and 7a (2)) ensures that periods of absence from work due to childcare are accounted for in the pension benefits.

The policy reaction of the Bulgarian government to the staggering energy poverty numbers has been quite extensive with the support of the EU. Bulgaria is one of the first EU member states to establish a legal framework that acknowledged energy poverty in national legislation and to discuss a national definition of energy poverty in policy documents. However, a national definition in law has not yet been adopted (Kulinska 2017; Clancy et al. 2017, NECP Bulgaria 2020). The legal understanding of the energy poor in Bulgaria includes a wide range of categories: persons over 70 years of age, living alone and whose sole source of income is their pensions up to the poverty threshold for the respective year; persons with 90% or more limitation of work ability and who need additional help, families with children with disabilities who rely on additional help; and, persons and families who already receive targeted aid for heating according to the law on social welfare. In the Energy Strategy of the Republic of Bulgaria till 2020 for Reliable, Efficient and Cleaner Energy (Republic of Bulgaria, 2011), the policy aim is formulated to reduce the firewood use of households from 83.3% (in 2014) to 42% by 2024. As cheap and available firewood is the only affordable energy source for many energy poor households, reducing firewood use can be financially beneficiary for them only if it is replaced with a healthier and more affordable alternative energy source. This

is partly reflected in the Energy Strategy decarbonisation objective that promotes the use of biogas, especially in urban areas (Andreas et al. 2018).

The institutional collaboration between the three ministries responsible for protecting vulnerable consumers is a good practice example of breaking the departments silos involved in energy poverty mitigation. The Ministry of Labour and Social Policy cooperates with the Energy and Water Regulation Commission and the Ministry of Energy. They have created a rather complicated system of energy subsidies to support vulnerable consumers to cover their energy costs during the winter months, i.e., the heating season. The classification of vulnerable consumers is the same as for those citizens eligible for social welfare (Kulinska 2017; Clancy et al. 2017). The energy subsidies are designed for different categories depending on: a) income; b) age; c) household composition: single-headed households; d) reduced ability to work; e) children 0–18 (extra subsidy if the children are disabled); f) pregnant women 45 days before giving birth, and g) parents caring for children under the age of 3.

The Agency for Social Support reports that a subsidy has been granted to approximately 250,000 households each winter season (Jeliazkova and Minev 2014, NECP Bulgaria 2020). By contrast, according to the data provided by the National Statistical Institute, a total of 1,586,200 persons, representing 22.6% of the total population, were living under the average monthly poverty rate of €211 in 2019 (National Statistical Institute 2020). Poverty estimates by type of household show that poverty is concentrated among elderly single-person households older than 65 years, single parents with children and households with three or more children. The risk of poverty is 14.5% higher for female than for male among single-person households (Ibid.). This shows a clear discrepancy between the aid granted to beneficiaries and the number of vulnerable consumers that are potentially eligible for this heating subsidy (Clancy et al. 2017).

6.4.2 Women as producers: female participation in the energy sector

During the aftermath of the end of the socialist state, the Bulgarian economy experienced a steep decline in agricultural and industrial production that led to an economic crisis in 1997. The Bulgarian economy improved after 1997, but the average income per month remained the lowest in the EU. More than a fifth of the labour force are employed on a minimum wage of €1.16/hour (Eurostat 2019b). Mining represents 5% of the GDP and makes Bulgaria Europe's fifth largest coal producer (European Commission 2017). Bulgaria's strategic geographical location in Europe, combined with its well-developed energy sector, results in it being a key European energy centre. 48.9% of the electricity is generated by thermal power plants, 34.8% from nuclear reactors and 16.3% is from renewable sources (Ibid.).

Women's involvement in the energy sector is limited by cultural obstacles, such as traditional childcare roles that put the burden mostly on women, as well as legal obstacles for mothers to combine childcare with building a career (Clancy and Feenstra 2019). From a legal perspective, Bulgaria removed all job restrictions on women. The World Bank (2020) study *Women, Business and the Law* analysed milestones in a woman's working life, such as enrolment in a job, promotion, career path and pension. This study indexed 187 countries scored with eight indicators over a ten-year period. Bulgaria's score of 93.7 out of 100 illustrates that a person's ability determines their career path and not their gender. It is one of six economies that has removed all job restrictions on women over the ten-year period. For example, under the Labour Code, a paid paternity leave of 15 days was introduced to facilitate more equal care responsibilities for young families, on top of the one year shared parental leave and the paid maternity leave of 410 days (Republic of Bulgaria 2018).

Bulgaria scored 100% for the workplace indicator (World Bank 2020). This indicates that the legal framework is established such that women and men do not encounter restrictions to enter the labour force and can follow the career that best fits their abilities. The Labour Code provides the mandate for equal remuneration for work of equal value. The local experts who were interviewed when producing the study did not identify any examples that restricted women entering the same industries as men (World Bank 2020). This is particularly remarkable for the STEM-related industries, such as mining and energy. This enabling legislation means Bulgaria is one of the countries with the highest number of women working in STEM (52%) compared to 11% in the EU (Eurostat 2020b). Bulgaria has the highest ratio of female researchers in the Information and Communication Technology (ICT) in the EU, as well as the second highest ratio of females in the technology sector at 44.6% of the workforce (Eurostat 2018b). Across Central and Eastern Europe, it is not unusual for women to work in technology. Bulgaria has the highest proportion in the whole EU of women in the tech workforce with its level of 27.7% (Eurostat 2019d).

High levels of female participation are also a legacy that can be associated with the Socialist era. It has resulted in female role models that have catalysed a snowballing effect encouraging other women to take up professions that tend to Western Eyes to have a masculine image (West 2008). A best practice example is the Bulgarian Centre for Women in Technology (BCWT). This NGO, financed by membership fees and donations, aims to inspire, motivate and support girls and women in Bulgaria to promote women in ICT, entrepreneurship and science. The initiative wants to contribute to a change of mindset, both of women, as well as employers and to improve the national environment to encourage women to choose ICT and develop a career in that sector.

Besides working as employees in the energy sector, women also contribute to the energy chain as energy entrepreneurs. Equal enrolment to entrepreneurship in Bulgaria is regulated by the Commercial Register and the Register of Non-Profit Legal Entities Act of 2006. Women can register a business in the same way as men. The mandate of the Family Code of 2009 provides women with the same rights as men to sign a contract and to open a bank account. The Protection against Discrimination Act prohibits any discrimination in access to credit based on gender. The Family Code of 2009 and the Inheritance Act offer regulations for equal ownership of assets and inheritance between women and men. These legal frameworks support female entrepreneurs and the women that wish to start a business. They enable women who want to enter the energy sector as energy producers and become members of energy communities in the renewable energy sector. However, the Bulgarian Association of Women Entrepreneurs (BAWE), which was founded in 2008 to support female entrepreneurs, estimates that 35% of the Bulgarian women are self-employed and, of which, 60% have started their business with their own funds. Lack of credit history and collaterals are an obstacle for female entrepreneurs to receive follow-up credit to grow their business, which results in limiting women's businesses to expand.

6.4.3 Women as decision-makers: the legacy of the socialist state

The effects of the pre-1990 gender equality policies still persist and Bulgarian women occupy many high-level positions. This is recognised as a legacy of the socialist regime. This encouraged women to work and succeed in all areas of life (Dermendjieva and Kutseva 2018). Gender equality was mandated by the communist regime as a fundamental part of the socialist project. The prevailing belief was that inequality would be 'solved' through legislation and top-down enforcement; the 1971 Bulgarian Constitution established equality between men and women (West 2008). Communism equated emancipation and equality predominantly with the right to work, with full labour participation being an important element of the centrally planned economy. This right was enforced by labour and education laws to provide all citizens with access to education. However, the socio-cultural division of household and care tasks remained the main responsibility of women.

The socialist legacy is reflected in a relatively high score in gender equality indices. In the EIGE index from 2019, 28 European countries are ranked in their progress of closing the gender inequality gap between men and women by over 31 indicators in six core areas: work, money, knowledge, time, power and health (EIGE 2019). Bulgaria ranked 19th with 58.8 out of 100 points, scoring 8.6 points lower than the European average score. Bulgaria has a very high score in the domain of power, placing it 6th in the EU. The domain of power measures gender equality in the decision-making positions across the political, economic and social spheres by

measuring how many women compare to men are fulfilling positions with decision-making power. The progress in this domain is correlated to the improvements in the sub-domain of economic power measuring income differences between women and men. The share of women in corporate boardrooms, in management positions of financial institutions and as directors of key private companies, places Bulgaria in third place of economic power in the EU. This implies a strong agency of female decision-makers in the private sector, which partly results from the high numbers of Bulgarian women who have completed tertiary education. Gender equality in the workforce is especially high for academically-trained women. This gender gap is the second lowest in the EU. However, gender equality progress in the domain of knowledge has not improved significantly since 2005. The domain of knowledge measures gender inequalities in educational attainment, participation in education and training over the life course and gender segregation. The score in the domain of knowledge was 53.2%, which ranks Bulgaria 25th in the EU. Bulgaria's participation in lifelong learning is the second lowest in the EU. The economic crisis and migration of the working class might have contributed to a low level of enrolment in educational institutions of the current generation in tertiary education (EIGE 2019).

The public sector is still facing a significant gender gap compared to decision-making positions within the private sector. Quotas for female politicians were abolished with the introduction of a democratic political system and, in the aftermath of communism, the percentage of female parliament members dropped to 8.5% in 1990. Progress towards improved gender equality in political positions resulted in 25.8% of the parliament seats being occupied by women in 2019 (Intra-Parliamentary Union 2019). 38% of the ministers in the third Boyko Borisov government are female, including the current Minister of Energy, Temenuzhka Petkova. The share of women in local councils was 25% in 2018 (EIGE 2019). This progress in women participation in political positions has contributed to Bulgaria being ranked 18th of the 149 ranked countries in the 2018 Global Gender Gap Report (World Economic Forum 2018). The report measured the gender gap in four main areas: economic participation and opportunity, educational attainment, health and survival and political empowerment. Although women's suffrage was enabled relatively late in 1937, women today have equal political rights, high workforce participation and legally-mandated equal pay. However, since the first assessment of the EIGE index of Bulgaria in 2005, the gender equality score has dropped significantly (five places on the EU list) and is progressing at a slower pace than other EU member states.

Over the past decade, CEE democracies have been experiencing political uncertainty due to the economic crisis and the rise of right-wing and populist governments (Greskovits 2015). Gender equality policies are becoming more fragile and have started to regress due to a lack of political enforcement in implementing

existing gender policies and legislation. The ranking of Bulgaria in international gender indices, such as the EIGE index (EIGE 2019), demonstrates this regression. Krizsán and Roggebond (2019) analysed trends of limited implementation and governmental support for gender policy and difficulties for women's movement organizations to engage in policy decision-making and participate in policy processes by partnering with governmental actors in five CEE countries. They question whether this is a phenomenon of a broader lack of support for gender policy - as witnessed in the last decade in the region - or if it is an example of gender equality policy being too vague or even weak in their policy interventions. They criticised current gender equality policies as being too focused on the policy process itself, its enabling conditions and implementation facilitators therefore limiting the support from politicians to monitor implementation and governmental agencies to implement the policies in the first place.

According to political activist groups, current political conditions and public support for gender equality and women's rights in Bulgaria are in danger. The backlash of women empowerment and gender equality has limited the work of feminist advocates and is leaving the women's movement without support (Dermendjieva and Kutseva 2018). The fundamental female right to family planning has been challenged in Bulgaria by feminist movements (Dermendjieva and Kutseva 2018). Family planning is opposed on religious grounds by the Bulgarian Orthodox Church and finds support in the government. The Ministry responsible for family affairs is fighting the negative demographic trend. The majority of the children are born to unmarried women making (for this demographic) Bulgaria second in Europe after Iceland (Eurostat 2012). A third of the households consists of only one-person and 75.5% of the families do not have children under the age of 16. The birth rate is among the lowest in the world with 1.56 child/women. This is combined with the highest death rates in the world. The high death rate is a result of the combination of ageing, high poverty rates and lack of health services (Eurostat 2012). Average life expectancy of women is 74.7 years compared with an EU average of 83.6 years for women and a world average of 72 years for women. In the domain of health, Bulgaria has a gender-equality index of 77.1 (gender-equality index of 100 means full equality between men and women), but ranks lowest in the EU (EIGE 2019). The policy reaction to this demographic challenge is to prioritising family affairs over women's rights to family planning, demonstrates a deep patriarchal tradition that existed before communism and became more visible in public life and in policy choices since the communist system fell. A gendered division of tasks and roles are not challenged by gender equality policies and their enabling conditions for engendering policies and support women's agency in the public or private domain.

6.5 CONCLUSION

Both gender equality and energy transition remain topical issues in Bulgaria. When analysing the energy transition in Bulgaria using the three dimensions of energy transition, it can be concluded that progress is limited. The European Commission (2019) strongly recommended the Bulgarian government reassess their low ambitions on decarbonization and energy efficient as a reaction to the draft NECP of Bulgaria. Decarbonization policy is promoting the uptake of energy efficiency technology by providing subsidies for homeowners. Switching from fossil fuels to renewables or cleaner energy sources is also stimulated. However, the use of polluting firewood is still widespread as it offers the most affordable option for many households suffering from energy poverty. Distributive energy justice is in jeopardy when not all energy services are available for consumers at an affordable price. The high urbanization rate of Bulgarian households, combined with the energy inefficient housing stock and district central heating systems using gas, means that access to sustainable, affordable and clean energy for all Bulgarians remains a problem.

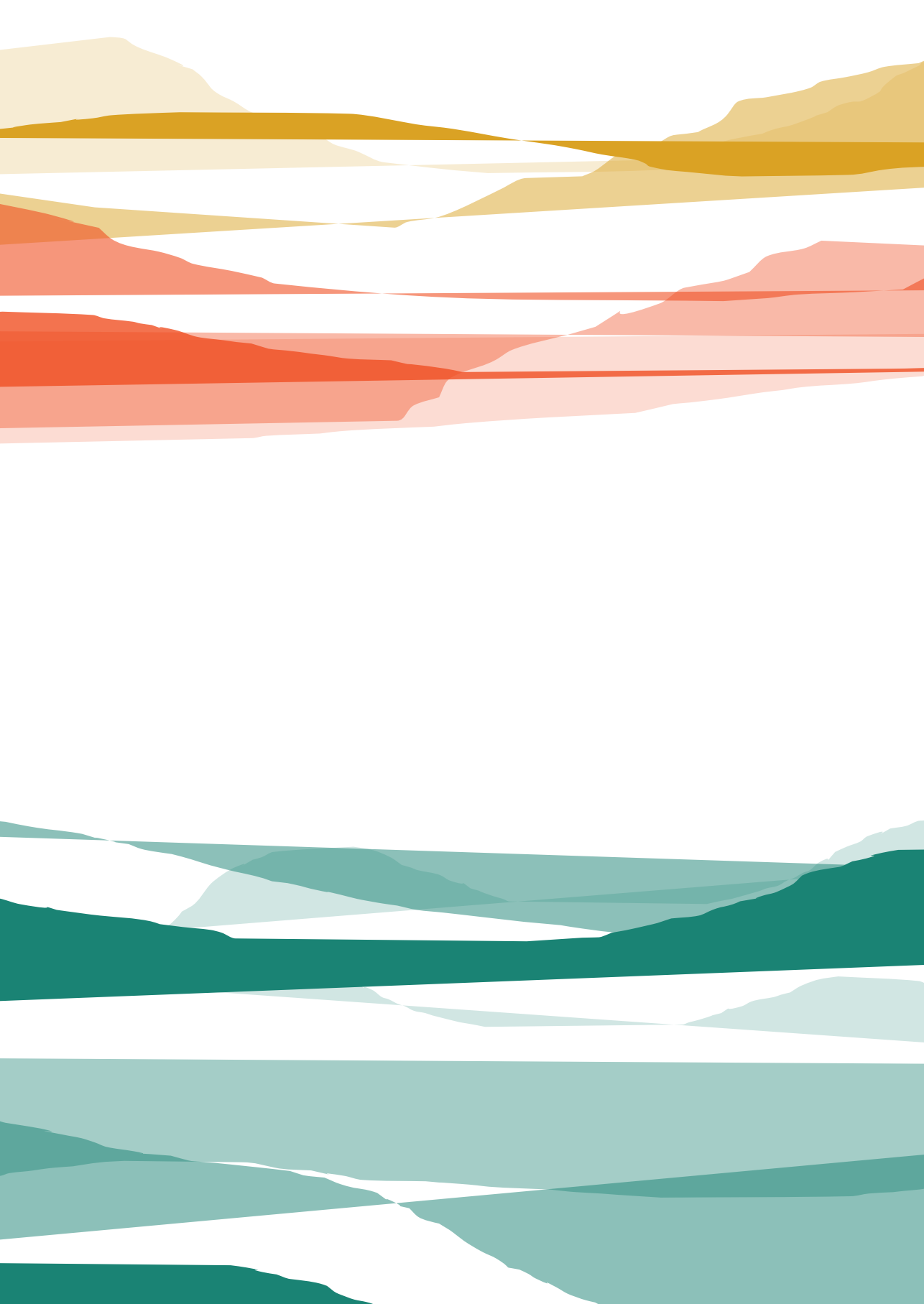
The policy perspective of a just energy transition comes with a demand-driven energy policy that recognises the needs and rights of the energy consumer. Despite the urgent situation of one third of the Bulgarian energy consumers living in energy poverty, the national energy policy discourse is still strongly supply-oriented and energy security driven. The European Commission (2019) highlighted that, in the draft NECP, the Bulgarian government did not mention the urgent need for an energy poverty relief policy. This means that the draft NECP does not reflect the recent policy initiatives in Bulgaria to mitigate energy poverty. In the final NECP of Bulgaria, there is a section on energy poverty stressing the importance of financial support for energy efficient housing and heat allowances for energy vulnerable consumers. The creation of a legal framework that acknowledges energy poverty is promising. The framework urges enforcement in energy poverty mitigation policies in close collaboration with social welfare policies and housing policies. This might result in some relief for the energy poor by installing winter heating subsidies for those who are eligible. Gender disaggregated data on energy poverty and energy use collected on a national level is used as an input to monitor and evaluate energy poverty relief programmes. However, it is too early in the implementation to draw conclusions on the effectiveness of the policies.

Key to the governance shift in energy transition is the participation of all stakeholders involved in energy transition: government, private sector and civil society. Bulgaria is still a highly centralized state with a governance model characterized by top-down governance and with a regulation-focused government that allows for limited stakeholder participation in policy design. The EU membership comes

with the obligation of implementing EU legislation, such as the NECPs, requires collaboration and input from stakeholders as a mandatory element in preparing these plans. The EU Commission (2019) strongly recommended the Bulgarian government to engage with all relevant sectors and to integrate the issue of a just transition in all policies. The Bulgarian government needs to involve all stakeholders if it is to be eligible for much needed EU funding and to reach their decarbonization targets. This would contribute to an increase in procedural energy justice in the Bulgarian energy transition.

The question is whether women can be change agents for engendering a just energy transition. Many women acting as energy consumers face the critical issues of not being able to pay for clean and sufficient energy sources, struggling with cold homes and using poor quality polluting wood for cooking and heating. Their rights and needs are only partially met in current energy poverty relief measures. Nevertheless, it is promising to see a strong representation of women as energy producers and decision-makers. In this chapter the enabling conditions for engendering energy policy in Bulgaria are analysed using the Feenstra (2002) framework and it can be concluded that gender equality is strongly embedded in the Bulgarian legislation. It is also enforced in national labour and social welfare policies and institutionalized by a governance structure at the national level, supported by sufficient funding and facilitated by gender-disaggregated data. The condition that is lacking behind is the involvement of civil society in participatory planning. The existence of this enabling conditions is rooted in the legacy of Bulgaria's previous socialist regime. This has intersected with the country's ambition to be a mature member of the EU and the wider international community.

However, the implementation and enforcement of gender equality legislation and policies remain limited by the observed decrease of political support and the economic and demographic challenges which are claiming priority. The current deterioration of women's rights in Bulgaria demonstrated by the feminist movement highlights the living paradox of a patriarchal top-down society combined with growing inequalities and demographic challenges in a transition to a market-driven economy. This chapter presenting the Bulgarian case study demonstrates that the manifestation of gender inequalities and energy injustices is positioned and influenced by political, historical and socio-cultural context. The Bulgarian case study contributes to nuancing our understanding of the complexity of transitions, whether these are political, economic or gender and energy transitions.



7

**Conclusions and synthesis:
towards a gender just
energy transition**

ABSTRACT

This final chapter of the thesis consists of three sections. The first section synthesises the thesis based on the research objectives and the conclusions of individual chapters. The second section reflects on the contribution of the thesis to theory, methodology and policy, and on the applications of the gender just energy policy framework. The third and final section outlines future research directions.

7.1 SYNTHESIS OF THE THESIS

This thesis sets out to achieve two main research objectives, which are divided in a total of five sub-objectives:

A. To advance the theoretical understanding on the gender dimension of energy policy

- A1: To develop a conceptual framework that juxtaposes the gender-energy nexus with the tenets of energy justice
- A2: To compare the gender dimension of energy poverty in different European countries
- A3: To investigate the recognition of gendered needs and rights within energy policy

B. To analyse the energy transition policy through a gender-just lens

- B1: To define policy choices of energy transition in Europe by applying the gender just policy framework
- B2: To demonstrate the manifestation of gender inequalities and energy injustices under different contexts of European countries

In order to achieve these objectives, I developed and applied the gender just energy policy framework to conceptualise and analyse the gender dimension of energy transition policy.

The concept of energy justice addresses justice issues in energy access, use and policy, but the gender-energy nexus research lacks the conceptual basis to analyse energy policies from a justice perspective. This knowledge gap is bridged in Chapter 2. By juxtaposing the engendering policy discourses with the tenets of energy justice, the main concepts of the gender-energy nexus are identified. To develop the framework, I reviewed 56 scientific publications by identifying, examining and synthesising the key debates in energy justice and engendering energy policy. The resulting gender just energy policy framework serves as a conceptual framework to understand the interlinkages between energy justice and the gender-energy nexus.

Before using the gender just energy policy framework to analyse energy policy in Europe, I identified existing gender inequalities and injustices in energy access. Chapter 3 describes through a gender lens the structural causes of energy poverty and the policies to address access to energy services of seven European countries: Bulgaria, France, Italy, the Netherlands, Spain, Sweden and the UK. While the existing energy poverty data are not gender-disaggregated, clear gender differences are discerned, linked to other social characteristics, in the causes of energy poverty and the derived outcomes. The main conclusion is that while economic factors contribute to energy poverty, there are also biological/physiological and socio-cultural factors, which tend to be difficult to capture quantitatively but are revealed through a gender analysis that combines quantitative and qualitative data. When those gendered factors are ignored, the policy cannot deliver a just energy transition.

In Chapter 4 I applied the gender just energy policy framework by analysing the energy transition policies of five EU member states: Bulgaria, France, the Netherlands, Spain and Sweden. The conceptual framework developed in chapter 2 is operationalised with seven elements: energy users, energy poverty, energy consumption, energy production, energy governance, energy participation and energy rights. Further, the gender just energy policy framework reflects the multi-layer, multi-disciplinary and multi-actor complexity of energy transitions. By analysing the actors and policy interventions of the energy transition, the inherent injustices and inequalities are revealed. This analytical function of the framework deepens the insights on how to engender the energy transition by defining and applying the criteria that contribute to a gender just energy policy.

Chapter 5 focuses on the involvement of women in the energy transition based on a comparative gender analysis of post-WWII household energy policy in France and the Netherlands. Application of the needs- and rights-based approach to energy interventions identifies women as right-holders to be recognized and acknowledged by the government and the market. The post-WWII energy transition in France and the Netherlands illustrates how women were targeted in order to expand the uptake of electrification. This is a key lesson to draw for the current energy transition, which promotes the uptake of the new technologies and behaviour change by targeting households as homogenous entities. This approach misses the role that women in the households play in energy management.

The role of women in engendering the energy transition is examined in Chapter 6. Both gender equality and energy transition are topical issues in Bulgaria. Three roles for women are addressed in this chapter: producer, consumer and decision-maker. Many women face issues of being unable to pay for clean and sufficient energy, struggling with cold homes and having to use wood for cooking

and heating. Policies are trying to address their needs as energy consumers with financial support and energy efficiency programmes. As compared to other EU countries, women in Bulgaria are more involved as energy producers and decision-makers in the energy system. Gender equality is embedded in the national legislation and enforced in labour and social welfare policies and institutionalized by a national governance structure. However, the implementation of gender equality policies is limited by weak political support and the prioritization of economic and demographic problems. As such, a gender just energy transition remains a challenge for Bulgaria. It demonstrates that the manifestation of gender inequalities and energy injustices is positioned and influenced by political, historical and socio-cultural contexts. The Bulgarian case study contributes in nuancing our understanding of the complexity of transitions, whether these are political, economic or gender and energy transitions, again underlying our need for disaggregated data.

To conclude, this thesis advances the understanding of the gender dimensions of energy policy through developing and applying a conceptual framework that juxtaposes the three tenets of energy justice and the three engendering policy approaches. The framework is operationalised by defining seven elements and twelve criteria, which are applied to analyse the national energy transition policies in Europe. The results of the analysis confirm that the gender just energy policy framework is applicable to compare choices in energy transition policy. Through in-depth case studies, the thesis further demonstrates the manifestation of gender inequalities and energy injustices under different political, historical and socio-cultural contexts of European countries. It investigates the recognition of women's needs and rights within energy policy and identifies policy interventions that enable a just energy transition in which the right to energy for all is acknowledged.

7.2 CONTRIBUTIONS OF THE THESIS

A just energy transition requires unravelling gender inequalities and energy injustices and their manifestations under different contexts. To do so, I combine two separate streams of literature in this thesis: gender-energy nexus and energy justice. The justice concept resonates with the human rights discourse in which gender equality constitutes one dimension. Overcoming injustices in energy access is central within the literature on energy justice. The combination of gender analysis with the concept of energy justice facilitates understanding of how benefits, costs and risks of the energy transition are distributed in society (Fuller 2019; Sovacool et al. 2016; Miller 2014) and where injustices emerge, who are affected, and which processes exist to ensure fairness (Jenkins et al. 2016). Sovacool et al. (2016) apply the lens of procedural theories of justice to analyse governance and decision-making processes in energy transition research, proposing that energy justice has

three functions: the conceptual, the analytical and the decision-making function. The theoretical contribution of this thesis relates to the conceptual function of energy justice (section 7.2.1), the methodological contribution (section 7.2.2) with the analytical function, and the policy contribution (section 7.2.3) with the decision-making function.

7.2.1 Theoretical contribution

Although contributions to the gender and energy transitions literature are increasing, this thesis contributes to the understanding of the correlation between gender equality and energy transition. The knowledge gap of this gender-energy correlation is partly caused by the lack of gender-disaggregated data, which is not only a limitation for comparative research but also an obstacle for policy-makers to be well-informed and act upon gender inequalities and injustices. Chapter 4 shows that although there are energy policy choices that can stimulate a just energy transition, they are still gender neutral and mention social inclusion only sparsely. For example, to address energy users the NECPs adopt gender neutral terms, such as ‘vulnerable energy consumers’, neglecting the diversity of users and their needs. Empirical evidence presented in this thesis with case studies from different political, historical and socio-cultural contexts results in an improved understanding of the relationships between gender equality and energy transition. This understanding is essential for the theory development and conceptualisation of just energy transitions. A better understanding of the impact of the energy transition on women and men and the role of intersectional factors such as age, education and socio-cultural background could also contribute to more just energy transition policy.

To nuance the gender-energy nexus, I make a distinction based on the historical development of engendering policy approaches: women empowerment, gender mainstreaming and social inclusion. Each approach has its own emphasis of who to involve, who to target and who to hold responsible for overcoming inequalities and injustices. The three engendering approaches co-exist without a hierarchy. I rather envision the engendering approaches as a circular process evolving from one stage to the other. Engendering policy could start from a gender-neutral position. In a gender-neutral policy, there is no distinction between men or women and terms like ‘households’, ‘citizens’, ‘consumers’ are commonly used. When starting the engendering process, several stages can be identified to reach gender equality. A women-only approach will result in policies towards women empowerment and a focus on women’s rights. At a certain point in the process, women are no longer seen in isolation and a sensitivity for gender relations emerges. This is the start of a gender mainstreaming process in which gender-aware policies are developed aiming at gender equality. However, gender equality might not even be the ultimate goal in engendering policy. With the recent aim of many donor organisations, such as the EU, gender equality is considered the

starting point towards social inclusion. An intersectionality scope is used by looking at the differences between people beyond the binary distinction of women vs. men. However, social inclusion might dilute the differences between social groups and more specifically between gender relations. Over time, this dilution could result in going back to the starting point of the gender and policy cycle: gender neutrality.

The combination of the tenets of energy justice with the engendering policy approaches creates a lens for an evaluative understanding of gendered and other social differentiations embedded in energy transition. At the same time, this combination provides a normative framework for designing and implementing gender-just policies and interventions that address inequality in the energy chain. Gendered analysis of energy policy provides insights in the heterogeneity of social inequalities and understanding of the intersectionality of the energy users as well as creating spaces for women's voices to be heard. This thesis made a conceptual contribution by presenting a framework that integrates energy justice and gender discourses to evaluate energy policy.

From a just energy policy perspective, energy poverty reveals the inequalities in terms of energy access. Energy poverty is often mentioned as a distributive energy justice problem, since it relates to the unequal distribution of energy services among users. However, when deepening the energy poverty debate with the gender dimension, I argue that a gender lens emphasizes the recognition of the needs of energy users. The gender dimension of energy poverty is conceptualised by defining economic, biological/physiological and socio-cultural perspectives. Based on the gender dimension of energy poverty, I identify intersectionality of energy poverty as an element of recognitional justice, as elaborated within the operationalisation of the gender just energy policy framework in Chapter 4. It demonstrates that the separate tenets of the energy justice framework are dynamic concepts that are mutually interlinked and reinforcing.

In the search for a just energy transition, the question emerges how energy policy research can identify the rights and needs of energy users. Chapters 3 and 4 show that the rights and needs of vulnerable energy consumers have been gaining attention of researchers and policymakers in the energy poverty debate. As introduced in chapter 5, two gender approaches are instrumental to understand the gender-energy nexus: the needs-based approach and the rights-based approach. Both approaches address social justice in energy policy, by pinpointing the different energy needs of women and men and the rights that entitle them to equal access to energy services. The needs-based and the rights-based approaches demonstrate the relevance of gender in energy policy and the prevalence of gender inequality in energy access. Despite their origins from empirical research in the Global South, these gender approaches resonate with

the electrification process and access to energy for households in the Global North during the decades after the WWII. France and the Netherlands were chosen in Chapter 5 to illustrate the history of uptake of electricity in the Global North. For an inclusive and just energy transition, lessons can be learned from the previous energy transitions by involving women in energy policy to increase the uptake of new energy technologies. The energy policy should recognize the needs and interests of all energy consumers, as emphasised by international conventions like the SDGs and the Clean Energy for All Europeans. This does not need to be a new endeavour, as we can use both the experiences of the past in the Global North as well as the experiences from more current energy transition programmes in the Global South, as to what works and what does not.

Demonstrated by the case study of Bulgaria in chapter 6, I have combined the three key elements of procedural justice, i.e., recognition of actors, participation of actors and power of actors, with the agents of change theory. The main body of literature on gender-energy nexus is based on empirical data from the Global South. This thesis links the agents of change theory with the energy justice concept in the European context. The agency of actors is manifested with three roles: consumer, producer and decision-maker. Analysing the gender-energy nexus using this triple role of actors provides a holistic approach in theoretical understanding of involvement and participation beyond procedural energy justice. As demonstrated in the empirical chapters of this thesis, by looking at agency of actors in the energy system, a difference in the rights and needs of women and men can be identified from recognitional, distributive and procedural justice perspectives. Engendering the energy transition is a way to reflect and support the agency and hence the involvement of women and men equally towards a just energy transition.

7.2.2 Methodological contribution

Scholars that have been studying the gender-energy nexus in the Global South are shifting their focus to the Global North, applying the same methodologies and using similar theoretical lenses to investigate the energy transition in the Global North. This shift is demonstrated by Clancy et al. (2017), on which Chapter 3 is based, where we drew on our experiences in studying gender and energy access in the Global South to identify the gender dimension of energy poverty in the EU. Furthermore, the application of the engendering policy approaches in this thesis demonstrates that despite their origins from empirical research in the Global South, these approaches resonate with energy transition in the Global North both in the current process of the NECPs, as analysed in chapter 4, as well as the post-WWII electrification process and uptake of new energy technology in France and The Netherlands, as shown in chapter 5. However, conceptual and analytical frameworks were lacking to apply gender approaches in comparative energy policy analysis and this thesis has bridged that knowledge gap. In Chapter 2, I

have developed the gender just energy policy framework by juxtaposing energy justice and gender approaches discerned from a historical analysis of engendering energy policy discourses. The conceptual framework was developed through the review of 56 scientific publications. Each reviewed publication was positioned in the matrix of the conceptual framework as shown in Figure 7.1.

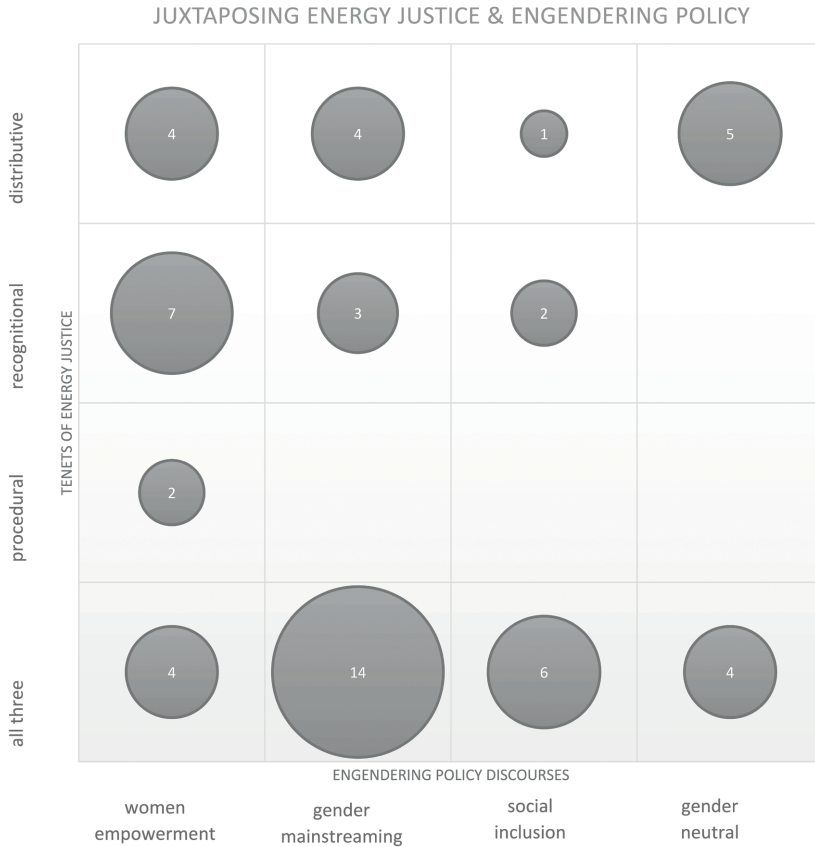


Figure 7.1: The matrix of gender just energy policy framework

By dissecting the gender–energy nexus into the three energy justice tenets and the three engendering energy policy process, the matrix in Figure 7.1 contributes to demonstrating the diversity of elements in the gender–energy nexus and their different emphasis. The gender just energy policy framework can be applied to systematically analyse the gender–energy nexus. It helps positioning research and policies in the gender just energy debate by identifying to which energy justice tenet they contribute to and from which gender approach they originate from. It is important to recognize that different gender approaches and energy justice can co-exist, be intertwined and mutually reinforced within the same research

and policy documents or processes. Identifying the different cells of the gender just energy policy matrix facilitates the analysis of the gender–energy nexus and the unravelling of gender inequalities and injustices in the energy transition. Within the gender just energy policy framework, I identify three engendering approaches (women empowerment, gender mainstreaming and social inclusion). Each approach has its own vocabulary as reflected in the choice of target group of policy interventions.

The methodological contribution of the gender just energy policy framework is further developed and illustrated in Chapter 4, where the framework is operationalized with seven elements and twelve criteria. Using these criteria, the gender just energy policy framework evaluated the NECPs of Bulgaria, France, the Netherlands, Spain and Sweden. ‘Women’, ‘gender’ and/or ‘social inclusion’ are often not specifically mentioned in energy policy documents, which makes it difficult to identify the opportunities towards a just energy transition that includes gender approaches. Using the elements and criteria of the framework enables bringing to light such opportunities in a transparent and systematic manner.

Another methodological contribution of this thesis is the identification of the gender dimension of energy poverty indicators. There is a wide variety of energy poverty indicators developed and used by both researchers and policymakers. However, without a clear gender dimension, the data are not gender-disaggregated causing the gender dimensions of energy poverty to be invisible for policymakers and energy poverty researchers. Energy poverty data are limited in availability, often not gender-disaggregated and mostly quantitative. Gender analysis would contribute to gender-disaggregated data collection through mixed methods using an intersectional lens. Gender analysis dissects the intersectionality of the energy user and discerns clear gender differences, linked to other social characteristics, in the causes of energy poverty and the derived outcomes. As concluded in Chapter 3, gender and energy poverty can be analysed from three interlinked perspectives which are either causal or consequential: the economic, the biological/physiological and the socio-cultural perspective. The causes, characteristics and consequences of energy poverty can all be linked both within and between the three perspectives, acknowledging that energy poverty and gender are complex and multidimensional concepts, which need an analysis that reflects those characteristics.

7.2.3 Policy contribution

In Europe, there is a growing political awareness of the social dimension of energy transition with a focus on the protection of vulnerable energy consumers and social inclusion in all policy areas. However, recognising that these consumers are not a homogeneous group takes time to emerge, in particular that there are gender-related dimensions influencing the access

to energy services. The outcome is a lack of understanding that the causes, characteristics and consequences of energy poverty can be different for women and men. This understanding is necessary for designing correct policy initiatives to ensure that all energy consumers have access to sufficient, sustainable and affordable energy services. The gender analysis of the energy poverty mitigation policies of seven European countries leads to the observation that each country makes its own policy choices on how to design and implement energy poverty policy, which reflects the contextual nature of energy poverty.

Policy interventions are essential to stimulate a just energy transition by addressing social inequalities in the energy system. This thesis contributes to the design of such policy interventions by presenting insights into the gender dimension of energy policy choices and to identify possible pathways to engender the energy transition by following a gender approach. Engendering energy policy resonates with the prevailing academic debate on energy justice and equal access to energy services as reflected in international commitments and national policy plans towards a just energy transition.

The energy transition is a complex and dynamic policy process. This thesis adds to the complexity of energy transition by arguing for a gender approach. Gender relations are dynamic and highly contextual reflecting the socio-cultural, political and economic characteristics of a society. However, a gender approach in European energy policy receives hardly any attention of policy makers despite the overall goal for a smart, sustainable and inclusive growth of the EU. Key policy goals of the European energy transition, as reflected in the EU legislation and reported by national governments in their NECPS, are decarbonisation and increasing energy efficiency. Although social inclusion is not explicitly mentioned, policy choices in the energy transition could contribute to inclusion of gender and energy justice as concluded in chapter 4.

Based on the analyses presented in this thesis, two pathways of gender and energy transition policy can be distinguished. The first pathway is the status quo; implementation of regulations and economic incentives that stimulate a demand-driven energy transition, based on individual behavioural change in energy consumption. This comes with the expectation that in the end the benefits and responsibilities of the energy transition will be distributed evenly. Economic incentives have been influential in promoting the uptake of energy efficiency in several contexts (Inderberg et al. 2018). However, this pathway does not challenge the existing gender inequalities and injustices in the energy system. For a gender just energy transition, regulations should include gender-energy rights as described in chapter 4, and economic incentives, such as tax reduction, special tariffs and subsidies to stimulate energy efficiency, should incorporate

gender equity. This pathway partially addresses inequalities by focusing on energy consumption and does not challenge inequalities and injustices in other elements of the energy system, such as women's involvement in energy production and energy governance. Another critique is that the status quo pathway is vulnerable to the Matthew-effect. Those that can afford to invest in the energy transition benefits the most, while the people that are already encountering injustices are faced with a widening gap to participate and benefit from the energy transition.

Policy makers and politicians are not intentionally gender-blind. Energy policy is considered by policy-makers to be gender-neutral but in practice it is conceived as gender-blind. The gender-blindness of energy policy is partly manifested within its strong emphasis on households as a homogeneous entity. In reality, there are strong differences in household composition and their fluidity, such as caregiving responsibilities and parenting. However, as shown in this thesis, very limited gender-disaggregated data on energy use is available to inform policymaking and monitor the implementation of policy interventions. As a consequence, national energy policies do not bridge the existing gender-gap and promote social inclusion in access and use of energy. To ensure that women and men equally benefit from energy transition, national energy policies should acknowledge and respond to the gender inequality in energy use, access and needs. The policy contribution of this thesis is to create insights in the gender dimension of energy transition pointing out the intersectional elements and to define policy choices to develop a gender just energy transition.

The second pathway, which is both necessary and complementary, is a holistic approach to the energy transition. A holistic approach addresses social differentiation and unequal access to energy services in the energy transition (McCauley 2017). In this thesis I go beyond energy access in which the diversity of energy users and their needs should be addressed towards a just energy transition. I recommend policies and policy instruments that acknowledge the gender-energy nexus as an overarching policy area demanding multidisciplinary approaches and cross-sectoral integration on multiple levels. The set of elements and criteria defined in chapter 4 can be used to identify policy choices towards a just energy transition. The gender just energy policy framework takes a holistic approach towards the energy system by including consumption, production and governance of the system. It addresses dimensions of intersectionality and diversity of consumers, producers and decision-makers at the micro (household), meso (local) and macro ((inter-) national) levels. The framework is based on existing policies and is developed through gender analysis of existing policy choices. The gender analysis does not propose an alternative pathway, but instead designs an additional approach that complements and strengthens existing policy by identifying opportunities to include gender just energy elements.

7.3 FUTURE RESEARCH AGENDA

This thesis is pioneer research on the trilemma of energy transition, energy justice and energy poverty through a gender lens. The gender just energy policy framework has only been conceptualised in this thesis; the invitation is to future research to further develop this framework. Future research is essential to develop the decision-making function of the framework for designing, implementing and monitoring gender just energy policy. This also resonates with the call to consider the societal impact of energy justice and to motivate energy justice scholars and practitioners to ‘practice what we preach’ (Jenkins et al. 2020). The future research agenda can be divided into three directions.

7.3.1 North – South, East – West: a contextual approach to energy justice

In this thesis I studied multiple cases to reflect different geographical, socio-cultural and political and economic contexts of seven European countries. Future research could extend this research with empirical data from other European countries. The applications of the gender just energy policy framework in non-European countries would also develop the framework further. Since gender is embedded in socio-cultural and political traditions in different settings, context is an important factor regarding the application of the framework. The empirical chapters of the thesis demonstrate that each country has its own circumstances that enable or hinder gender equality in energy access. Each country makes its own political choices on how to engender the energy transition as illustrated in chapter 4. Each country has its own emphasis on how to address energy poverty and inequalities in energy access as demonstrated in chapter 3. Furthermore, the historical context of each country influences the current policy landscape as highlighted in chapters 5 and 6. The gender just energy policy framework is open to contextualisation. Therefore, the proposed research agenda includes the application and testing of the framework in different contexts.

The importance of contextualizing energy justice has been described by several scholars emphasizing spatial injustices in energy access (Bouzarovski and Simcock 2017; Bouzarovski and Tirado Herrero 2017). The spatial aspect is considered as a dimension that intersects with all three energy justice tenets and as a contextual factor of injustices and inequalities. Gender and the spatial aspect could be interlinked to strengthen the contextual understanding of inequalities and injustices in energy access. The majority of the gender-energy nexus research is based on empirical data from the Global South and the energy justice debate mainly relies on data from the Global North (Winther et al. 2020). I argue that when juxtaposing these two streams, a globally applied framework can be used which is aware of contextual factors.

7.3.2 Mixed methods to generate gender-disaggregated data

The energy transition, energy poverty and the gender-energy nexus brings together a wide range of researchers, from numerous disciplines, backgrounds and locations and using a range of research methods have made contributions to the existing body of knowledge. This variety of researchers and their methodological choices reflects the complex, multi-dimensional and dynamic nature of just energy transitions. Both qualitative and quantitative data are collected and analysed in gender-energy nexus research. Energy poverty literature has a tendency to use more quantitative methodology, measuring the phenomena through sets of indicators. Quantitative data are also preferred by policymakers to monitor the impact of energy poverty mitigation policy. More recently, energy poverty research develops a growing interest for qualitative methods (Middlemiss et al. 2020a). Gender and energy research has been primarily qualitative and reflects multi-dimensional, multi-scalar, dynamic and relational descriptions of a phenomenon. This reflective character of qualitative methodology is the reason why I chose a qualitative methodology in this thesis.

While this thesis applies the methodology of qualitative policy analysis, researchers from a variety of disciplines can test and extend the gender just energy policy framework with evidence collected through other methods. Quantitative analyses could complement the decision-making function of the framework. Further, the impact of energy transition policy choices on the lived experiences of women and men could be assessed with mixed methods. For instance, ethnography allows for studying people's experiences and ways in which they value energy in everyday contexts, and how these interconnects to a wider political economy context (Matinga and Clancy 2020; Standal 2018). Ethnographic methods can provide detailed and situated understandings of how women and men are positioned in the energy transition debate. The ethnographic lens also enables linking micro- and macro-perspectives and bringing lived experiences of gender inequality and injustices into picture. Such an analysis illustrates how gendered differences impact participation in the energy transition process. Furthermore, it also reveals the unequal distribution of costs and benefits in the energy transition.

7.3.3 Cross-sectoral co-creation for engagement and justice

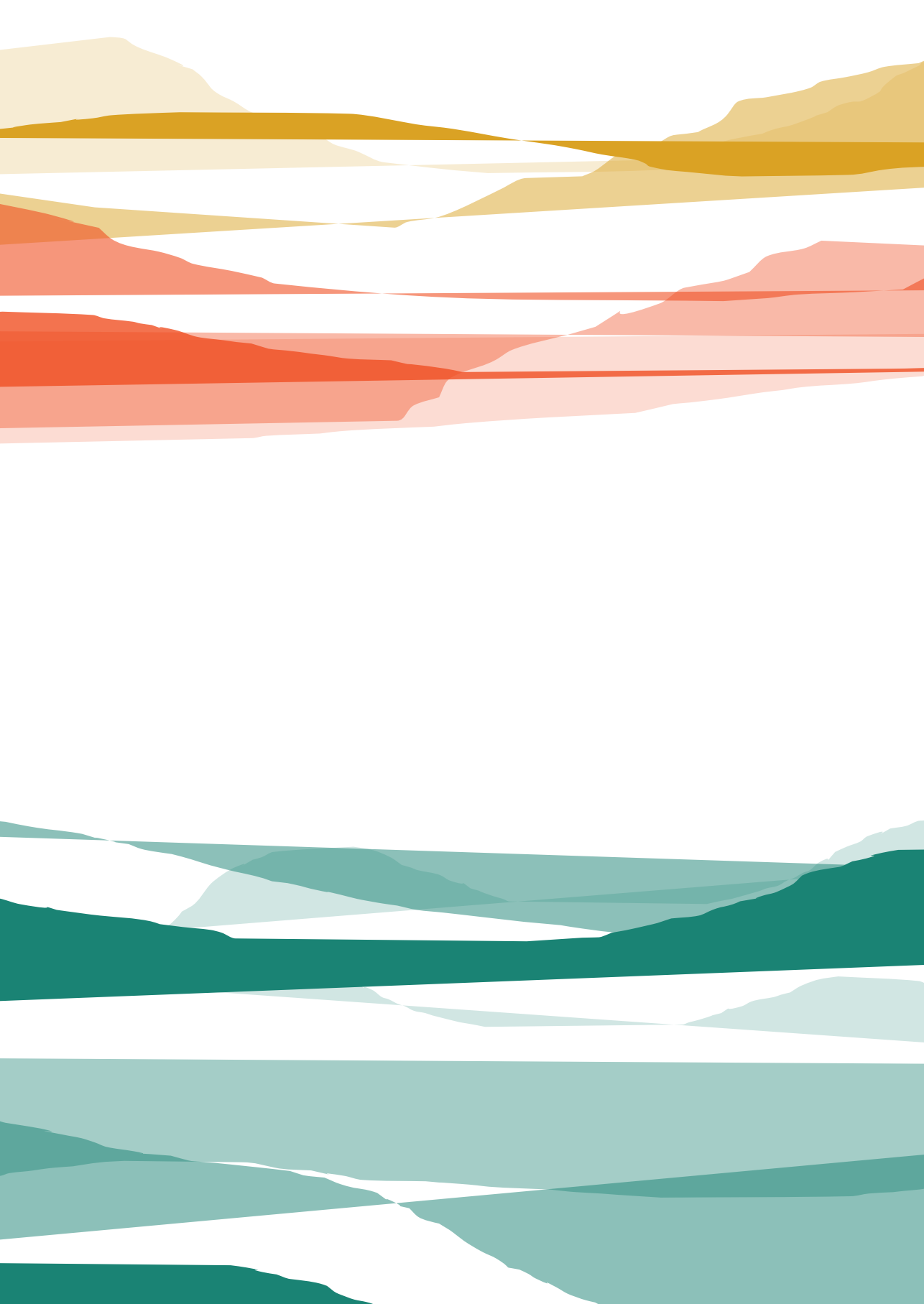
Cross-sectoral approaches to research and policymaking could enhance engagement of all actors involved in the energy system and strengthen the commitment for a just transition. How can energy policy research reflect the multifaceted nature of energy transition? While the gender-energy nexus research is rooted in co-creation with practitioners and applied in the development of energy interventions, the energy justice framework has originated from scholarly debates and evolved through empirical research. Integrating the gender dimension into theoretical frameworks by co-creating them with a diverse set of actors, both

women and men, and by applying gender analysis in mixed methods would reflect the multifaceted nature of a just transition.

The twelve indicators presented in Chapter 4 demonstrate the wide scale of opportunities to improve gender equality and justice in the energy transition. A successful energy transition needs to pay attention not simply to energy policy, but also to other policies and policy instruments related to people's welfare, such as education and employment. Such a cross-sectoral focus beyond energy policy can contribute to energy justice through the recognition of the gender-energy nexus in the policy process. Also, within gender and policy studies there is limited attention to energy policy and growing interest for climate justice issues. The mutually interest and collaboration from both gender scholars in energy and energy scholars in gender could enhance insights into the complexity of achieving a just transition.

A final future research direction is to engage with the energy actors by involving them in the research process. Underrepresented groups in energy process can be involved by using participatory research methods, such as ethnographic research and focus-group discussions. Such methods would contribute to a better understanding of the motivations, knowledge and capabilities of underrepresented groups. Participating in co-creation could contribute to empowerment by training participants how to use their voices to express their needs and claim their rights. The work of Winther et al. (2020) illustrates how renewable energy programmes in the Global South can empower women and transform gender relations at household and community levels. It is an interesting echo of the current energy transition in the Global North, which has a male-oriented focus without acknowledging women's involvement. An inclusive and just energy transition requires the involvement of women as actors in the energy policy, and as consumers, producers and decision-makers in the energy system.

To conclude, a gender just energy policy can contribute to engendering the energy transition in Europe and beyond. Enabling conditions in society and political support is crucial to engender a just energy transition. This thesis invites all actors in the energy system to further apply and develop the gender just energy policy framework through future research in different contexts and different aspects of the gender-energy nexus.



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SUMMARY

Gender equality and social justice receive limited but growing attention in energy research and energy policy. Differences between women and men in their access to and use of energy services constitute the core of gender-energy nexus research. Within households, access to energy services, which implications for meeting needs and interests, are differentiated between women and men leading to injustices. Differences also occur between households, often mediated beyond income levels, by social characteristics, such as age, civil status and ethnicity. In the search for a just energy transition, the question of gender equality emerges about how to design an energy policy that reflects the rights and needs of all energy users.

Gender-energy nexus research is rooted in development studies, with empirical data that comes mainly from the Global South. More recently there has been a growing interest in the gender-energy nexus in the Global North which has focused on the issue of energy poverty. Energy poverty is conceptualised as insufficient energy to guarantee a decent standard of living and health through a lack of appliances that provide services such as adequate warmth, cooling, lighting and telecommunications. Research shows that in Europe energy poverty has a gender face, meaning that more women than men are struggling to afford the energy services which they need. Despite the growing attention to injustices and inequalities of the energy transition, and the recognition of the gender dimension, limited conceptual frameworks and empirical evidence exist on the analysis of macro-level energy policy through a gender lens.

This PhD thesis aims to bridge the scientific and policy knowledge gap in what constitutes a gender just energy policy by developing and applying a conceptual framework that integrates energy justice and gender approaches in energy policy. The search for a just energy policy is a central theme within energy justice, which is used as a concept, an analytical and a decision-making framework. However, the gender-energy nexus and the energy justice discourses have evolved in parallel. The energy policy literature pays little attention to gender equality, which contradicts with the interdependency of the Sustainable Development Goals (SDGs) and misses the benefits that gender analysis can bring. Gender analysis provides insights into the heterogeneity of social inequalities and the intersectionality of the energy users as well as creating spaces for women's voices to be heard.

The concept of energy justice addresses justice issues in energy access, use and policy, but the gender-energy nexus research lacks the conceptual basis to analyse energy policies from a justice perspective. This knowledge gap is bridged in Chapter 2. By juxtaposing the engendering policy discourses with the recognitional, distributive and procedural tenets of energy justice, the main concepts of the gender-energy nexus are identified. To develop the framework, I

reviewed 56 scientific publications by identifying, examining and synthesising the key debates in energy justice and engendering energy policy. The resulting gender just energy policy framework serves as a conceptual framework to understand the interlinkages between energy justice and the gender-energy nexus.

Before using the gender just energy policy framework to analyse energy policy in Europe, I identified existing gender inequalities and injustices in energy access. Chapter 3 describes through a gender lens the structural causes of energy poverty and the policies to address access to energy services of seven European countries: Bulgaria, France, Italy, the Netherlands, Spain, Sweden and the UK. While the existing energy poverty data are not gender-disaggregated, clear gender differences are discerned, linked to other social characteristics, in the causes of energy poverty and the derived outcomes. The main conclusion is that while economic factors contribute to energy poverty, there are also biological/physiological and socio-cultural factors, which tend to be difficult to capture quantitatively but are revealed through a gender analysis that combines quantitative and qualitative data. When those gendered factors are ignored, the policy cannot deliver a just energy transition.

In Chapter 4 I applied the gender just energy policy framework by analysing the energy transition policies of five EU member states: Bulgaria, France, the Netherlands, Spain and Sweden. The conceptual framework developed in chapter 2 is operationalised with seven elements: energy users, energy poverty, energy consumption, energy production, energy governance, energy participation and energy rights. Further, the gender just energy policy framework reflects the multi-layer, multi-disciplinary and multi-actor complexity of energy transitions. By analysing the actors and policy interventions of the energy transition, the inherent injustices and inequalities are revealed. This analytical function of the framework deepens the insights on how to engender the energy transition by defining and applying the criteria that contribute to a gender just energy policy.

Chapter 5 focuses on the involvement of women in the energy transition based on a comparative gender analysis of post-WWII household energy policy in France and the Netherlands. Application of the needs- and rights-based approach to energy interventions identifies women as right-holders to be recognized and acknowledged by the government and the market. The post-WWII energy transition in France and the Netherlands illustrates how women were seen as the target group of policies to expand the uptake of electrification. This is a key lesson to draw for the current energy transition, which promotes the uptake of the new technologies and behaviour change by targeting households as homogenous entities. This approach misses the role that women play in energy management at the household level.

The role of women in the contemporary engendering energy transition is examined in Chapter 6 with a case study of Bulgaria. Three roles for women are addressed in this chapter: producer, consumer and decision-maker. Many women face issues of being unable to pay for clean and sufficient energy, struggling with cold homes and having to use wood for cooking and heating. Policies are trying to address their needs as energy consumers with financial support and energy efficiency programmes. As compared to other EU countries, women in Bulgaria are more involved as energy producers and decision-makers in the energy system. Gender equality is embedded in the national legislation and enforced in labour and social welfare policies and institutionalized by a national governance structure. However, the implementation of gender equality policies is limited by weak political support and the prioritization of economic and demographic problems. As such, a gender just energy transition remains a challenge for Bulgaria. It demonstrates that the manifestation of gender inequalities and energy injustices is positioned and influenced by political, historical and socio-cultural contexts. The Bulgarian case study contributes to nuancing our understanding of the complexity of transitions, whether these are political, economic or gender and energy transitions, again underlying our need for disaggregated data.

To conclude, this thesis advances the understanding of the gender dimensions of energy policy by developing and applying a conceptual framework that juxtaposes the three tenets of energy justice and the three engendering policy approaches. The framework is operationalised by defining seven elements and twelve criteria, which are applied to analyse the national energy transition policies in Europe. The results of the analysis confirm that the gender just energy policy framework is applicable to compare choices in energy transition policy. Through in-depth case studies, the thesis further demonstrates the manifestation of gender inequalities and energy injustices under different political, historical and socio-cultural contexts of European countries. It investigates the recognition of women's needs and rights within energy policy and identifies policy interventions that enable a just energy transition in which the right to energy for all is acknowledged.

SAMENVATTING

Gendergelijkheid en sociale rechtvaardigheid krijgen beperkte maar toenemende aandacht in energieonderzoek en energiebeleid. Verschillen tussen vrouwen en mannen wat betreft hun toegang tot en hun gebruik van energiediensten vormen de kern van het onderzoek naar de gender-energie-relatie. Ook binnen huishoudens zijn er gender verschillen in de toegang tot energiediensten, die gevolgen hebben voor de erkenning van behoeften en belangen van vrouwen en mannen, hetgeen leidt tot onrechtvaardigheid. Ook tussen huishoudens zijn er verschillen, die vaak niet alleen worden bepaald door het inkomensniveau, maar ook door sociale kenmerken, zoals leeftijd, burgerlijke staat en etniciteit. In het streven naar een rechtvaardige energietransitie komt de vraag naar gendergelijkheid naar voren en hoe een inclusief energiebeleid kan worden ontworpen waarin de rechten en behoeften van alle energiegebruikers worden weerspiegelt.

Het onderzoek naar de gender-energie-relatie is geworteld in ontwikkelingsstudies, met empirische gegevens die voornamelijk afkomstig zijn uit het Zuiden. Meer recentelijk is er in het Noorden steeds meer belangstelling gekomen voor de gender-energie-relatie, waarbij de nadruk ligt op het vraagstuk van energiearmoede. Energiearmoede wordt gedefinieerd als het hebben van onvoldoende toegang tot energiediensten om een fatsoenlijke levensstandaard en goede gezondheid te garanderen door een gebrek aan beschikking hebben over apparaten die diensten leveren zoals adequate warmte, koeling, verlichting en telecommunicatie. Uit onderzoek blijkt dat energiearmoede in Europa een gendergezicht heeft, wat betekent dat meer vrouwen dan mannen moeite hebben om de energiediensten te veroorloven die zij nodig hebben. Ondanks de groeiende aandacht voor onrechtvaardigheden en ongelijkheden in de energietransitie, en de erkenning van de genderdimensie, bestaan er beperkte conceptuele kaders en empirische gegevens over de analyse van energiebeleid op macroniveau door een genderlens.

Dit proefschrift wil de wetenschappelijke en beleidsmatige kenniskloof over wat een genderrechtvaardig energiebeleid is, overbruggen door een conceptueel kader te ontwikkelen en toe te passen. Dit kader integreert energierechtvaardigheid en genderbenaderingen in het energiebeleid. De zoektocht naar een rechtvaardig energiebeleid is een centraal thema binnen energierechtvaardigheid, dat wordt gebruikt als concept en als analytisch en besluitvormingskader. Het gender-energie debat en de discoursen rond energierechtvaardigheid hebben zich echter parallel ontwikkeld. In de literatuur over energiebeleid wordt weinig aandacht besteed aan gendergelijkheid, wat in strijd is met de onderlinge afhankelijkheid van de Sustainable Development Goals (SDG's) en bovendien de voordelen mist die genderanalyse kan opleveren. Genderanalyse verschaft inzicht in de heterogeniteit

van sociale ongelijkheden en de intersectionaliteit van de energiegebruikers, en creëert ruimte voor de stem van vrouwen om gehoord te worden.

Het concept van energierechtvaardigheid behandelt rechtvaardigheidskwesties bij de toegang tot energie, het gebruik van energie en het energiebeleid. Echter het gender-energie onderzoek mist de conceptuele basis om energiebeleid vanuit een rechtvaardigheidsperspectief te analyseren. Deze kenniskloof wordt overbrugd in hoofdstuk 2. Door de beleidsdiscoursen die aan de basis liggen van het energiebeleid te confronteren met de beginselen van energierechtvaardigheid op het vlak van erkenning, verdeling en procedures, worden de belangrijkste concepten van de gender-energie-nexus geïdentificeerd. Om het conceptuele kader te ontwikkelen, heb ik in 56 wetenschappelijke publicaties de belangrijkste discoursen over energierechtvaardigheid en een genderbewust energiebeleid geïdentificeerd, geanalyseerd en samengevat. Het resulterende kader voor een genderrechtvaardig energiebeleid dient als een conceptueel kader om de onderlinge verbanden tussen energierechtvaardigheid en de gender-energie-nexus te begrijpen.

Alvorens het raamwerk van genderrechtvaardig energiebeleid te gebruiken om het energiebeleid in Europa te analyseren, identificeerde ik bestaande genderongelijkheden en onrechtvaardigheden in de toegang tot energie. Hoofdstuk 3 beschrijft door een genderlens de structurele oorzaken van energiearmoede en het overheidsbeleid om de toegang tot energiediensten te stimuleren in zeven Europese landen: Bulgarije, Frankrijk, Italië, Nederland, Spanje, Zweden en het Verenigd Koninkrijk. Hoewel de bestaande gegevens over energiearmoede niet zijn uitgesplitst naar sekse, worden er, in samenhang met andere sociale kenmerken, duidelijke genderverschillen geconstateerd in de oorzaken van energiearmoede en de daaruit voortvloeiende resultaten. De belangrijkste conclusie is dat economische factoren weliswaar bijdragen tot energiearmoede, maar dat er ook biologische/fysiologische en sociaal-culturele factoren zijn, die meestal moeilijk kwantitatief in kaart te brengen zijn, maar aan het licht komen door middel van een genderanalyse waarin kwantitatieve en kwalitatieve gegevens gecombineerd worden. Als deze aan gender gebonden factoren worden genegeerd, kan het beleid geen rechtvaardige energietransitie opleveren.

In hoofdstuk 4 heb ik het kader van genderrechtvaardig energiebeleid toegepast door het analyseren van het energietransitiebeleid van vijf EU-lidstaten: Bulgarije, Frankrijk, Nederland, Spanje en Zweden. Het in hoofdstuk 2 ontwikkelde conceptuele kader is geoperationaliseerd met het identificeren van zeven elementen: energiegebruikers, energiearmoede, energieconsumptie, energieproductie, energiebestuur, energieparticipatie en energierechten. Verder weerspiegelt het kader voor genderrechtvaardige energiebeleid de complexiteit

van energietransities die meerdere lagen, disciplines en actoren omvat. Door de actoren en beleidsinterventies van de energietransitie te analyseren, worden de inherente onrechtvaardigheden en ongelijkheden blootgelegd. Deze analytische functie van het raamwerk verdiept de inzichten over hoe de energietransitie kan worden bevorderd door het definiëren en toepassen van de criteria die bijdragen aan een genderrechtvaardig energiebeleid.

Hoofdstuk 5 richt zich op de betrokkenheid van vrouwen bij de energietransitie op basis van een vergelijkende genderanalyse van het huishoudelijke energiebeleid in Frankrijk en Nederland na de Tweede Wereldoorlog. De behoeften en rechten theorie in energie-interventies identificeert vrouwen als rechthebbenden, die moeten worden herkend en erkend door de overheid en de markt. De energietransitie na de Tweede Wereldoorlog in Frankrijk en Nederland illustreert hoe vrouwen werden gezien als de doelgroep van beleid om elektriciteitsgebruik te stimuleren. Dit is een belangrijk inzicht voor de huidige energietransitie, die de invoering van nieuwe technologieën en gedragsverandering bevordert door huishoudens als homogene entiteiten aan te merken. Deze benadering gaat voorbij aan de rol die vrouwen spelen in het energiebeheer op huishoudniveau.

De rol van vrouwen in de hedendaagse energietransitie wordt verder onderzocht in hoofdstuk 6 met een casestudie van Bulgarije. In dit hoofdstuk komen drie rollen in de energietransitie aan de orde: producent, consument en beslisser. Veel vrouwen worden geconfronteerd met het feit dat ze niet kunnen betalen voor schone en voldoende energie in Bulgarije. Het overheidsbeleid probeert aan hun behoeften als energieconsumenten tegemoet te komen met financiële steun en programma's voor energie-efficiëntie. Toch wonen nog veel Bulgaarse vrouwen in koude huizen en moeten zij hout gebruiken om te koken en zich te verwarmen. In vergelijking met andere EU-landen zijn vrouwen in Bulgarije meer betrokken als energieproducenten en besluitvormers in het energiesysteem. De gelijkheid van mannen en vrouwen is verankerd in de nationale wetgeving en wordt gehandhaafd in het arbeids- en socialezekerheidsbeleid en geïstitutionaliseerd door een nationale bestuursstructuur. De uitvoering van het gendergelijkheidsbeleid wordt echter beperkt door de geringe politieke steun en de prioriteit die wordt gegeven aan economische en demografische problemen. Een genderbewuste energietransitie blijft dan ook een uitdaging voor Bulgarije. De studie toont aan dat de manifestatie van genderongelijkheden en onrechtvaardigheden op energiegebied gepositioneerd is en beïnvloed wordt door politieke, historische en sociaal-culturele contexten. De Bulgaarse casestudie draagt bij aan het nuanceren van ons begrip van de complexiteit van transitie, of dit nu politieke, economische of gender- en energietransities zijn, wat opnieuw onze behoefte aan gedifferentieerde gegevens onderstreept.

Tot slot: dit proefschrift bevordert het begrip van de genderdimensies van energiebeleid door een conceptueel kader te ontwikkelen en toe te passen dat de drie grondbeginselen van energierechtvaardigheid en de drie beleidsbenaderingen naast elkaar plaatst. Het kader wordt geoperationaliseerd door zeven elementen en twaalf criteria te definiëren, die worden toegepast om het nationale energietransitiebeleid in Europa te analyseren. De resultaten van de analyse bevestigen dat het raamwerk van genderrechtvaardig energiebeleid toepasbaar is om keuzes in energietransitiebeleid te vergelijken. Door middel van casestudies toont deze dissertatie de manifestatie van genderongelijkheid en energie-ongelijkheid aan onder verschillende politieke, historische en sociaal-culturele contexten van Europese landen. Het onderzoekt de erkenning van de behoeften en rechten van vrouwen binnen het energiebeleid en identificeert beleidsinterventies die een rechtvaardige energietransitie mogelijk maken waarin het recht op energie voor iedereen wordt erkend.

ABOUT THE AUTHOR

Mariëlle Feenstra is a senior researcher on gender just energy policy. She uses a gender lens to analyse energy transition policy, taking a North–South perspective. Between her master thesis and her PhD research, she worked 15 years as a policy advisor for municipalities in the Netherlands specialised in European Affairs. The combination of her academic expertise in gender and energy with her experience in policy advising, is acknowledged both in academia and in practice by invitations to participate in policy formulation activities. In 2019 she received the first Light on Women award from the Florence School of Regulation.

She wrote the first-ever thesis on gender-aware energy policy with case studies from Uganda and South Africa as a University Twente master student in 2002. Together with her supervisor Prof. Dr. Joy Clancy, she has written two studies for the FEMM Committee of the European Parliament. Both studies are the first publications in the EU on gender and energy policy. Through her active role in the ENGAGER Energy Poverty Research Network, she became one of the authors of the first white paper on energy poverty for the Dutch national government. Currently she is developing a serious game for decision-makers, policy-makers and students to use the gender just policy framework as a decision-making tool.

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