STUDY

Requested by the FEMM committee

European Parliament

The Gender Dimension and Impact of the Fit for 55 Package

Policy Department for Citizens' Rights and Constitutional Affairs
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The Gender Dimension and Impact of the Fit for 55 Package

Abstract

This study, commissioned by the European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs at the request of the FEMM Committee, assesses whether a gender dimension has been incorporated in the initiatives proposed under the Fit for 55 package and whether a gender-sensitive approach was used in its formulation. Examples are given of good practice for gender mainstreaming in energy and climate policy. Recommendations are made to close identified gender gaps in policies and processes.

This document was requested by the European Parliament's Committee on Women's Rights and Gender Equality (FEMM).

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LIST OF ABBREVIATIONS

CBAM	Carbon Border Adjustment Mechanism
CO_2	Carbon Dioxide
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
DG	Directorate-General
EED	Energy Efficiency Directive
EGD	European Green Deal
EIGE	European Institute for Gender Equality
EPBD	Energy Performance of Buildings Directive
ESR	Effort Sharing Regulation
ETS	Emissions Trading System
EU	European Union
GAP	Gender Action Plan
GEP	Gender Equality Plan
GIA	Gender Impact Assessment
HTR	Hard-to-Reach
IEA	International Energy Agency
IRENA	International Renewable Energy Agency
IT	Information Technology
LULUCF	Land use, land use change and forestry
MEP	Member of the European Parliament
NECP	National Energy and Climate Plans
N.D.	Not dated
REC	Renewable Energy Community
RED	Renewable Energy Directive
RQ	Research Question
SME	Small- and Medium-size Enterprise
STEM	Science, Technology, Engineering and Mathematics
TCP	Technical Collaboration Programme
TOR	Terms of Reference

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EXECUTIVE SUMMARY

Background

The study provides an analysis as to (i) whether a gender dimension has been incorporated in the initiatives proposed under the Fit for 55 package and (ii) whether a gender-sensitive approach was used in policy formulation. The study offers policy recommendations to close the identified gender gaps.

Aim

The following research questions were used to frame the research:

1. To what extent have the initiatives proposed under the Fit for 55 package incorporated a gender dimension?
2. To what extent was a gender-sensitive approach incorporated in the Fit for 55 policy formulation processes?
3. Are there examples at the Member State level of good practice in terms of addressing the gender impacts of measures to compensate for the increase in energy prices experienced in 2022?

A mixed-methods approach was used to answer the research questions. The first step was a desk-study-based gender analysis of the initiatives that are part of the Fit for 55 package. This was followed by a number of semi-structured interviews with a range of experts representing different stakeholder groups and a review of the literature relevant to the themes of Fit for 55. The data were analysed using the three dimensions of the energy justice framework (recognition, distribution, procedure) viewed through a gender lens.

Key Findings

- In answer to RQ1, we conclude, based on the evidence, that there has been some attempt to include a gender dimension in the Fit for 55 package. However, there is limited recognition of gender and other social categories in terms of the potential impacts of the initiatives that make up the Fit for 55 package, as well as the roles that different groups of citizens can play in making the energy transition work.
- National Energy and Climate Plans (NECPs) rarely report on the gender dimensions and social impacts of their policies.
- There are limited gender-disaggregated data and even fewer intersectional data on involvement in energy policy formulation, including in research practice, and on energy poverty/vulnerability. Therefore, in answer to RQ2, we conclude, based on the evidence, that there has been very little attempt to adopt a gender-sensitive and socially inclusive approach in the Fit for 55 package.
- There continue to be barriers to women and marginalised groups participating in the energy transition, in terms of employment, as end-users and as researchers.
- The concept of 'hard-to-reach' end-users helps to generate a more nuanced understanding of users beyond vulnerability and to develop targeted energy initiatives which create feelings of energy justice and support for policies.

- While the Fit for 55 package has a number of measures related to reducing CO_2 emissions from cars, it is important to also pay attention to other personal forms of transport and mobility since there are related gender and social inclusion issues to be taken into account. Policy measures which focus on cars can favour men, who use cars more than women who tend to use public transport. Support for electric vehicles tends to favour high-income households over lower-income households.
- In answer to RQ3, there is limited evidence of examples of gender mainstreaming good practice that have strived to enhance the participation of women and marginalised social groups, such as Roma, in the planning/decision-making process.
- Renewable Energy Communities, while promoted as a mechanism to involve citizens in the energy system, currently are mainly the domain of white middle-class men with limited attempts to involve women.
- A consequence of the increase in energy prices and the threat to supplies due to the Russian invasion of Ukraine, at least in the short term, is that levels of energy poverty within the Union are likely to increase.

Recommendations

Gender Mainstreaming – doing it better

- DG Energy should develop a gender action plan for addressing energy poverty.
- NECPs should be required to include a Gender Impact Assessment (GIA).
- Eurostat and Member States should collect gender-disaggregated intersectional data.
- Member States should strengthen broader participation in developing and implementing energy poverty mitigation strategies in NECPs.
- The European Commission and Member States should exchange good practices for gender mainstreaming.

Enabling hard-to-reach end-users

- The European Commission and Member States should adopt the use of 'hard-to-reach' end-users to generate a more nuanced understanding of users beyond vulnerability.
- Member States should provide appropriately tailored support for different groups of 'hard-to-reach' end-users.
- Member States should prevent landlords from penalising tenants when required to make energy efficiency improvements to their properties.

Renewable Energy Communities (RECs) should be required to demonstrate their social inclusion

- Make a gender and intersectional analysis of the community to be served and devise strategies to be more inclusive.
- Set gender, socially inclusive targets in REC statutes.
- Time meetings that match women's schedules.
- Include social activities to involve all family members.

- Provide gender training for men.
- Ensure visual communications reflect the wider community.

1. INTRODUCTION

1.1. Relevance

The European Parliament's Committee on Women's Rights and Gender Equality (FEMM) has requested a study on the 'The gender dimension and impact of the Fit for 55 package'. In response, this study provides an analysis of (i) whether a gender dimension has been incorporated in the initiatives proposed under the Fit for 55 package and (ii) whether a gender-sensitive approach was used in policy formulation. The study, on the gender dimension and impacts of the Fit for 55 package, aims to provide an independent overview of the extent to which the legislative proposals address gender issues.

The initiatives that are part of the Fit for 55 package to be assessed in this study for their gender dimension and impacts were identified in the ToR as:

- Revision of the EU Emissions Trading System (ETS), including maritime, aviation and CORSIA, as well as a proposal for ETS as own resource
- Carbon Border Adjustment Mechanism (CBAM) and a proposal for a CBAM as own resource
- Effort Sharing Regulation (ESR)
- Revision of the Energy Tax Directive
- Amendment to the Renewable Energy Directive to implement the ambition of the new 2030 climate target (RED)
- Amendment of the Energy Efficiency Directive to implement the ambition of the new 2030 climate target (EED)
- Revision of the Regulation on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry (LULUCF)
- Revision of the Directive on deployment of alternative fuels infrastructure
- Revision of the Regulation setting CO_2 emission performance standards for new passenger cars and for new light commercial vehicles
- The proposal for a new social climate fund
- EU Forest Strategy
- Reducing methane emissions in the energy sector
- Revision of the Energy Performance of Buildings Directive (EPBD)
- Revision of the Third Energy Package for gas (Directive 2009/73/EU and Regulation 715/2009/EU) to regulate competitive decarbonised gas markets.

1.2. Scope of the Study

The following research questions were used to frame the study:

1. To what extent have the initiatives proposed under the Fit for 55 package incorporated a gender dimension?
2. To what extent was a gender-sensitive approach incorporated in the Fit for 55 policy formulation processes?

3. Are there examples at the Member State level of good practice in terms of addressing the gender impacts of measures to compensate for the increase in energy prices experienced in 2022?

A mixed-methods approach was used to answer the research questions combining **desk research**, **interviews** with experts and stakeholders and a **workshop** to discuss the issues at hand and to develop policy recommendations.

The analysis used a **gender impact assessment** approach as formulated by the **European Institute for Gender Equality (EIGE)** incorporating the definition of a gender-aware energy policy as formulated by Clancy and Feenstra (2006). To provide a systematic and consistent approach to analysing the different directives, a set of questions was formulated based on the **energy justice framework** viewed through a gender lens as proposed by Feenstra and Őzeröl (2021) (see Annex 1).

Providing examples of **good practices** for Gender Mainstreaming establishes a basic starting point for reflecting on how to improve the take-up of a gender sensitive approach in the EU. To identify examples of good practices, we used the approach described by the EIGE in their Gender Mainstreaming Toolkit for Gender Impact Assessment (see Section 2 for more details). We have focused on three Member States, i.e., Austria, Sweden and the Netherlands, which were identified by the EIGE as providing examples of good practice in terms of gender impact assessments of public policy. In parallel to this study, the **IEA User TCP Gender and Energy Annex Research Programme** is conducting a gender assessment of these three Member States' NECPs. Two of the team members of this study are also members of the IEA Users TCP study, which gave us early access to their findings. Examples are drawn from different levels, including within the institutions of the EU and at different levels of government within the Member States, as well as from organisations within the energy sector. Where appropriate, we have cited examples of good practice from outside the EU.

After an initial analysis had been made of the gender implications of the initiatives within Fit for 55, several **semi-structured interviews** were held with a range of experts representing different stakeholder groups, including policymakers, academics, civil society and industry, as well as the areas within the Fit for 55 Package identified in the ToR (see Annex 2 for a list of organisations providing interviewees). These interviews assisted in understanding strategic issues and important themes for framing and articulating the analysis, as well as in identifying recommendations for closing gender gaps and examples of good practice in gender mainstreaming appropriate for Fit for 55.

A draft report was reviewed by Dr Kavya Michael, the team member with a background in gender and energy. A further validation of the draft report was held via a closed online workshop on September 6th, hosted by CEPS. The participants were a small number of invited experts, including people who took part in the interviews, who were familiar with the initiatives contained within the Fit for 55 package (see Annex 3 for a list of organisations providing participants). The workshop, operating under Chatham House Rules, consisted of a verbal presentation of the draft report followed by participants' reactions and suggestions to strengthen the report. Participants also made some recommendations for the FEMM Committee (see Annex 3).

2. CONCEPTUALISING A GENDER-SENSITIVE APPROACH

A **'gender-sensitive approach'** to policy formulation is defined as one that takes into account the singularities pertaining to the lives of both women and men, while aiming to eliminate inequalities and promote an equal distribution of resources, addressing and taking into account the gender dimension. Such an approach recognises that women and men do not form two homogenous groups but that, within these groups, they are differentiated by a range of intersecting social characteristics such as age, ethnicity, socioeconomic status, sexual orientation and other social identities or positions which shape social experiences (Valentine 2007) or are affected by economic or political projects (Yuval-Davis 2016).

However, it is not only the potential gendered impacts of the policy but also the **processes adopted in its formulation** which need to be gender-sensitive. In other words, it should be based on consultations that consciously seek advice from both women and men in an inclusive manner, recognising all forms of intersectional social identities as equal stakeholders in the planning process. Such an approach will be capable of addressing forms of "epistemic injustice" where the everyday lived realities of certain group of women or men, along with their intersectional social identities, are ignored in the policy process thereby losing their power to influence decision-making processes.

Our analysis of the impacts of the Fit for 55 package and the gender gaps is presented using the **energy justice framework** (See Annex 1 for details of the energy justice framework) viewed through a gender lens. A gender-aware energy policy consists of three components that: (i) recognise that women and men have different energy dynamics (roles in the household, decision-making areas, energy needs, responses to crises or coping mechanisms); (ii) make available energy technologies and services that match those dynamics; and (iii) employ appropriate policy instruments (such as taxation) to provide an enabling environment.

Energy justice is a concept which enables an understanding of how benefits, costs and risks of the energy transition are distributed in a society across three dimensions: *distribution*, *recognitional* and *procedural*[1]. By applying a gender lens to the energy justice framework, a more nuanced understanding is produced about how the energy transition may unevenly distribute benefits, costs and risks, thereby producing new inequalities or exacerbating existing ones. Therefore, we aim to make a more detailed analysis of the social distribution of the energy transition by taking an **intersectional approach** that disaggregates data across different groups without prioritising one category of social difference, such as only analysing energy poverty on the basis of income (Yuval-Davis 2016). However, our analysis has been constrained by the limited availability of disaggregated data.

In line with the recommendation by the European Institute of Gender Equality (EIGE), we use the term **'good practice'** rather than 'best practice'. The EIGE defines good practice as "any experience or initiative with techniques, methods or approaches that produce effects and results coherent with the definition of gender mainstreaming" (EIGE n.d.-a). In the context of this study, we would consider a 'good practice' as one that integrates a systematic consideration of the differences between the conditions, situations and needs of women and men, the relations existing between them, and differentiated policy impact on the concrete lives of women and/or men, and which recognises the variations in their socioeconomic status – in the planning, implementation, monitoring and evaluation of all the policies, programmes and activities within the Fit for 55 package. An initiative that

[1] *Distributive justice* identifies where the injustices in the energy system are located (access to energy services; labour markets; governance (multi-level). *Procedural justice* aims to ensure that all groups and stakeholders can participate in decision making, and that their views and decisions should be treated with respect. Procedural justice links to *recognitional justice* that acknowledges divergent perspectives based in social, cultural, ethnic, racial and gender differences and that people should be fairly represented and free from physical threats (see Jenkins et al. 2016).

demonstrates 'good practice' does not need to be perfect or exhaustive but provides an example of a **solution to the situation to be addressed**. A good practice initiative can contribute to reaching one or more of three objectives situated within the energy justice framework:

1. promote a positive change in access to goods, services, status, decision-making and opportunities; rectification of power imbalances; expansion of the subjective and objective range of legal, social and psychological choices available to both men and women; break gender stereotypes, norms and patterns (*distributive and recognitional justice*);
2. actively involve groups and organisations that are instrumental for producing outcomes (i.e., those who are responsible for policymaking at all levels, those who are responsible for the organisation of work, etc.) (*procedural justice*);
3. orchestrate and/or correspond to wider organisational conditions and environments, by systematically integrating gender equality across its intervention phases through the use of accountability, transparency and incentive mechanisms (*procedural justice*).

3. GENDER IMPACT ASSESSMENT OF FIT FOR 55 PACKAGE

3.1. Fit for 55 in the context of gender equality

The European Green Deal (EGD) combines a comprehensive set of mutually reinforcing measures and initiatives aimed at achieving climate neutrality in the EU by 2050 (European Commission 2019). An aim of the Green Deal is to protect the health and wellbeing of EU citizens from environment-related risks and impacts. There is increasing recognition within the European Parliament and the European Commission that the risks and impacts are experienced differently by women and men, with some recognition of other disadvantaged groups, such as older people, persons with disabilities and persons with a minority racial or ethnic background. There is a commitment that the transition is just and inclusive, leaving no one behind.

To ensure that there is a just and inclusive transition, the European Commission made a commitment to integrate a gender perspective in all the Commission's major initiatives including the European Green Deal and related policies. Member States are also encouraged to integrate gender equality and gender mainstreaming in the preparation and implementation of their NECPs and to report on progress in their biennial progress reports.

The European Parliament has also made a number of statements in respect of gender equality, climate change and energy. For example, the resolution of 16 January 2018 on women, gender equality and climate justice recognises that gender equality is a prerequisite for sustainable development and the efficient management of climate challenges (European Parliament 2018). The resolution calls on the Commission, and the DGs responsible for gender equality, development, energy and climate, to include gender equality in a structured and systematic manner in their climate change and energy policies for the EU. In 2022, there have been several strong statements by the European Parliament relating to gender equality and the energy transition. In its resolution of 17 February 2022, the Parliament recognises that women still face structural and cultural barriers to participation in all aspects of delivering the energy and climate transition (European Parliament 2022b). In its resolution of 5 July 2022, on women's poverty in Europe, the Parliament calls on the EU and the Member States to protect women living in energy poverty by providing a timely and coordinated response to address the long-term impact of the energy crisis (European Parliament 2022c). The resolution recommends that the Fit for 55 package and the social climate fund should be designed and implemented with a clear gender dimension, so that they benefit women as equally as they benefit men.

Despite this high-level recognition, gender mainstreaming remains relatively rare in policymaking. For example, Allwood (2020), in her call for embedding gender in both climate policy and in a just transition, considers the European Green Deal to be gender-blind since it lacks an explicit reference to gender/women/men, even though the Deal emphasises the importance of the Sustainable Development Goals. Similarly, Heidegger et al. (2021) criticised the Just Transition Mechanism as likely to benefit mostly male workers in the coal industry. While acknowledging that gender is mentioned in the European Climate Law, the Renovation Wave, and the Sustainable and Smart Mobility Strategy, Heidegger et al. (2021) pointed to the lack of a proposal for concrete solutions to address gender inequalities in these initiatives. In particular, women form the majority of the elderly people to be affected by such policies, which indicates that these initiatives are lacking in gender-awareness.

One of the possible responses to mitigate this criticism would be to introduce gender impact assessments as a practical tool used as part of policymaking. Such assessments should be carried out within an intersectional framework to analyse various aspects of the energy transition and their impacts on women and on the promotion of social equality. In this context, both Heidegger et al. (2021) and

Gerhards (n.d.) stress the importance of gender equality and intersectionality as an integral part of the EGD.

3.2. Recognitional aspects

How citizens are categorised varies among the different initiatives within the Fit for 55 package, although it tends to be in general terms such as 'vulnerable consumer' with limited disaggregation in terms of gender or other social characteristics[2]. The proposal for **the Climate Fund Regulation** differentiates users into three groups: vulnerable households, vulnerable micro-enterprises and vulnerable transport users. This differentiation fits with some of the issues we discuss in this report.

The proposal for recasting the EU Directive on Energy Efficiency acknowledges that the energy transition affects women and men differently, with some disaggregation by social characteristics (European Commission 2021a). It is a positive sign that this initiative recognises that the energy transition has specific impacts on older people, persons with disabilities and persons with a minority racial or ethnic background. Similar statements are found in **the ETS II proposal** and **the proposal for amending the Regulation on strengthening the CO2 emission performance standards for new passenger cars and for new light commercial vehicles**[3].

The proposal to extend the EU ETS to buildings and road transport by including these sectors, either directly in the current EU ETS or by creating a separate ETS recognises the impact of the initiative on vulnerable households and suggests the need for data to analyse this group in order that solidarity measures can be better targeted (European Commission 2021b). Women are only mentioned insofar as it is recognised that the transition affects women and men differently (recital 3). However, women and men are treated as two homogenous groups with the only differentiation being in terms of income brackets.

The Regulation establishing the Social Climate Fund, which has been proposed to mitigate social impacts that could arise from the new emission trading system for buildings and road transport, does recognise, in recital 19, that women are particularly affected by carbon pricing (European Commission 2021c). It specifically refers to women as the head of 85% of single parent families, which are identified as having a particularly high risk of child poverty. The proposal also recognises that attention needs to be given to persons with disabilities. However, no mention is made of women of pension age who, when living as single households, have higher levels of income poverty than their male counterparts (Clancy and Feenstra 2019).

Using general terms, such as "**vulnerable customers**", without analysing the socioeconomic and political circumstances that create vulnerabilities will result in policy interventions that do not fully address the causes of energy poverty. An analysis that does not disaggregate across groups fails to identify unequal power relations at all levels in society, and this influences different groups' capacity to respond to specific policy interventions. Without disaggregated data, it is difficult to identify the nature of the problem (which might be more than income poverty), to estimate the scale of the problem and to develop appropriate interventions both in terms of what is addressed and its mechanisms of delivery. There are potentially positive impacts that may be missed if the situations of vulnerable

[2] The Institute for European Environmental Policy came to a similar conclusion in their analysis of the social justice priorities in the Fit for 55 package (Gore et al. 2022). For example, the authors point out that the European Commissions Impact Assessment of the RED did not address gender inequality or racial issues.

[3] The gender implications of a focus on private cars rather than public transport, and the links to CO2 emissions, are discussed in subsection 3.3.3 on Mobility.

groups are not better understood. For example, a study by the Institute for European Environmental Policy, under the LIFE Programme of the EU, acknowledged that **the EU Directive on the Energy Performance of Buildings (EPBD)**[4] has the potential to provide better thermal comfort and insulation, as well as improved indoor air quality, all of which can have positive impacts on physical and mental health (Gore et al. 2022). However, the authors pointed out that the capacity to respond to initiatives will vary across social groups, and some examples of the lack of capacity are described in the remainder of this section (Gore et al. 2022).

A concept increasing used in energy justice analysis in order to develop a more nuanced understanding of energy poverty is **hard-to-reach end-users**. This concept should not be used in a pejorative way but as an approach to understanding energy poverty as **more than income poverty**. The International Energy Agency (IEA) Users Technical Collaboration Programme (TCP) uses this concept which it defines as:

> *An energy user from the residential or commercial sectors who uses any type of energy or fuel, and who is typically either hard-to-reach physically, underserved, or hard to engage or motivate in behaviour change, energy efficiency and demand response interventions that are intended to serve our mutual needs*.

This definition extends the classification of 'hard-to-reach' from one based on geography to include people who would not obviously be viewed as 'vulnerable' but have a significant influence on energy use – **high income households with a high energy demand who are difficult to motivate to change their behaviour**, for example by improving the energy efficiency of their dwellings. Another group who are hard to motivate are households facing personal problems (such as divorce, experiencing physical or mental illness – either themselves or having to care for someone experiencing ill health) which result in stress and a situation in which attention to energy bills or energy efficiency measures is not a priority (Feenstra et al. 2021).

It is not only households that can be classified as 'hard-to-reach', but also **small and medium-sized privately owned businesses** in the services and commerce sectors, such as food services (restaurants, bakeries, coffee shops) and health and beauty providers (hair salons and nail bars), operating at the neighbourhood scale. A study in Portugal found that, in business terms, Small and Medium-size Enterprises (SMEs) in these sectors are often operating with a shortage of funds and a short-term outlook (Sequeira et al. 2021). Not surprisingly, the personnel in these businesses tend to have little specialist knowledge about energy, which can result in the enterprise giving a low priority to investing in energy efficiency. However, such businesses are very sensitive to a crisis and the current hike in energy prices may change their willingness to improve their energy efficiency. There is, at least in Portugal, a mistrust of energy companies, and so these organisations would probably not be effective in providing advice to SMEs on improving their energy efficiency. SMEs in the services and commerce sectors are often tenants and face the same challenges to improving building energy efficiency as tenants in the private housing rental sector.

[4] The EPBD does draw attention to vulnerable groups who are tenants of landlords who pass on renovation costs.

BOX 1: What is counted and how it is counted influence our understanding of a problem.

Research findings related to who experiences energy poverty in the Netherlands are illustrative of the point about not relying on aggregated quantitative data to give a complete picture. In 2019, data showed just below 3% of households had problems keeping their homes adequately heated and paying their bills. However, a disaggregation of the data shows that energy poverty is particularly a problem for those living in social housing (which is recognised in elements of the Fit for 55 package) where 16% of households had difficulties heating their homes adequately, compared to the national average of 2.6% (Feenstra et al. 2021). Households living in energy poverty resort to coping strategies such as only heating part of the house (this is a phenomenon known as spatial shrinkage) or restricting heating to specific times of the day or family visits. The extent of energy poverty may also have been underestimated since there were households living in circumstances for which it was difficult to assess their energy expenditure. The Netherlands Environmental Assessment Agency (PBL), when trying to assess the level of energy poverty, concluded that it could not estimate the energy expenditure of around 900,000 households (approximately 13% of the total). These households include "students, entrepreneurs with a year of poor performance, households that share a residence, households with a business at home, or people living in unusual dwellings, such as houseboats or multi-occupancy dwellings" (Feenstra et al. 2021:5).

The number of women living in energy poverty may also be underestimated. An example comes from the Netherlands, where it was found that women and men can use different mechanisms to raise cash to help pay bills. Men tend to borrow money from formal organisations, such as banks, which will find their way into statistics, whereas women use family and friends which remains unobserved (Feenstra et al. 2022). In a study conducted for the European Bank for Reconstruction and Development, Morsy and Youssef (2017) concluded from a literature study that the gender gap in access to finance is an under-researched area, particularly in respect of access to personal loans from banks (although there is a growing body of knowledge on the gender gap for business loans). A proxy indicator of the gender gap is ownership of bank accounts where, in Europe, there is a small gender gap linked to participation in the labour market, which is lower for women. Adults who have only primary education are less likely to have a bank account than those with higher education. Age is another determining factor, with older people less likely to have a bank account (World Bank 2021).

An overreliance on aggregated quantitative data can give an incomplete picture of energy poverty, such as who is being considered as vulnerable and how these vulnerable people experience energy poverty, resulting in solutions that do not address their problems (Clancy 2020). Examples of how over-reliance on aggregated data are given in Box 1. Aggregated data also hide **intra-house dynamics** and conceal individual realities, everyday practices of family life, such as frequency of showering and ambient temperature preferences, and the negotiations that take place within the home around these practices. One everyday practice that is getting increasing recognition is that of **unpaid care and domestic work.** The COVID-19 pandemic helped bring this issue more into focus (European Commission 2022a). While the pandemic saw men contributing more time to family care, women still have the major responsibility for childcare, as well as providing support to older relatives and those with disabilities (EIGE 2022). Within the EU, it is women who are responsible for 75% of this work (European Commission 2020). The nature of this work has an energy cost, both within the home and outside for accessing services (as discussed in Section 3.3.3). Many household tasks, such as washing

clothes and preparing family meals, are mechanised with an associated energy demand which can require decisions about how often and when (especially if the household has a variable day/night tariff) to perform these tasks. If there are children and elderly family members at home, their ambient temperature requirements will be different to younger adults, which can require thermostat adjustments. These tasks may lead to women acting as their family's energy manager, which was found, at least in Greece, to put women in conflict with other family members (Petrova 2017). These tensions may increase if the energy price rises lead to requests for behavioural changes such as switching off lights and entertainment equipment.

An **ethnographic study in Denmark** found that everyday household practices influenced the way women and men responded to energy renovations of their home (Tjørring 2016). In mixed-sex households, decisions about which renovations to adopt were influenced by the responsibilities, shaped by the cultural norms of the gender division of labour in which women are primarily responsible for the care tasks, such as washing and cooking, while men primarily are responsible for house maintenance. When evaluating a renovation, family members may assess not only the financial implications but also whether there any significant demands on time, for example, if it is a piece of technology, such as a solar panel, what are its operation and maintenance requirements and how burdensome would they be? If the household decides to save energy through behavioural changes leading to alterations in everyday practices these can lead to tensions within the family if the changes conflict with norms (such as the frequency of showering or clothes washing) and these new practices may eventually be abandoned (Tjørring 2016).

An understanding of **how households make decisions** is important for ensuring that advice about improving energy efficiency is tailored to the specific needs of all household members rather than an imagined 'average household member'. There is some evidence to suggest, at least in the context of climate change, that women and men respond differently to policy initiatives. For example, women tend to favour regulatory approaches and education/awareness programmes, whereas men tend to favour focusing on technology. Women appear to be more willing than men are to change their behaviour (Kronsell et al. 2016).

Another characteristic of the hard-to-reach end-user is their level of **literacy** and the potential impact that this has on responding to financial incentives to promote energy efficiency that require the completion of forms. In the Netherlands, 20% of adults are considered to have reading difficulties (Feenstra et al. 2022). Energy Coaches, who assist social housing residents with applying for energy subsidies and who give advice on energy savings, are being funded by several municipalities in the Netherlands, including Rotterdam, Leeuwarden and Arnhem (Feenstra et al. 2022).

Energy Coaches could also help another group who could be classified as 'hard-to-reach': people who **do not have smart phones,** or use social media and **the internet, which is increasingly the only means by which people can apply for incentives**. For example, the Recycle-Change Appliance programme in Greece aims to replace old inefficient equipment by new energy efficient equipment (Government of Greece 2022). However, proof of qualification has to be submitted online. In addition, as part of this programme, it is possible to arrange for someone to collect an old device that is to be replaced, but this service also has to be organised online. In urban areas, there are intermediaries to help those less familiar with the internet, but these intermediaries are not found in rural areas.

Eurostat only publishes aggregated data for mobile phone ownership/use and for internet access based on an age range of 16-74, with some disaggregation to compare the 16-29 cohort with the 30-74 age group (Eurostat 2022a). As of 2021, the share of EU households with internet access stood at 92%, with variations between Member States as well as within countries. The rural areas in 22 Member

States tend to have lower levels of access than urban and suburban areas (Eurostat 2021). Using 'at least once within the previous three months' as a measure of internet use, it was estimated that, in 2021, 8% of the EU's population were not using the internet. However, by setting the age limit for data collection at 74, the estimate of the population not using the internet is probably too low, and neglects social inclusion issues.

A study in **Lisbon, Portugal**, looked at the ages and education levels of mobile phone and internet users, and at the reasons for using/not using them (Barbosa Neves et al. 2013). Users tended to be men, younger than 75 years of age, with higher education and in current, or past, employment with a good income. In the older cohort, explanations for non-use offered by respondents were that they 'didn't know how to use it' and/or 'felt that they didn't need it'. Older people who could use computers had generally acquired the skill, familiarity and confidence to use technology as part of their work.

Building **internet confidence** through requiring its use in the workplace could be a factor in explaining older women's lack of internet use. For example, they may have ceased paid employment on marriage or on starting a family, or they may have worked in jobs that did not use IT.

There are also variations in mobile phone use associated with a person's civil status. Married people were more likely to use a phone than were widowed or single people; widows were more likely to use the phone than other single people – although the former tended to use the phone for social contact rather than other possibilities. Another factor, and one that the Lisbon study did not analyse, is literacy and language, which has been found in other contexts to be a barrier to women's internet access (GSMA 2010).

A **personal approach,** rather than mail shots, may be more effective in helping people understand the energy transition. Projects to improve the energy efficiency of community buildings (schools, sport clubs, places of worship) provide another route to contact the hard-to-reach end-users. People can experience the benefits of retrofitting, as well as becoming more familiar with low-carbon technologies such as solar panels. In a study conducted in Portugal, free walk-through energy audits were found to be very effective at reaching SMEs in the services and commerce sectors and encouraging them to invest in energy efficiency measures (Sequeira et al. 2021). The approach used was to go from door-to-door and make direct contact with the owner or manager to explain what an energy audit involved. Given the expressed distrust in utilities, it was considered important to generate trust between auditors and potential auditees by stressing that this was a not-for-profit activity aiming to inform them about their energy use and providing suggestions about how to reduce their bills. Word of mouth, since business managers talk to each other, was found to play a role in attracting more businesses to ask for an audit.

3.3. Distributional aspects

This section looks at the gender impacts related to the energy transition in two domains: citizens as consumers and citizens in employment. Although the focus of this study is on the gender impacts experienced within the European Union, it should be kept in mind that the impacts of Fit for 55 initiatives could be felt elsewhere[5].

The **Just Transition Mechanism** has been mentioned as a potential avenue to address social impacts, with the role of Member States stressed in implementing policies.

The **National Energy and Climate Plans (NECPs)** are a mechanism in which Member States set out the legislative, financial and regulatory measures and the means that they are putting in place to reach

[5] The Carbon Border Adjustment Mechanism recognises the potential impact on developing countries.

the EU's 2030 energy and climate targets, as well as indicating a long-term strategy towards 2050. Under Regulation (EU) 2018/1999 of the Governance of the Energy Union and Climate Action, Member States are encouraged to integrate gender equality in their NECPs. However, this can be considered a work in progress. For example, in terms of one of our case study countries, the NECP for the Netherlands (Feenstra et al. 2022) does not contain any reference to gender. Indeed, the EIGE commented in its fifth review of the implementation of the Beijing Platform for Action in the EU Member States that Member States rarely take a gendered perspective in their NECPs. However, there are a few positive examples (EIGE 2020b).

Sweden's NECP contains a separate section on gender mainstreaming which places a clear focus on Sweden's feminist foreign policy highlighting its efforts to advance gender equality in all relevant EU processes as well as internationally. However, there is very little discussion on the initiatives happening within the country (Michael and Hultman 2022).

The 2019 NECP for **Finland** has two references to women and one reference to gender (Ministry of Economic Affairs and Employment 2019). Finland participates in the Clean Energy Ministerial, which includes energy and women within its themes of interest, and in the Women in Energy (C3E) initiative. In February 2017, Finland held an open workshop on the gender effects of its climate change plan. However, there has been no gender or social inclusion analysis of the plan. In part, this lack of attention to social impacts can be linked to the way in which Member States see the causes of energy poverty. There is a tendency to see energy poverty as part of broader income poverty issues, in other words it is a social rather than an energy problem (Kottari and Cornelis 2022). For example, Sweden's NECP does not distinguish between energy poverty and poverty in general, indicating that energy poverty is addressed as part of the country's social policy (Michael and Hultman 2022). The need for more gender-disaggregated data is reflected in the NECPs of Croatia, Finland, Latvia, Romania and Slovenia. Spain acknowledges that it needs a higher proportion of women in the renewable energy sector (Arregui et al. 2010).

3.3.1. Energy poverty

The proposal for **a recast Energy Efficiency Directive** contains **a new provision (article 2(49))** that defines energy poverty as 'a household's lack of access to essential energy services that underpin a decent standard of living and health, including adequate warmth, cooling, lighting, and energy to power appliances, in the relevant national context, existing social policy and other relevant policies'. The **Proposal for a Climate Fund Regulation** will use the definition agreed in the EED recast. While energy poverty is mentioned within the Fit for 55 initiatives, **only the proposal for a recast Energy Efficiency Directive**[6] **disaggregates the social categories of citizens experiencing energy poverty**. However, there is currently **no binding definition of energy poverty** employed across the EU, as was acknowledged in a briefing on energy poverty by the European Parliament in July 2022 (European Parliament 2022a). Member States develop their own criteria, with guidance from the Commission, relevant to the national context. However, if there is no coherence in the criteria across the EU, a cross comparison between Member States is difficult if not impossible.

As was pointed out in the previous section, the criteria chosen to monitor energy poverty influence the nature of the data collected. The causes, experiences and coping strategies of vulnerable people living in energy poverty are complex and difficult to reduce to a single numeric. Vulnerable people are not a homogeneous group, which requires an understanding of their differentiated situations so that

[6] This is the only initiative that the FEMM Committee responded to.

appropriate measures can be put in place. Such an understanding requires the data collected to be disaggregated not only by gender but across a range of social characteristics.

The Council of the European Union, in its September 2022 Draft Conclusions on 'Gender equality in disrupted economies' (Council of the European Union 2022), prompted Member States to collect and disseminate age and gender-disaggregated data on energy poverty as well as promote gender mainstreaming in all policies related to energy poverty.

The European Commission has recently taken steps to create a more unified approach to addressing energy poverty by establishing an **Energy Poverty Advisory Hub**, which has published three handbooks together with an introductory guide to understanding and addressing energy poverty (Energy Poverty Advisory Hub 2022). The Guide provides a definition of energy poverty. The Introductory Guide mentions (page 7) that personal factors play a role in energy poverty. The examples of personal factors given are age, health status and household composition. Ethnic minorities are mentioned later (page 11). Gender is not listed as a personal factor, nor is it mentioned anywhere in the document. Although the Energy Poverty Advisory Hub website includes a list of suggested indicators to measure energy poverty, there are no recommendations about disaggregating the data across a range of social characteristics.

On a more positive note, the Energy Poverty Advisory Hub Website has a document produced by the Covenant of Mayors for Climate and Energy Europe that includes **reporting guidelines on energy poverty**. The guidelines contain a list of social characteristics that can be used to describe vulnerable population groups, including women and girls, to be targeted as part of actions to address energy poverty (Covenant of Mayors for Climate and Energy Europe 2022).

It is widely recognised that **low-income households** have limited capacity to react to price increases by switching fuel or investing in building renovations to reduce energy consumption. One way this group reduces consumption is by switching heating or cooling equipment off which reduces comfort and can compromise health (IEECP 2022). The negative impacts on physical health vary with age and gender. For example, in **France**, during a heatwave lasting from the 1st to the 20th of August 2003, the number of excess deaths was reported as 15,000 (Fouillet et al. 2006). A disaggregation of the data showed that excess mortality began to increase for those over 35 years of age, but with no discernible difference between women and men, whereas at aged 45 years and above, the mortality rate was 15% higher for women than for men of comparable age.

Even under typical ambient temperatures, **poor quality housing** can lead to damp and mould, which are recognised as having negative health impacts including links to cardiovascular and respiratory diseases (Tod and Thomson (2016) cited in Renovate Europe 2021: 14). Ill-health contributes to absenteeism and lower productivity for those in employment. Medical costs in France linked to treating people with health issues related to poor housing were estimated at about €930 million annually (Renovate Europe 2021).

Energy poverty also has impacts on **mental health** related to constant worrying about paying bills (Renovate Europe 2021). If energy bills increase such that people reduce their social activities, including not inviting people into their homes because of the uncomfortable ambient temperature, this is a form of social exclusion that can have negative impacts on mental health.

A Public Health Survey in Barcelona, **Spain**, based on self-reported data, found that women who are considered to be living in energy poverty report poor mental health 1.9 times more frequently than women who not living in energy poverty. The figures for men show poor mental health being cited 2.1 times more often by men living in energy poverty than by men not living in energy poverty (Novoa and

Bottazzi (2018) cited in Birgi et al. 2021). Living in inadequately heated or cooled homes is also linked to increased stress, reduced wellbeing and depression.

The Fit for 55 package should lead to cleaner inner-city air, which might have health benefits for low-income households (Gore et al. 2022). Scientists have recently reported that there is now clear evidence to show a link between vehicle exhaust emissions and lung cancer in people who have never smoked or have no genetic cause (The Guardian 2022).

One of the factors that influence vulnerability to energy poverty is **income poverty**, the definitions of which vary between Member States. The EIGE has already described the gender dimensions of income poverty and identified the need to take a more intersectional approach to data gathering and analysis. As of 2020, it was estimated that 23.3% of women and 21.6% of men in the EU were at risk of income poverty with the gender gap increasing with age (EIGE 2020a). The EIGE also reports that, if gender is intersected with other social characteristics, then the data analysis provides a more complex picture of income poverty for people living within the EU. For example, if you are born outside the EU, you have a significantly greater risk of poverty than if you are born within the EU. Eurostat data for 2019 states that the likelihood of monetary poverty in the EU-27 was approximately twice as high for foreign citizens (32%) as it was for national citizens (15%) (Eurostat 2021b). In terms of women living in the EU, those born outside the EU are more than twice as likely to be at risk of poverty than are women born within the EU (EIGE 2020a). Your ethnicity can also increase your vulnerability. For example, 80 % of Roma people live below their country of residence's poverty threshold (EIGE 2020a). Evidence suggests that persons with disabilities are more prone to suffer ill effects from insufficient heating (due to the cold, damp or the presence of mould etc.) than people who do not have these conditions (Snell et al. 2015). Women with disabilities have increased vulnerability to income poverty because of the challenges faced in finding employment and being able to pay energy bills (EIGE 2020a).

Single parent households, estimated to total 7.8 million in the EU in 2020 (Eurostat n.d.), are considered vulnerable to energy poverty when this is linked to income poverty. The income of single mothers is influenced by them either not working or, when they are in work, it is often part-time (EIGE 2020a). In Germany, even before the introduction of the carbon price, more than one fifth of all single parents reported that they experienced housing costs as a high burden (Röhr 2021). There is a gender dimension to this burden. Data for Germany show that, as of 2021, of single-parent households living in income poverty, 84.4% are headed by single mothers and 15.6% by single fathers (Statistisches Bundesamt et al. (2021) cited in Röhr 2021:5). If these households are in rented accommodation[7], the efficiency of any low-carbon heating/cooling system installed to replace a fossil fuel system will be determined by the landlord, while the tenant will continue to pay the energy bill. In addition, the replacement of fitted equipment, such as an oven or washing machine, with a low energy efficiency rating value may also depend on the landlord's willingness to act.

The revenue raised through carbon pricing could be used to assist vulnerable groups to adjust to the higher carbon prices. The transfer method needs to be such that it does not negatively affect other welfare payments, particularly where Member States consider energy poverty to be due to low income as, for example, in the Netherlands (Feenstra 2021). Personal tax credits would not benefit a significant number of women whose income is below the tax threshold. Making benefit payments to the household, as a unit, assumes that members of a household pool their income and share expenses equitably, and fails to consider how control over resources within the household is exercised. This situation may render women more vulnerable in households where only the man earns an income and makes all the decisions. Therefore, payments should be made to individuals rather than to households.

[7] The EU average for the percentage of households in the rented sector is 30% (IEECP 2022).

In an attempt to illustrate how different measures result in variations in the calculated poverty level, researchers in Catalonia showed that, when disaggregating poverty levels only by gender, 18.8% of men and 19% of women were at risk of poverty. However, when taking autonomy into account, 25.7% of men and 49.7% of women could be classified as at risk (Lieu et al. 2020).

While the Social Climate Fund can help low-income households, without good, disaggregated data about the extent of the support needed, it is possible that the Fund will be insufficient to meet needs.

3.3.2. Rising energy prices and their impact on energy poverty

In October 2021, the European Commission announced a "toolbox" of measures to assist Member States in responding to rising energy prices to support vulnerable households and small businesses. While these measures are welcome, it is predicted that the number of households in energy poverty will increase and may well be underestimated depending upon which metric is used[8] (see for example Tirado Herrero (2017)). Reliance on a metric for energy poverty based on a specified percentage of household income being spent on energy, would not classify a person whose energy bill was below that percentage but was not able to satisfy their basic needs, such as being able to adequately heat or cool their homes, as living in energy poverty [9].

In addition, a numeric metric fails to correctly portray the significance of a household exhibiting a reduction in energy use. Such reductions might not be as a result of purchasing more energy efficient equipment or upgrading insulation, but a consequence of behavioural changes by household members, such as reducing the number of meals cooked, lowering the thermostat or reducing social contact with family and friends which, as we pointed out above, has negative health implications. The situation for those already regarded as vulnerable, particularly single parents, retired people and those with health conditions, will worsen in terms of stress related to paying bills and social exclusion.

Therefore, the proposal to recast the Energy Efficiency Directive mentioned at the start of Section 3.3.1, for a more differentiated definition linked to access to energy services, can be seen as a positive step towards a better understanding of how citizens experience energy poverty.

3.3.3. Mobility

A recent study for the FEMM Committee on women and transport concluded that there is a **lack of gender-disaggregated data on transport service use** (Sansonetti and Davern 2021). The gender-disaggregated data that are available related to mobility in the EU only provide averages across the EU and not by Member State. Eurobarometer data for 2020 reveals that, at least within the EU, women have a stronger preference than men, particularly when their journey does not involve combining work and family commitments, to walk or use public transport (at least in urban areas) and non-urban trains. Men are more inclined to choose individual means of transport including cars, bikes, mopeds and scooters (Eurobarometer 2020). Women within the EU are less likely than men are to own a car, with variations between Member States, although there is a trend towards greater car ownership by women

[8] In 2019, up to 31 million people within Europe were estimated to be affected by energy poverty (European Commission 2021d).

[9] There are at least three types of metrics for measuring energy poverty: (i) the most commonly used metric is one which relates to a specified level of household income spent on energy (e.g. 10%); (ii) a consensual approach, which makes use of self-reported experiences of people living in energy poverty. This approach is used in France where a person is considered to be living in energy poverty if, in his/her accommodation, there are particular difficulties in having a sufficient energy supply to satisfy his/her basic needs; (iii) an outcome-based approach based on which individuals or households are able to adequately heat or cool their homes (Feenstra and Clancy 2020).

(Sansonetti and Davern 2021). Women are also less likely than men are to have access to a company vehicle (2% of women compared to 7% of men) (Eurobarometer 2020).

Mobility is an issue that relates not only to enabling access to employment but also to public services, it also promotes social inclusion. Women tend to use public transport systems more than men, even car-owning single women with high incomes and women in two-car households (Kronsell et al. 2016). As such, carbon funds used to support public transport can have positive benefit for women. While much of the attention of the Fit for 55 package relates to **cars**, the International Association of Public Transport does see within the package possibilities to support public transport (UITP 2022). Reducing the number of cars has implications for employment in the automotive industry, which is a major employer within the EU (16 million employees, representing 6% of overall European employment (ACEA 2021). A change in employment levels requires retraining and reskilling, which is recognised in its proposal for a **Regulation on strengthening the CO_2 emission performance standards for new passenger cars**. These measures are likely to be similar to ones implemented for the coal industry, in which there are gender issues, and from which the lessons learnt can be acted upon (see Section 3.3.4).

A move towards gender equality may create a dilemma for policymakers when aiming to reduce CO_2 emissions from vehicles. Naturally, **women's choice of vehicle** will influence CO_2 emissions, and women (at least in Denmark, Finland, Iceland, Norway, and Sweden) seem to be less enthusiastic than men are about electric vehicles (Sovacool et al. 2018). Cost may be a barrier to women choosing a more environmentally friendly mobility option. When asked what the barriers were to adopting a more environmentally friendly solution for mobility, a lack of capacity to pay more for their travel was the most common explanation offered by both women and men, with slightly more women (46%) than men (41%) giving this explanation (Eurobarometer 2020). Additional evidence about how women's capacity to pay influences their vehicle choice comes from a study in Nordic countries which found that women in higher income groups are prepared to opt for electric vehicles (Sovacool et al. 2018). Age also appears to be a factor in opting for electric vehicles. Research in the Nordic countries found that the younger and middle-aged groups (those between 25 and 44 years of age) were more likely to own or have driven an electric vehicle than older people (Sovacool et al. 2018).

At the policy level, reducing the carbon outputs from transport is more complicated than a simple technical change or inducing behavioural change in daily habits, it is also about addressing issues of identity related to choosing one transport mode over another. Focusing on cars can be seen as reflecting masculine norms related to an ability to travel linked to car ownership, which is strongly identified as part of masculine identity. Indeed, transport policies and systems in the EU are primarily shaped by male journey patterns, which are mainly work-related (Sansonetti and Davern 2021).

There are indications of **generational differences in attitudes to car use** with younger people having a lower car dependency than older generations (Cubells et al. 2020). A study in the Barcelona Metropolitan Region found that, between 2008 and 2018, there was an increase in private transport use, daily travel duration and frequency, except for younger people who showed a decrease in journeys (Cubells et al. 2020). Since the study was quantitative, the researchers were only able to suggest some possible explanations for this observation. These were that young adults in Cataluña were less likely to be employed, married, or parents compared to their counterparts from previous generations, which might result in them having to make fewer journeys.

Current everyday practices within families allocate to women care responsibilities for family members which include taking and collecting children to and from nursery, schools, activities and medical appointments (with the latter also for older family members). Women's journeys are often more complicated than men's journeys since women often combine family, work and social responsibilities in one journey whereas men's trips are more linear (Sansonetti and Davern 2021).

Women use public transport more than men, Eurobarometer data for 2020 reveal that 31% of women use public transport compared to 24% of men which shows an increase from 2014 when 22% of women and 15% of men used public transport (Eurobarometer 2014). As connection failures in public transport can lead to delays and potential missed appointments, urban geographies may result in women making more trips by motorised vehicles than they would otherwise choose to.

Local authorities could consider their **urban design criteria** when renovating districts or building new ones to ensure that social services such as schools, medical centres and care homes are also incorporated in residential districts in a manner that allows access, possibly with shorter journey times, without the use of personal motorised vehicles. Having good public transport facilities and cycle routes are not only good for carbon reduction, but there are also health advantages. When journeys can be made on foot or bicycle, they provide physical exercise and can help reduce stress by freeing up time with shorter journey times. However, mobility is more complex than shifting from driving to walking or cycling. There are other forms of wheeled vehicles that need access to streets and public facilities, for example, prams, wheelchairs, mobility scooters and rollators. Indeed, public transport hubs and stations could be better designed for people traveling with children, prams and groceries, and for people with reduced mobility (Ramboll 2021).

Recently the concept of **transport poverty** has emerged. While there is no universally agreed definition of transport poverty, a sense of the consequences of transport poverty can be found in the literature as well as an indication of the causes (see Lucas et al. (2016) for a detailed discussion of the concept). An individual experiencing transport poverty is not able to make a journey to meet their daily needs, for example for health, education, employment, shopping or social activities. Transport poverty is not necessarily experienced by all members of a household, and it is gendered. Women are more likely than men to experience transport poverty since they (particularly older women) are less likely to have a driving licence and are therefore reliant on public transport and walking. Income plays a part since transport poverty is experienced by people on low income who have no access to motorised transport and have to rely on walking or public transport. Therefore, policies that promote a shift from private to public mobility in order to reduce CO_2 emissions could simultaneously contribute to achieving environmental objectives and to reducing transport poverty, particularly if there is an increase in the availability of public transport. Otherwise, there is a high risk that some people may become 'locked out' of economic and social participation with negative consequences for their lives and implications for their mental wellbeing (Lucas et al. 2016).

Rural and suburban public transport systems are less developed than those in urban areas. Routes are often planned following radial patterns to connect suburbs or rural areas to city centres with schedules set around commuter travel hours (Sansonetti and Davern 2021). Given women's reliance on public transport, inadequate rural and suburban public transport systems contribute to their transport poverty. On the other hand, if women have sufficient income, poor public transport systems can encourage them to drive cars, which can contribute to CO_2 emissions. Transport planning for rural areas need a flexible approach to enabling mobility since public transport may not always be viable. Options to promote a green rural transport system include carpooling and infrastructure for charging electric vehicles. It is particularly important that parking at transport hubs should be well-lit since women express safety concerns about using public spaces at night (Sansonetti and Davern 2021; Sundling and Ceccato 2022). Safety when using public transport at night was one of the issues that emerged during a public consultation by the City of Malmö, in Sweden, when developing the city's public transport system (see Section 3.4.2).

3.3.4. Employment

Energy sector

It is anticipated that **the energy transition will create employment**, a view acknowledged in the proposals of the Fit for 55 package. For example, the EED (recast) states that there will be employment opportunities in the energy efficiency sector. However, **the prospects for women within these opportunities are uncertain**. The under-representation of women among those employed in the energy sector within the EU has been well recognised (see for example EIGE 2016a).

A study commissioned by the European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs at the request of the FEMM Committee indicated that the low numbers of women opting for **STEM subjects** was a significant factor contributing to the gender profile of the energy sector (Clancy and Feenstra 2019). A positive sign has been a recent increase in the numbers of women scientists and engineers within the EU. In 2020, the number of women working as scientists and engineers was close to 6.6 million, an increase of 254,500 on the previous year (Eurostat 2022b). Again, there are variations between Member States with the percentage of women making up the science and engineering community ranging from 52% in Lithuania,[10] Portugal and Denmark to 30% in Finland and 31% in Hungary. Within some Member States, women can be in the majority in some regions, for example, in Portugal, 56% of scientists and engineers are women in Madeira, and 51% in Continental Portugal. However, apart from Malta, the women employed in science and technology work predominantly in service activities.

Although there is a range of **initiatives to address young women's interest in STEM**, a worrying finding from the **Netherlands** is that campaigns aimed at getting girls to take up STEM subjects do not seem to be working (Feenstra et al. 2022). An explanation for this finding is that the norms and values of communities about what constitutes appropriate employment for women and men influence career choices. Perceptions about the nature of the work in a particular field, such as engineers building a wind turbine (dirty, dangerous and possibly working away from home)[11] compared to working in the IT field (smartly dressed, based in an air-conditioned office with a daily commute from home), also influence ideas about career options. There are some very good initiatives within the EU to challenge gender stereotypes as they influence career motivations, for example educational toolkits for teachers and students related to the transport sector (European Commission, Directorate-General for Mobility and Transport et al. 2021), However, evidence suggests that it is not only students who should be the target of such initiatives but also mothers who are influential, possibly more than their fathers, on encouraging daughters to opt for STEM subjects (Armstrong 2017).

There is a lack of detailed disaggregated data concerning the **composition of the workforce** in the energy sector. Surveys by the International Renewable Energy Agency (IRENA) indicate that while the renewable energy sector is slightly more balanced than the traditional energy sector, women, at least in Spain, Germany and Italy, make up less than 30% of the workforce (IRENA 2019). Women tend to mostly occupy lower paid, non-technical, administrative and public relations positions, as well as tending to dominate part-time working (IRENA 2019). This draws attention to the need to move beyond the percentages of women working in the energy sector to ensuring that there are fair working

[10] The data from Lithuania are most welcome since in the period 2013-15, the country had shown a substantial decrease in the number of women graduates in engineering, manufacturing and construction (EIGE 2018).

[11] Working on offshore oil rigs, where workers have cramped living conditions with limited privacy, has been recognised in the United States as a barrier to women joining the industry. When operations switch to land with better living conditions, more women opt to join the sector (McKee 2014).

conditions with equal wage rates for full and part-time work[12].

The Just Transition Fund (JTF) aims to support measures to phase out coal, peat and oil shale by 2030 by providing grants for initiatives, such as establishing new firms and re-training workers to provide them with new skills to make cross-sectoral shifts. An analysis of fourteen regional plans[13], available as of 2021, found that gender equality measures were not reflected in seven of the plans (WWF 2021). However, three plans actively propose measures to combat gender inequality with a particular emphasis on employment[14]. Bringing an end to the extraction of coal, peat and oil will result in both direct and indirect job losses. While men dominate the direct jobs in Europe, women are to be found employed in many parts of the supply chain as well as service companies in mining regions. These programmes could set benchmarks for other industries, such as the car industry, which might also experience major cutbacks in its workforce if there is a significant reduction in the number of cars in the EU.

Job creation as a result of the Fit for 55 package will be in other sectors than energy, for example the **construction sector**. One estimate is that, within the EU, every €1 million invested in energy renovation of buildings would create on average 18 jobs (there are variations across the Union depending on the national context including wage rates) (Renovate Europe 2021). The European Commission estimated that the European Green Deal would create employment for two million people by the end of 2020, mostly in the construction industry (European Commission 2019). However, the construction sector is male-dominated across a range of skilled jobs including metalworkers, insulation specialists, plumbers, pipefitters, electricians and heating and cooling experts (Clancy and Feenstra 2019). In 2016, only 3% of those employed within the EU in construction were women (Eurostat 2016), a situation that has apparently largely remained unchanged for over a century (Clarke and Sahin-Dikmen 2021). The reasons for the low participation of women are structural and organisational including recruitment practices, employment conditions (in particular the fragmented nature of employment and lack of work-life balance possibilities) and inflexible and hazardous working conditions, such as long working hours and inappropriate equipment (Fielden et al. 2000; Clarke et al. 2015). There are also cultural barriers including the poor image of the sector as a male-dominated culture with sexist attitudes (Norberg and Johansson 2020).

However, there are approaches that can help **open up the construction sector for women's involvement** and improve working conditions for men. First, by creating working conditions that support women such as providing flexible working hours and having more than one woman on a site. Second, by providing a supportive framework that can help women feel safe and secure through the provision of designated equality officers (who could also help support a more diverse workforce) and internal procedures to address grievances. Public sector involvement can set the benchmark for diversifying the workforce. For example, municipalities are responsible for many buildings that will need to be upgraded to improve energy efficiency: social housing, care homes, schools, hostels, hospitals, museums and libraries. The renovations have the potential for a significant number of construction jobs. Whether the work is carried out in-house or is procured, municipalities can play a major role in diversifying the workforce by laying down employment conditions for construction workers. Municipalities can work with vocational training institutes to ensure that their intake is diverse and provided with appropriate support including offering apprenticeships as part of the renovation

[12] For further elaboration of this point see the study by Clancy and Feenstra (2019) for the FEMM Committee.
[13] The Czech Republic, Estonia (Ida-Virumaa), Greece (Megalopolis, Western Macedonia), Latvia, Poland (Eastern Wielkopolska, Lodzkie, Malopolska, Upper Silesia, Walbrzych), Romania (Hunedoara, Gorj), Slovenia (action plan from consultant only), and Slovakia.
[14] Lodzkie, Wielkopolska and Estonia.

work. Liaising with women's organisations, professional bodies and unions can also help diversify the intake. Contractors should be required to offer contracts with good conditions of employment including family-friendly policies and working conditions (including providing equipment that matches women's bodies). Such policies will benefit both women and men employed in the construction industry.

SMEs

The current energy consumer protection framework does not safeguard small businesses, such as hairdressers or coffee shops, against rising energy prices and disconnection in the event of non-payment**. Women make up over 60% of employees in service, sales and clerical support** of which many will be in **part-time**, **temporary**, **low-paid** and **precarious employment** (European Commission 2022a). Women also predominate in sectors that were particularly affected by the COVID-19 pandemic: accommodation, food services and domestic services (Eurofound and EIGE 2021), and this has resulted in women facing greater loss of earnings than men (European Commission 2022a). The sectors, types of firms and jobs (low-wage, temporary or part-time) where women predominate were not, or were less well, covered by specific COVID-19 crisis-related job protection schemes.

This situation has **two energy poverty related impacts**. The first is short term: more women are likely to enter energy poverty through loss of earnings if employers reduce employees' working hours as a way to limit their increased operating costs because of the high energy prices. The second impact is longer term: when women now working reach pension age, the current loss of earnings will impact on their pensions, widening the existing pensions gender gap. Research in Spain found that, on retirement (at age 65), woman-headed households, solely dependent on pensions, were spending from 10% to 15% of their annual income (as of 2016) on energy, which using some measures would indicate that these households were already living in energy poverty (Tirado Herrero et al. 2016). The situation is likely to be getting worse for those households already in energy poverty, and more woman-headed households are likely to enter energy poverty.

3.4. Procedural aspects

In this section we show there are gender inequalities in four procedural aspects related to energy policies: public consultation about the Fit for 55 package; how transport policy is formulated as an example of policy influencing to reflect gender differences; research; and Renewable Energy Communities.

3.4.1. Public consultation

Citizens have been consulted at the European level on the Fit for 55 package, eliciting over 45,000 responses. It is not possible to say anything about **the demographics of the respondents** and hence the gender justice aspects concerning the extent women and men have contributed to policy formulation. While women and men have the legal right to contribute, that is not the same as the capacity to respond, for example, women might consider that they do not have sufficient technical knowledge to express a view about a proposal or they are not included in professional organisations (see Box 2). There are also no data available to analyse contributions disaggregated across social categories, such as age and ethnicity, as well as geography (country and rural vs. urban). The consultations have been extensively analysed as part of the impact assessment process, but no specific analysis on gender issues has been found.

3.4.2. Shaping policy for infrastructure investments

In Section 3.3.3., it was noted that the Fit for 55 package focuses on the car, with more limited attention

to other forms of transport, which could be interpreted **as reflecting both men's transport use and preferences** over women's transport use and preferences, particularly as this relates to environmental issues. An explanation lies in the way that policy is shaped and implemented. Evidence indicates that decisions about transport policies tend to be taken by men with a background in engineering (Kronsell et al. 2016). While the technical dimensions of transport are important, **the experiences of those who use transport are also important**. The experiences of women, in terms of their everyday practices and of using public transport and other mobility vehicles are relevant, both as users of the transport system and in democratic terms of opportunities to influence policies.

A review of the transport planning system in **Sweden** found that planners in the transport department or in county/regional governments/municipalities were predominantly men, as were businesses and other interest organisations and stakeholders who were invited to provide feedback on suggested plans and investments (Kronsell et al. 2016). In other words, women had little opportunity to contribute to policy formulation.

However, Sweden does give an example of how this lack of women's influence on transport policy can be reversed. The City of Malmö has used gender mainstreaming in developing the city's public transport system with the intention of integrating gender equality in a sustainable transportation system. The municipality held a series of "dialogue meetings" with a range of groups including high-school students, commercial employees (particularly focusing on female-dominated workplaces such as hospitals) and representatives of various free-time activities, such as sport. Planners found that this consultation process was able to reveal unexpected concerns, such as women feeling unsafe at night using public transport, an aspect which the municipality has now started to address. Another important component of the strategy is to focus on middle aged and older men to convince them to start travelling more like women who exhibit more sustainable travel behaviour (CIVITAS 2020).

3.4.3. Research

Contributions to policymaking come through different routes. Horizon 2020 research projects form one such route for giving citizens ways to contribute to policymaking. First, citizens can be researchers who contribute directly to a project. The Horizon 2020 Dashboard provides percentages on a number of cross-cutting issues related to funded Horizon 2020 projects including the percentage of women as participant researchers (41.6%), acting as project coordinators (22.98%) (European Commission 2022b)[15], as members of advisory groups, expert groups and evaluation panels, and as individual experts etc. (25.18%). It is claimed that 27.13% of Horizon 2020 projects have a gender dimension, although it is not clear what this means. Similarly, 11.61% of projects have societal engagement activities. Disaggregated data on other social categories is not available. While at first sight, nearly half of the researchers in projects are women, this percentage should be treated with caution and not be reduced to box ticking since the issue is not only that women are involved as researchers, but the roles these women members are filling. The composition of a research team reflects who is regarded as an expert, which cuts across not only gender but also specialisations and disciplines. Less than a quarter of projects have a woman as the consortium leader, which raises the question as to whether there is still a gender bias in research project funding. There is at least one Horizon 2020 research project investigating this issue (GRANteD n.d.). It is a positive step that Horizon Europe now has the requirement for public institutions applying for funding to have a **Gender Equality Plan (GEP)** in place. However, it is unclear if GEPs are evaluated in respect of how gender is incorporated in the research process of an organisation's policy and practice. Such an evaluation would indicate the effectiveness

[15] The percentage is expressed as a total of projects providing this information – not the total number of projects.

of the current policy in promoting gender equality. Another Horizon 2020 research project is evaluating GEPs related to physics in 13 Member States (GENERA n.d.). Evidence indicates that if gender considerations are clear prior to the research commencing, then gender is a more prominent part of the research process.

BOX 2: Women's neglected knowledge

An example of how women are not having the opportunity to influence policy from a base of knowledge and experience comes from a Horizon 2020 project related to women's involvement in forestry in the Danube Basin: FEM4FOREST. Very few of the women active in forestry are members of professional associations, forest entrepreneur associations or nature conservation groups (FEM4FOREST 2021).

The FEM4FOREST project found that women had a less invasive approach to forest management than men and became foresters because of the intrinsic value of forests and were less motivated by financial gain. Women foresters in Germany are already anticipating climate change and experimenting with different species to achieve resilient forests. It is possible that women foresters therefore have contributions to make in a more sustainable forestry sector capable of contributing to LULUCF targets which needs to be tapped into and built on.

Another route through which citizens can influence policy is by becoming members of a stakeholder organisation that is a participating member of a Horizon 2020/Europe project. However, the gender composition of these organisations is not recorded so we have no indication of women's opportunities to contribute through this route to policy formulation. An analysis of fifty multi-actor Horizon 2020 projects in agriculture, forestry and related sectors found a systemic failure consisting of the long-term exclusion or underrepresentation of new entrants and more novel partner organisations (Cronin et al. 2022). While the researchers did not disaggregate by gender or other social characteristics, it is very possible that women's organisations in these sectors would fall into the category of excluded organisations if they were not part of an appropriate network. Two concerns arise from this finding. First, it is a question of gender justice, for example, to what extent do project developers ensure that they have a gender balance in the teams in all their partner organizations, as well as in the project lead organisation primarily determining the nature of the problem and its goal formulation. The second concern is that the exclusion of women specialists means that the EU is not drawing on all its knowledge and expertise to ensure that the energy transition is successful. Box 2 illustrates the issues as described in a Horizon 2020 project related to women's involvement in forestry in the Danube Basin.

3.4.4. Renewable Energy Communities

The Renewable Energy Directive encourages the establishment of 'renewable energy communities' as a mechanism to involve citizens in the energy system. **There is no consensus on what constitutes such a community** since those that exist vary in terms of conditions of membership (level of investment), modes of operation (cooperative or limited company) and business model (profit or non-profit). Currently only a very small number of these energy communities exist within the EU. **It is not possible to estimate the level of involvement by women and marginalised groups**. However, there is an emerging literature that calls into question the diversity of the members since the demographics of the membership can be summarised as "mainly white, middleclass and men" (Melville et al. 2018: 315 cited in Radtke and Ohlhorst 2021: 10).

An analysis of the demographics of 13 wind energy communities in **Germany** found that the members were predominantly men (80%), in an older age group (more than half were between 45 and 64 years

old), with nearly 60% having a university degree and around half having a monthly gross income above €3,500 (Radtke and Ohlhorst 2021). The cost of community membership influences the gender balance. Where the required contribution to the share capital to allow membership was above €10,000, members were predominantly men[16]. The study found that young people and women tended to favour cooperative approaches to organising the community. Women were more strongly motivated by ecological considerations than men, whereas men were more strongly motivated by financial considerations. Participation in community meetings had a strong age bias, with young people participating less frequently than older generations. This appears to influence perceptions as to whether the community is democratic, with younger people tending to consider their community as not very democratic (Radtke and Ohlhorst 2021).

A study of five energy communities in **five Member States** [17] found that despite the communities having a general objective of enabling the empowerment of all citizens through the control of energy production and consumption, this did not automatically empower women (Lédée 2019). Men continued to dominate in terms of numbers, including in the decision-making positions which is noteworthy since many of these decisions will be related to general business matters, such as increasing membership, with which women might feel more comfortable than purely technical matters.

Similar findings about gendered differences in involvement in community schemes are reported from a qualitative study which analysed the demographics of participants in local energy initiatives in **the Netherlands**[18]. Women who were reluctant to be involved offered two explanations: time poverty due to care commitments, or fear that they did not have the technical knowledge to effectively participate (García Vázquez 2016). It was suggested that women would be more inclined to participate in meetings if they also included discussions on how the energy initiative was going to benefit the environment as well as community members in terms of their comfort levels at home and financially (García Vázquez 2016).

Increasing the influence of women and marginalised groups over policy requires a conscious approach to inclusion to overcome the barriers to participation (suggestions for energy communities are given in Section 5. Recommendations). For example, local communities could be involved in decisions about the way Social Climate Fund resources are spent in their area.

3.5. Examples of Good Practices

- The European Institute of Gender Equality provides an example of good practice in collecting gender disaggregated data including a **Gender Equality Index** as a monitoring tool.
- The legal requirement for all Ministries in **Austria** to apply **gender budgeting** (EIGE n.d.-b) A training course is provided for officials on how to develop equality outcomes, measures and indicators in the budgeting work of their ministry. In **Andalusia** (Spain) gender budgeting is used in the regional budget with approximately 90 % of programmes promoting gender equality.
- The **Covenant of Mayors for Climate and Energy Europe** has guidelines on energy poverty which recommend **targeting distinct groups within the population** considered as vulnerable with identification based on a range of social characteristics including women and girls.

[16] The investment cost for establishing an energy community is dependent on the scale of the envisaged technology with a wind turbine being larger and more expensive than household solar panels. An energy community could reduce the level of required individual investment if it could attract a large number of participants.
[17] GoiEner (Spain), Jurascic (France), Z.E.Z (Croatia), Klimaan (Belgium) and Enercoop (France).
[18] Local energy initiatives, rather than energy communities, is the term used in the Netherlands at the time of the study.

- The Energy Coaches employed by municipalities in the Netherlands to help social housing residents improve their household energy efficiency.
- City of Malmö, Sweden, using a gender-sensitive and intersectional approach to develop a sustainable public transport system.
- To enable energy-poor households to become members of their local REC, which would be beyond their budget, and have lower energy bills, the administration of the city of Eklo in Belgium buys REC shares and transfers ownership to households classified as energy-poor (Hanke et al. 2021).
- **Stanford University** in the US gives guidance for scientists and engineers on why gender matters in research, not only in practical methods of sex, gender and intersectional analysis but also provides case studies illustrating how sex, gender and intersectional analysis leads to innovation and allows a wider societal influence over research priorities.
- **ENERGIA**, the international network on gender and sustainable energy has developed **criteria for gender-sensitive energy research**[19]**:**
  - Treating gender as a separate category of analysis, not as a sub-set of poverty
  - Gender analysis goes beyond women's practical welfare needs and addresses the transformation of gender relations.
  - Women are not treated as a homogenous category
  - A bargaining model of the household is assumed, rather than a unitary model with identical interests
  - Gender relations as well as gender roles are analysed (including beyond the household level).

[19] Based on Cecelski (2004); ENERGIA: https://www.energia.org/.

4. CONCLUDING REMARKS

- There are four initiatives within the Fit for 55 package (proposals for the Energy Efficiency Directive (recast); for the Energy Trading Scheme II; for the amended Regulation on strengthening the CO2 emission performance standards for new passenger cars and for new light commercial vehicles; and for the Social Climate Fund) which give recognition to gender and other social categories in terms of potential impacts. Therefore, in answer to **RQ1**, we conclude that a gender dimension has been recognised in some, but not all, of the initiatives within the Fit for 55 package.
- NECPs rarely report on the gender dimensions and social impacts of their plans.
- There are limited gender-disaggregated data available, including from Eurostat, and even less intersectional data both for involvement in energy policy formulation, including in research practice, and energy poverty/vulnerability. Therefore, in answer to **RQ2** we conclude, based on the evidence, that there has been very little attempt to adopt a gender-sensitive and socially inclusive approach within the Fit for 55 package.
- Without energy data that is intersectionally disaggregated, one cannot come to an understanding of the differentiated situations of the groups of people whose causes and experiences of energy poverty require the development of a range of policy interventions and appropriate measures to be put in place. Further, if there is no coherence in the criteria used to assess energy poverty within the EU, cross comparisons of progress in reducing vulnerability are difficult if not impossible.
- Adopting the concept of hard-to-reach end-users helps to generate a more nuanced understanding of users beyond vulnerability and to develop targeted energy initiatives which create feelings of energy justice.
- While the Fit for 55 package has a number of measures related to reducing CO_2 emissions from cars, it is important to also pay attention to other personal forms of transport and mobility since there are gender and social equality issues that should be taken into account. Policy measures which focus on cars can favour men, who use cars more than women do as the latter tend to use public transport. Support for electric vehicles tends to favour high-income households over lower-income households.
- In answer to **RQ3**, there is limited evidence of examples of gender mainstreaming good practice within the EU that have strived to enhance the participation of women and of marginalised social groups in the planning/decision-making process.
- There continue to be barriers to women and marginalised groups participating in the energy transition in terms of employment (for example in the construction sector which is predicted to play an important role in the energy transition), as end-users and as researchers.
- Renewable Energy Communities are currently largely the domain of white, middle-class men with only limited attempts to involve women and to be socially inclusive.
- A consequence of the increase in energy prices and threat to supplies due to the Russian invasion of Ukraine, at least in the short term, is that the levels of energy poverty within the EU are likely to increase.

5. RECOMMENDATIONS[20]

Gender Mainstreaming – doing it better

DG Energy should develop a gender action plan for addressing energy poverty

Gender Action Plans (GAPs) are a recognised tool for implementing a gender mainstreaming strategy. The European Parliament could call on DG Energy to develop a GAP that addresses the gender dimensions of energy poverty to ensure that policies are socially inclusive. Such a GAP would set a benchmark for Member States and other energy sector organisations to follow. The EIGE has developed a toolkit for political institutions to develop a gender mainstreaming strategy and GAPs (EIGE 2016b).

NECPs should be required to include a Gender Impact Assessment (GIA)

The NECPs can provide a useful avenue for Member States to analyse how Fit for 55 can ensure that all social groups are treated fairly in the energy transition and in response to the exceptionally high energy prices. There is a concern that some Member State governments are not taking ownership of these plans and not providing the necessary leadership on energy transition measures, including the gender and social inclusion dimensions for regional and local governments. To achieve a more gender just and socially inclusive energy transition, we recommend that NECPs be required to include a Gender Impact Assessment (GIA). A gender analysis, which forms the basis of such an assessment, can provide a useful entry point for promoting a just and socially inclusive energy transition, particularly if an intersectional perspective is taken. The following three recommendations include some advice on how to ensure that the outcomes of GIAs are implemented.

Eurostat and Member States should collect gender-disaggregated intersectional data

First, a gender analysis needs disaggregated data. As we have indicated above, such data are scarce – particularly across different demographics such as age and ethnicity. The European Court of Auditors has also criticised the lack of gender-disaggregated data for hindering the analysis of gender mainstreaming (European Court of Auditors 2021). Our analysis above shows that there are European citizens whose situation is overlooked, either in respect of their experiences of energy poverty or their knowledge that could contribute to making the European Green Deal a success, and consequently they are not given the opportunity to contribute to policymaking. GIAs tend to be based on qualitative data. The evidence indicates that programme managers view such data with scepticism and doubt the objectivity, which can result in the GIA not being implemented (Kim and Kang 2016). A perception is then created that GIAs are costly and of questionable value. To overcome such resistance, both quantitative and qualitative data are needed.

We therefore recommend that the European Parliament calls on the Directorate for Statistics (Eurostat) to require national statistical authorities to collect gender-disaggregated intersectional data. This would allow monitoring and evaluation of measures designed as part of Fit for 55 to enable them to become more gender responsive and socially inclusive. We recommend that Eurostat consult with the European Institute for Gender Equality about the nature of the data required.

Member States should strengthen broader participation in developing and implementing energy poverty mitigation strategies in NECPs

[20] Annex 3 contains recommendations from the experts who participated in the feedback workshop on 6 September.

The responsibility for developing policies to address energy poverty within Member States is at the national level, while much of the responsibility for implementing these policies lies at the regional and local levels of government. As we observed above, women still do not have equal influence over policy formulation. Member States therefore need to adopt consultation strategies that ensure that a broader range of organisations are consulted to develop more socially inclusive policies. The City of Malmö, Sweden, provides a good example of a gender and socially inclusive approach in its development of its transport strategy. For example, consulted organisations should be asked to indicate, beyond statements on members' demographics in percentages, how they are socially inclusive in their own operations. Civil society organisations provide good sources for reaching broader demographics. Not relying solely on social media to deliver messages about the energy transition will increase the possibility of informing hard-to-reach end-users, particularly those in older age groups, about the help available to assist them in benefitting from the energy transition.

The capacity of the various levels of government to deliver more gender-equal and socially inclusive policies to address energy poverty varies. Care needs to be taken to ensure that this situation does not lead to greater gender inequality and social exclusion within countries.

The European Commission and Member States should exchange good practices for gender mainstreaming

The proposal for the establishment of a Social Climate Fund indicates that Member States, when preparing their Social Climate Plans, can request the Commission to organise an exchange of good practices. This can provide an entry point for gender mainstreaming and build Member States capacity for developing more gender-responsive and socially inclusive policies to include in their NECPs.

Enabling hard-to-reach end-users

The European Commission and Member States should adopt and use the concept of 'hard-to-reach' end-users

We recommend the use of the concept of 'hard-to-reach' end-users, which focuses not only on those on low income but also includes those who are difficult to motivate to invest in energy efficiency due to a high income.

We also recommend the concept be extended to include SMEs in the services and commerce sectors, where women tend to dominate as employees, that currently fall outside of the energy consumer protection framework even though they face barriers to investing in energy efficiency measures.

Member States should provide appropriately tailored support for different groups of hard-to-reach end-users

Greater coordination between local governments, energy companies and public authorities could help to identify vulnerable individuals or families particularly in the hard-to-reach groups.

A range of tailored outreach and specific schemes, free at the point-of-use, should be developed that match the characteristics of hard-to-reach end-users, as well as taking into account the reasons why many do not apply for assistance with energy bills, for example because of embarrassment and seeing a stigma attached to requiring financial support. People aged over 75 years, particularly women, tend not to own mobile phones and have limited internet access (Barbosa Neves et al. 2013). Therefore, financing schemes should avoid providing information only online media and should not have application procedures that require computer literacy.

An example of a tailored, free at point of use approach, is the provision of energy audits for SMEs in the services and commerce sectors where women tend to dominate as employees. A project in Portugal, which tested this approach, found that word of mouth between business owners spread the news of the financial benefits, for businesses with tight margins, of investing in energy efficiency (Sequeira et al. 2021).

While one-stop shops run by municipalities can work in urban areas, mobile vans driven by energy coaches could perform a similar function for rural and island communities. However, the energy coaches providing these services must understand the communities that they aim to serve, in terms of their circumstances, e.g., tenants or owner-occupiers, age, ethnicity and literacy levels. Also, they need to recognise the role that women play in decisions about energy use in the household and avoid the behaviour described in the study in Denmark in which the energy advisor visiting households tended to only address technical issues to the man (Tjørring 2016). The one-stop shops can provide the necessary training for energy coaches as well as professionals, individuals and civil society organisations who can act as intermediaries for the hard-to-reach users who are unlikely to actively reach out for support for many reasons, such as social stigma, lack of trust in authorities[21] or language barriers. An example of a where a service could be provided for a specific target group are universities and other educational and training institutes, which could provide a facilitator to work with students about how to approach their landlords to improve the energy efficiency standards of their accommodation (Witt 2022).

A just energy transition will require attention be given to encouraging behavioural change in the group of hard-to-reach end-users who have high incomes and a high energy demand. A Horizon 2020 research programme, using focus groups of vulnerable consumers in nine Member States[22], found that they were willing to adapt their behaviour or even pay more for energy if they could see that the more affluent in society were also required to adapt their behaviour (FETA 2022).

Member States should prevent landlords from penalising tenants because of the need for energy efficiency improvements

Tenants of private landlords are vulnerable to exploitation as is recognised in the EPBD. Tenants tend to live in the very worst-performing buildings in terms of EU-level energy performance standards. Their status generally leaves them powerless to respond to incentives provided by carbon prices other than to further reduce their consumption and in so doing deepens their energy poverty.

Landlords can respond to the desirability of energy efficiency improvements in their properties in a number of ways that do not benefit their tenants. For example, landlords can do nothing, they can make improvements and increase the rent, they can make improvements and evict the tenant, or they can evict the tenant on the pretext that the house/apartment needs to be empty to make the improvements. Member States should introduce and enforce measures to protect tenants and ensure that they benefit from energy efficiency improvements. For example, the **Flemish Government** has

[21] An indication of the low level of trust by EU citizens in their governments comes from the Horizon Europe Project *Fair Energy Transition for All* (FETA - https://fair-energy-transition.eu/ (Accessed 12 September 2022). The project involved over 900 vulnerable citizens representing a range of social characteristics from nine European Member States and sought their views on the energy transition. One of the findings is the lack of trust in the information given to them by national governments.

[22] Belgium, Bulgaria, Denmark, France, Germany, Italy, Netherlands, Poland and Spain.

frozen the rents of properties with an E or F energy classification for a year from 1 October 2022 (Wonen-Vlanderen 2022).

Further, SMEs that are based in rented premises can face similar problems to tenants of private landlords in that the landlord will not make energy efficiency improvements to the building structure or behaves detrimentally towards the SME. Despite this, SMEs are not generally recognised as vulnerable. Therefore, the proposal for the Climate Fund Regulation which introduces the concept of 'vulnerable micro-enterprises'[23] is a welcome initiative that creates an opportunity to provide support for SMEs.

The one-stop shops proposed above could help tenants organise a tenants association to balance the power of landlords and familiarise tenants with their rights, particularly in respect of national legislation that benefits or protects them from exploitation in respect of energy efficiency improvements. Such a strategy would be especially useful for migrant communities for whom language can be a barrier to familiarisation with the legislation of their country of residence.

Renewable Energy Communities should be required to demonstrate their social inclusion

Renewable energy communities (RECs) are promoted for their supply-side contribution to the energy transition and, on the social side, their localised nature can engage citizens more directly in the transition and increase its social acceptance – a mechanism that can be used to democratise the energy transition (Szulecki and Overland 2020). However, there is growing concern, based on an analysis of existing RECs, that they are, in general, not socially inclusive in terms of their membership with women and marginalised communities being under-represented (Hanke et al. 2020). Since RECs are still small in number, this would be a good moment to ensure that existing and future communities meet the social and political expectations. If RECs are to receive funding, they should be made to prove that they are socially inclusive and representative in their terms of their membership and that they have a credible strategy to enable members to be active in all aspects of decision-making.

A starting point for an REC to develop a strategy could be to set gender targets in its statutes. However, such a strategy needs to go beyond head-counting and create an inclusive working environment. To help ensure an REC becomes more inclusive and representative of the community in which it is based, it could start by making a gender, intersectional analysis of the community. They could then approach community leaders of under-represented groups, such as women's organisations and religious leaders, to explain the REC's objectives and what is expected of its members. One barrier to women's participation is time poverty linked to their care responsibilities. Therefore, to help encourage participation, meetings could be scheduled in such a way that they are family-friendly and use a hybrid format[24]. Providing gender and inclusiveness training for men – explaining how a more inclusive approach will also benefit them – will help create a welcoming space for people who might feel reluctant to attend meetings. Visual communications about the REC and what it does should represent the wider community since pictures can send a signal about what inclusion means (for example, only showing men working with hardware can discourage women) (Energy Cities 2022).

[23] A vulnerable micro-enterprise is defined as one that is significantly affected by the price impacts of including buildings in the scope of Directive 2003/87/EC and lacks the means to renovate the building they occupy.

[24] In person and online.

Local governments and, if they exist, national REC umbrella organisations can support RECs in creating a socially inclusive, gender-aware organisation by providing gender-awareness training.

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ANNEX 1: RESEARCH STRATEGY

The following questions based on the energy justice framework were used to analyse the gender dimensions of the Fit for 55 package.

Distributive justice

Where are the injustices?

1. Access to energy services

    Is energy poverty specifically recognised in the Fit for 55 initiatives/NEPCs?
    How are issues problematised?

    What are the proposed solutions?

2. Labour markets

    Are women identified as active contributors to Fit for 55 rather than passive beneficiaries?

    Do the initiatives actively create employment opportunities for women (particularly from marginalised groups) in the energy transition?

3. Governance (multi-level)

    Are there examples of good gender-sensitive practice (policy design, implementation, monitoring) at national or local level?

    To what extent are the measures dependent on local, socio-cultural, political and economic conditions that are rare/unique/difficult to replicate?

    Institutional frameworks – for gender equality and the energy transition – is there overlap/collaboration?

Procedural justice

Is there a fair process? Who is recognised as an actor? Who gets to decide? How is power distributed?

Who was consulted in drafting the Fit for 55 initiatives/NEPCs?

If answering questions based on interview rather than document analysis, does the respondent know that a gender-approach is required in policy formulation?

Was a gender-sensitive approach used? Was gender training given? If so, to whom?

How did the consultation take place?

Which groups are involved in the implementation, and monitoring the measures?

Were there initiatives to fill technical knowledge gaps to enable effective contributions?

Were these initiatives complemented with initiatives to remind groups of their rights and agency in respect of policy formulation?

To what extent do the measures change the existing structures and processes to make them more gender responsive (for example in respect of the unequal burden of care on women)?

Recognitional justice

Are target groups differentiated in terms of gender, social, cultural, ethnicity, racial identity, age, health, civil status, care responsibilities and geography (urban/rural)?

Who is included/excluded?

Are people/citizens specifically mentioned?

How are they defined (e.g. vulnerable groups)?

If so, are they further defined (e.g. by age)?

Are women and men treated as homogenous groups? If not, how are they defined?

Is knowledge and/or expertise from the target groups received/included in the planning process?

ANNEX 2: ORGANISATIONS PROVIDING EXPERTS FOR INTERVIEW

- Chalmers University of Technology, Sweden
- European Institute for Gender Equality
- European Policy Centre
- FEM4FOREST
- FiBL Switzerland
- Netherlands Enterprise Agency (RVO)
- Next Energy Consumer
- School of Transnational Governance, European University Institute, Florence
- University of Delft, The Netherlands
- Women in Energy, Climate and Sustainability Foundation
- Women for Climate Justice
- World Wildlife Fund

ANNEX 3: ORGANISATIONS PROVIDING PARTICIPANTS FOR 6 SEPTEMBER WORKSHOP

The following organisations provided participants to an on-line workshop held to provide feedback on an early draft of the report:

- Chalmers University of Technology, Sweden
- European Institute for Gender Equality
- European Policy Centre
- FEM4FOREST
- FiBL Switzerland
- Netherlands Enterprise Agency (RVO)
- Next Energy Consumer
- School of Transnational Governance, European University Institute, Florence
- University of Delft, The Netherlands
- Women in Energy, Climate and Sustainability Foundation
- Women for Climate Justice
- World Wildlife Fund

Reflections and Recommendations to the FEMM Committee

The participants also provided some reflections and recommendations which, since the workshop was held under Chatham House rules, are presented (unedited), with their permission, anonymously below.

- The energy crisis might transform into a job crisis if we do not pay attention to small businesses and precarious contracts. Many women are underemployed (such as in unvoluntary part-time jobs) and might be furloughed if business owners are unable to afford their utility bills. Some women are also business owners. The current energy consumer protection framework does not protect small businesses, such as hairdressers and coffee shops, against rising energy prices and disconnection in case of non-payment.
- It's NOT about a head count and it's not about quotas. It is about knowing that diversity within projects produces better results, but this only works when everybody can reach their potential, which means creating a work environment that enables that. There are two main parts: content and process.
- Content means thinking about who participates in our projects (is anybody missing out?). It means thinking about who benefits from our projects (do we interact with societal challenges?). It doesn't mean we become a gender institute, but rather that we think about fairness and equality in the design and implementation of what we do. Process means equality of voice, which needs structures. It doesn't happen by itself. It means equality of opportunity and taking context and circumstances into consideration. It means respectful interactions with each other. Equality is everybody's business, so it means keeping it in mind and talking about it.
- The policy frameworks recognise "the energy care nexus" as an important dimension in incorporating the gender dimension such that measures to increase women's participation also

have a component of conscientisation around equal sharing of care-related chores and not turning out to be counterproductive.

- As part of the commitment to gender mainstreaming in the EU budget, integrate gender equality in procurement.
- The EU has to move towards a more holistic concept of wellbeing and sustainability for the green transition which should equally include environmental, economic AND social concerns. I would also like to see revised versions of the Just Transition Fund and the Renovation Wave that prioritise the care sector for funding. The Just Transition Fund in particular is almost completely gender-blind. I would certainly like to see the eventual breakdown of how many men it assisted into new forms of employment or training compared to women.
- Member States should be urged to integrate a gender perspective in their NECPs and to present how gender is affected and how it is dealt with in which measures. To support this, the EU should provide the relevant tools and organise exchange meetings that promote mutual learning from each other and from good examples.The Fit for 55 package should also address a sufficiency perspective that prevents forced energy consumption that undermines energy efficiency outcomes. This applies, for example, to the longevity and reparability of IT products in particular, but also to issues of housing size. Positive approaches such as the sharing economy need to be strengthened and supported. It is imperative that this be based on a gender perspective.

This study, commissioned by the European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs at the request of the FEMM Committee, assesses whether a gender dimension has been incorporated in the initiatives proposed under the Fit for 55 package and whether a gender-sensitive approach was used in its formulation. Examples are given of good practice for gender mainstreaming in energy and climate policy. Recommendations are made to close identified gender gaps in policies and processes.

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