

Research article

Whose future counts? Justice in energy scenarios

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Abstract

Energy institutions at different levels are central in just energy transitions as they develop and enact strategies. In recent years the United Nations Framework Convention on Climate Change (UNFCCC), with its related bodies, and the European Union (EU) have paid more attention to justice issues across energy related policies. This is an important guidance for energy authorities at different levels, but there are still several challenges to just transformation, for example. path-dependent institutional practices, including a strong techno-economic focus in energy policymaking and policy outputs. This calls for a critical scrutiny of energy institutions and how they understand and work with issues of justice. In this article we explore two energy institutions, The Swedish Energy Agency (SEA), and Directorate-General for Energy (DG Energy) of the EU Commission and their work on long term energy scenarios. With the help of institutionalist scholarship and literature on energy justice, we investigate how justice issues are understood in the work on energy scenarios and how institutional practices, norms and values might affect this work.

Our first findings reveal a certain institutional inertia despite an increased awareness of energy-related social differences among policymakers, resulting in a reproduction of existing techno-economic norms and knowledge.

Keywords: Energy justice, energy scenarios, institutionalism, policymaking, ecological modernisation.

Introduction

Energy institutions operating at various levels of governance play a pivotal role in shaping energy transitions through the development and implementation of strategic frameworks. In recent years, bodies such as the UNFCCC and the European Union, through its Green Deal, have underscored the significance of equality and justice aspects (European Commission, 2019; IPCC, 2022). This emphasis is crucial for energy institutions, which not only inform policymakers but also have the potential to drive transformative change by

advancing strategies for a just transition with far-reaching societal implications. However, previous research has indicated that these institutions are faced with specific institutional challenges that might stall the realisation of a just energy transformation. One persistent issue is the dominance of a techno-economic norms, such as ecological modernisation, in energy policymaking (Healy & Barry, 2017; Van de Graaf & Sovacool et al., 2020; Magnúsdóttir & Kronsell, 2021; Magnúsdóttir & Melin, 2025). For instance, although the European Green Deal aspires to 'leave no person or place behind' (European Commission, 2019), Allwood, 2025, p. 73), it predominantly frames energy as a natural science problem, focusing on technological optimisation and economic cost-benefit analyses for just green transition (Susser et al., 2022, p.1) and similar trends are seen at the national level (Allwood, 2025, p.73; Magnúsdóttir & Kronsell, 2015, 2016, 2025; Morrow, 2021).

Drawing on literature on energy justice and institutionalist scholarship, this study explores how justice is understood and conceptualised in long-term energy scenarios produced by two energy institutions: the Swedish Energy Agency and DG Energy of the European Commission. We analyse three scenario reports from the SEA and two from DG Energy. The document analysis is complemented with interviews with civil servants from both institutions exploring how they engage with justice and social difference in their scenario work.

Energy scenarios are valuable for analysing energy policymaking because they serve as decision-support tools for policymakers, form an integral part of climate governance, and connect national efforts to both global and local climate actions. Energy scenarios outline different models of energy types and use. They should not be seen as prognosis but rather guidelines for achieving national and European climate goals, energy transitions, and securing stable energy supply to different parts of society (SEA, 2021; EU Commission, 2021). They thus depict possible futures to improve decision-making under uncertainty (Baard, 2021, p. 1). Energy institutions are authoritative actors in the development of these scenarios, primarily due to their expertise in techno-economic domains – such as forecasting technological advancements and assessing economic impacts on states and industries. While techno-economic knowledge provides a necessary foundation for envisioning future pathways, it risks fostering a top-down approach that overlooks essential social dimensions, including issues of justice and equitable transition across different societal groups. Baard (2021, p. 3) notes that scenarios are often considered most reliable when they reflect a consensus on maintaining current trajectories. However, a 'business-as-usual' approach risks reproducing existing paradigms (Munck af Rosenschöld et al., 2014) and reducing energy transitions to purely technological challenges, thereby neglecting the significance of behavioural change. Susser et al. (2022, p. 2) similarly argue that norms, practices, and rising environmental awareness shape energy discourses in Europe, yet these have not translated into the necessary behavioural shifts. They caution that public opposition to energy infrastructure projects is impeding transition progress globally, and that failure to account for such factors may result in 'mathematically elegant but politically irrelevant scenario results' (Susser et al., 2022, p. 2). Scenarios that lack a justice-oriented perspective may thus be unrealistic and misleading, projecting transition speeds that are neither socially acceptable nor just (Susser et al., 2022, p. 1).

In this article we not only seek to examine if and how justice concerns are understood and acknowledged within energy scenarios but also to explore how institutional practices and norms, shape and potentially hinder this work. Accordingly, we pose the following research questions:

1. How do energy institutions recognise and operationalise justice aspects in their long-term energy scenarios?

2. In what ways do institutional norms, practices, and existing epistemic frameworks shape the development of energy scenarios, and how might these institutional arrangements constrain or preclude the integration of justice-oriented perspectives?

Our focus on the two energy institutions in question enables us to explore energy policy making and institutional practices at different level of governance. The two energy institutions are interesting to study for several interconnected reasons. Sweden has long been recognised as a frontrunner in environmental governance, for example, having the highest proportion of renewable energy among EU member states, reflecting a strong national commitment to decarbonisation and energy transition (EPI, 2022; Midttun & Olsson, 2018; Magnusdottir & Melin, 2025). Here the Swedish Energy Agency plays a pivotal role in shaping and implementing energy policy, serving as a key actor in coordinating national strategies. This influence is partly attributable to Sweden's dualistic governmental structure, which features relatively small ministries and large, semi-autonomous agencies. Unlike many other European countries where ministries led by individual ministers dominate governmental operations, Sweden's governance system relies on collective decision-making and delegation to agencies. This arrangement limits ministerial interference and enhances the autonomy of agencies such as the Swedish Energy Agency (Hall, 2015, 2016).

DG Energy of the European Commission offers a contrasting governance level and highlights the Commission's central role in guiding energy transitions across member states, including Sweden. Our previous research on gender inclusion in climate governance has revealed notable institutional differences between Scandinavian authorities and the European Commission, particularly in their conceptualisation and operationalisation of gender and climate issues (Magnusdottir & Kronsell, 2015, 2016, 2021, 2024). A comparative analysis of the Swedish Energy Agency and DG Energy may thus uncover divergent institutional norms, practices, and knowledge frameworks that shape civil servants' understanding of justice.

Energy became a top priority for many European voters after the outbreak of the war in Ukraine, where the energy discourse has been securitised. Sweden's recent NATO membership has, for example, intensified the securitisation of its energy politics but at the same time justice-related concerns – such as disparities in energy access and affordability – have also gained prominence, for example, in the European Green Deal and at the national level. European governments, including Sweden, have, for example, introduced various compensation schemes for households and industries, though these have faced criticism for being inequitable and counterproductive (Knodt & Kemmerzell, 2022). The energy crisis has thus elevated energy justice on the political agenda, with energy issues emerging as a key concern in Sweden's 2022 parliamentary election (SVT, 2022). In the lead-up to the elections, governing parties framed climate strategies primarily in terms of energy availability, accessibility, and security – a trend that has continued post-election. These concepts are central to energy justice scholarship, encompassing individual needs, societal impacts, economic considerations, and environmental sustainability (McCauley, 2018, p. 6; Sovacool, 2013; Sovacool et al., 2020; Arler, 2020). However, Swedish political debates largely focused on economic disparities between the country's four energy regions, with less attention to the societal differences within regions and intergenerational equity. Such framing highlights the need for deeper engagement with energy justice in long-term scenario planning. While urban-rural disparities are frequently acknowledged in energy policy, mere recognition does not guarantee justice – especially when discussions are anchored in assumptions about a homogenous urban middle class, rendering other groups as 'deviations'. Neglecting energy justice risks reinforcing existing inequalities, undermining equitable transitions, and exacerbating political and societal instability.

Following this introduction, we outline the conceptual framework, which is informed by scholarship on energy justice and institutional theory. This is subsequently followed by an account of the methodology and materials employed in the study, leading into the analysis and concluding reflections.

Energy justice and institutional inertia

We begin by discussing key concepts in energy justice scholarship, which are valuable for identifying justice considerations and the extent to which social dimensions are addressed in energy policymaking. Energy justice scholarship underscores that energy transitions have significant and uneven impacts on individuals, communities, and sectors across society. The field is inherently complex and multidimensional, encompassing intergenerational justice, environmental justice, social justice, and principles of transparent and accountable governance (Jack-Scott, 2019; Sovacool & Dworkin, 2014, 2015). Although energy justice remains a relatively narrow field compared to climate justice, both literatures critique the limitations of traditional techno-economic assessments of energy transitions, which often neglect justice-oriented and people-centred approaches. This critique extends to energy scenario modelling, which risks producing inaccurate or incomplete projections if it fails to account for the differentiated impacts on marginalised groups, future generations, and ecological systems (McCauley, 2018; Sovacool, 2013; Healy & Barry, 2017).

The energy justice literature outlines several ways to stipulate how justice should be considered and assessed. The notion that access to affordable energy is a prerequisite for well-being and economic growth is a good starting point (Sovacool, 2013). Sovacool's (2013) foundational framework outlines eight principles of energy justice:

1. Availability
2. Affordability
3. Due process
4. Information
5. Prudence
6. Intergenerational equity
7. Intragenerational equity
8. Responsibility.

These principles have inspired a wide range of applications, particularly in studies of energy production and consumption. However, recent critiques suggest that these principles require further refinement to address systemic and institutional dimensions of energy injustice (Bidwell & Sovacool, 2023), where the institutionalist scholarship is a valuable addition. In our analysis of energy scenario reports, we primarily make use of three justice tenets: 1) distributional, 2) recognition, and 3) procedural justice (Jenkins et al., 2016; Walker & Day, 2012). Distributional justice concerns the allocation of benefits and burdens associated with energy systems, including issues such as fuel poverty and access to affordable energy. Recognition justice focuses on identifying which groups are affected, particularly those historically marginalised or disadvantaged, and whether their perspectives are acknowledged in policy processes. Procedural justice addresses the fairness and inclusivity of decision-making processes, emphasising the importance of community engagement, transparent information sharing, and institutional representation (Jack-Scott, 2019; Jenkins et al., 2016). Recent scholarship has also expanded the conceptual foundations of energy justice. Heffron (2023), for

example, revisits the original tenets – distributional, procedural, and recognition justice – and proposes a five-principle framework that includes restorative and cosmopolitan justice. Similarly, Van Uffelen et al. (2024) argue for greater normative clarity in energy justice frameworks, emphasising the need to address normative uncertainties and competing conceptions of justice. Scholz & Schuppert (2025), however, critique the conceptual proliferation within the energy justice literature, prompting us to adopt a more focused approach by limiting our analysis to the already outlined three foundational tenets.

Stickiness and path-dependent norms and practices

Institutionalist literature is also a useful tool for identifying practices and institutional norms which shape the work on energy scenarios. We are primarily inspired by historical institutionalism and we define institutions not merely formal governing bodies but also informal institutions such as, norms, rules and practices of the governing authorities and very importantly the people behind the strategies, thus the civil servants (March & Olsen, 1996; Mackay et al., 2010; Holmes, 2020; Curtin, 2019; Magnúsdóttir & Kronsell, 2021). Historical institutionalist scholarship is interested in institutional practices and in particular institutional inertia, which makes institutions resilient to change and keen to reproduce existing processes, norms, knowledge, and culture (Munck af Rosenschöld et al., 2014; Mahoney, & Thelen, 2009). This is built on March & Olsen's (1989, pp. 21-38, 161) new institutionalist ideas about how institutions are reproduced through patterns of action in a 'logic of appropriateness'. In the context of the energy institutions in question, this might for example mean that a dominant economic and technical knowledge is being reproduced and even deemed more appropriate than justice or people-centred approaches in the work on energy scenarios. This can lead to institutional stickiness, meaning that certain norms and practices become sticky or will be reproduced without a full understanding of their effects – for example, they might prevent the inclusion of new knowledge, including people-centred and justice approaches.

Ecological modernisation is a more specific example of a sticky norm or approach relevant for our study. The European Green Deal is, for example, underpinned by an ecological modernisation thinking and oriented towards innovation and arguments for the economic benefits of climate actions despite being considered a part of EU's road to just transition (Heffron, 2023; European Commission, 2019). Swedish environmental politics have also for decades been framed in the context of 'ecological modernization' (Singleton & Magnúsdóttir, 2025; Hysing & Olsson, 2018), where economic growth and the environment are to go hand in hand as building blocks of the welfare state. This stickiness makes it difficult to change institutional practices and norms and is a part of the institutional inertia of doing 'business as usual'. This also means that civil servants not only follow governmental mandate but also embedded norms and practices, according to what is appropriate within their institution and in accordance with their professional identity (Arora-Jonsson & Sijapati, 2018). Accordingly, institutions not only create policy-processes, but can also lock into place certain rules and norms of behaviour which make institutions resilient to change (Waylen, 2014; Lowndes, 2020).

Related to this discussion about the logic of appropriateness and institutional stickiness is the core institutionalist concept of **path dependency**, which also contributes to institutional inertia. Path dependency keeps institutions on a trajectory shaped by previous decisions, thereby constraining opportunities for innovation and change (Pierson, 2004; Schreyögg & Sydow, 2011; Miller, 2020; Ljungholm, 2017). This means that energy institutions often operate along highly technocratic and elitist paths in their

policymaking, which tends to downplay social interpretations and alternative approaches (Christensen & Lægheid, 2021). Our previous research has indicated a path dependency in the recognition of gender in climate policymaking, where gender blindness is being reinforced in new strategies, such as the European Green Deal (Magnusdottir & Kronsell, 2015, 2016, 2021, 2024, 2025).

We have also found indications that path dependency and sticky norms can **travel across institutional contexts**, shaping practices in newly established bodies. For example, research on DG Climate Action of the European Commission revealed that gender-blind norms prevalent in other Directorates-General were reproduced within this relatively new institutional environment. Civil servants at DG Climate Action largely adapted to the masculinised institutional culture in which EU climate policies had previously been formulated (Magnusdottir & Kronsell, 2016, 2024, Minto & Mergaert, 2018). This illustrates how informal norms and the logic of appropriateness can reinforce institutional continuity even in contexts of organisational change (March & Olsen, 1989).

Methods and material

The article analyses textual data from the energy authorities in question, the Swedish Energy Agency, and DG Energy of the EU Commission and interview data, from the same institutions.

The first step in the analysis was to select relevant documents for the textual analysis. Key reports on long term energy scenarios from 2016-2020 from the Swedish Environmental Agency and from the EU Commission outlining EU reference scenarios were selected. The energy scenario reports from the Swedish Energy Agency outline how the Swedish energy system *could* develop in the future and consider economic, technological and to some extent demographic and political developments (SEA, 2021). The Swedish Energy Agency produces and publishes its long-term energy scenarios for the Swedish energy system biannually. The energy scenario reports are a part of Sweden's climate report to the EU Commission. The long-term scenarios give some indications about which circumstances need to be met and which actions need to be taken to reach national energy transitions goals as well as international climate goals for 2030 and 2050. We explore three energy scenario reports for the time period 2016-2020, published by the Swedish Energy Agency (Swedish Energy Agency 2017, 2019, 2021).

We also explore the two reference scenario reports published by the EU Commission in the same period. The EU member states use the EU reference scenarios in their own work on national energy scenarios. The reference scenarios are developed by DG Energy in cooperation with DG Climate Action and DG Mobility and Transport of the EU Commission. The reference scenarios present a projection of: '... the evolution of the EU energy system, transport system and greenhouse gas emissions...' and '...are built on both EU and member states policies' (European Commission 2021, p. 8). The reference scenario reports are not energy forecasts but project: '...the impact of macro-economic, fuel prices and technology trends on the evolution of the EU energy system, on transport and on their greenhouse gas (GHG) emissions' (European Commission, 2021, p. 8). The reference scenario projections concern both the EU as a whole and the EU member states individually since the reference scenarios are used as a base in the national work on energy scenarios. Accordingly, the reference scenarios can be perceived: '... as an informed, internally consistent, and policy relevant projection on the future developments of the EU energy system, transport system and greenhouse gas GHG emissions...' (European Commission 2021, p. 8), acting as a benchmark for new policies at the national level.

The exploration of the scenario reports is done with a qualitative content analysis guided by literature on energy justice. The three principles of energy justice (Jenkins et al., 2016) and the research questions of the article were a good starting point for a manual coding used for the scenario analysis. Coding is a useful tool for processing and making sense of textual material and the coding was qualitative as we were not only interested in counting how often justice related references appear but how these references and relevant themes were understood and whether they could be perceived as explicit references to energy justice.

Initial coding framework

After the first round of reading with the help of the coding framework, it became clear that explicit references to justice were scarce and we therefore turned to feminist methodologies for studying what might not be visible or what has been called 'studying silences', thus: '...sometimes 'reading' what is not written, or what is 'between the lines,' (Kronsell, 2006, p. 109; Magnúsdóttir & Kronsell, 2015, 2016, 2025). We therefore looked beyond explicit references to justice and social differences, thus for more implicit justice references or just any recognitions of varying societal effects.

The second step in the study was to interview civil servants working for the Swedish Environmental Agency and DG Energy of the EU Commission. The interviews were intended to deepen our understanding of how energy justice was recognised and understood in the institutions in question. We also wanted to shed light on how institutional practices and norms shape the work on energy scenarios. In this part of the analysis we were guided by the institutionalist literature. The interview material was analysed in similar manners as the scenarios, looking for implicit and explicit references and answers about justice and social differences. We did not code the interview material, since our interview manual included direct questions about social differences and understanding of justice.

Response was initially limited when we contacted possible respondents, especially at the Swedish Energy Agency, since some of those who we contacted said that they did not work with energy justice. These responses were interesting and after further contact some of those civil servants were interviewed or asked to refer us to other possible respondents. In the end 13 experts were interviewed and the group was gender-balanced with about 40 per cent of the respondents being male and 60 per cent female. Respondents held different levels of seniority within their respective institutions, ranging from junior civil servants to senior group leaders or middle managers. The interviews were conducted in 2021-2022 online using Zoom. Respondents either handed in a written consent or verbal consent which was recorded on Zoom. All the interviews were pseudonymised, following current ethical standards. Most of the interviews were recorded except where the respondents asked us to take notes instead of recording. We organised each interview in semi-structured manner around an interview guide. The interview questions focused upon the respondents background and experience, understanding and possible recognition of social differences and justice issues in the respondents work on energy scenarios, and finally the institutional contexts and practices where the respondents work.

The interviews with officials at the Swedish Energy Agency were originally conducted in Swedish but we have translated the extracts in the analysis. The interviews with officials at DG Energy were conducted in English. In addition, we made use of interview material from our previous research projects (Singleton & Magnúsdóttir, 2021, Magnúsdóttir and Kronsell 2016), which included interviews with civil servants from the two institutions in questions. These interviews were a useful addition, since they focused

on the importance of institutional practices, norms and processes and their effects on policymaking.

Implicit justice in a techno-economic context

Starting with the Swedish Energy Agency our first findings indicate a ‘silence’ in terms of *explicit* discussions or references to energy justice in the scenario reports analysed, thus the Swedish scenario reports for 2016, 2018 and 2020. The 2020 report presents five different scenarios as well as related analyses, including EU’s reference scenario. Previous scenario reports from 2016 and 2018 follow similar patterns although the number and design of scenarios vary. Apart from the EU reference scenarios in the Swedish reports explored, the Swedish energy scenarios are, built around lower energy prices, electrification and/or increased mandatory reductions of fossil fuels for engine fuels. The 2020 report focuses not only on the total energy use and supply but more narrowly on the transport and industry sectors, housing and service and the effects of increased electrification and increased use of biofuels (SEA, 2021).

This strong techno-economic focus is not surprising given both the technological nature of energy systems but also the vast economic effects energy decisions can have. This focus could however also be seen as a sign of path-dependence in policymaking, prioritising well-known technological knowledge and economic approaches over people-centred perspectives, which might seem less ‘appropriate’ and even political. From the perspective of energy justice, this narrow framing neglects crucial dimensions of fairness. Distributional justice draws attention to how benefits and burdens of energy transitions are allocated, which techno-economic analyses can only partially capture. Procedural justice, entails going beyond the epistemic authority of experts in the policy-making process and including marginalised knowledge and voices in the actual process. This concentration of knowledge power not only reinforces technocratic norms but might also limit the scope for deliberation on social values and lived experiences in the policymaking process. Recognition justice adds another relevant layer here by stressing the importance of acknowledging and representing diverse identities, cultural contexts, and historically disadvantaged groups in energy policy. When recognition is limited, policies again risk perpetuating systemic inequities and erasing the perspectives of those most affected by energy transitions.

When moving beyond the initial coding framework and looking for implicit references to energy justice, we discover that social differences are to some extent visible in the reports from the Swedish Energy Agency. An example of this is a discussion about energy use in the transport sector where it is stated that: ‘Traffic development is affected by many factors, among others demographic development, economic development, urbanization and people’s views on transport and travel’ (SEA, 2021, p. 24, author’s own translation from Swedish). This statement about people’s views on transport as an effecting factor could be seen as an implicit justice recognition of the importance of social factors, such as people’s views and changes in transport behaviour. It is however only framed in terms of energy use and traffic development and it does not problematise further the aforementioned social factors. Furthermore, it is explicitly stated in a section about uncertainties in the scenarios connected to traffic development and transport patterns that: ‘Possible changes in behaviour – how people perceive the transport sector and vehicle ownership, are not included in the scenarios’ (SEA, 2021, p. 27, author’s own translation from Swedish).

Geographical differences are discussed in various parts of the reports both in terms of differences in energy supply and prices but also in discussion about diminished heating costs due to global warming in the North and bigger air conditioning costs in

Southern Sweden. This discussion and other reflections about geographical differences and unjust price differences, highlight questions that have implicit references primarily to distributional justice but without specifically framing them as issues of energy justice. Other justice reflections are limited, as the reports do not demonstrate an intersectional understanding, thus do not fully acknowledge that energy related social factors other than location tend to intersect, meaning that there are vast differences *within* the population in each region. The reports mention 'the population' in relation to behavioural changes and housing efficiency but they do not fully account for intersectional differences – such as income, gender, age, and ethnicity – that shape energy vulnerability within regions. By centering housing efficiency on what is economically beneficial for homeowners, the reports implicitly prioritise middle-class, dual-income households over marginalising renters and perhaps also single-income families. Similarly, sections on industry and digitalisation lack consideration of how scenarios affect different social groups or future generations, ignoring questions of representation and intergenerational equity.

Moving on to the **EU Commission** we analyse the two EU reference scenario reports from 2016 and 2020, produced by DG Energy in cooperation with DG Climate Action and DG Transport and Mobility of the EU Commission. Through the lens of the coding framework, we discover that the examined EU reference scenario reports do not contain explicit references to energy justice, which is surprising given the EU's focus on just transition via its Green Deal. The explored scenario reports have a strong techno-economic focus and the projections for the scenarios are done with: '...technological and economic methodologies' (European Commission, 2021: 10). Framed within the logic of ecological modernisation, this approach foregrounds efficiency and cost-effectiveness as primary objectives, illustrating how ecological modernisation discourses shape policy and practice. Yet, by privileging technical and economic rationality, it simultaneously risks sidelining normative concerns such as fairness, inclusivity, and justice.

The EU scenario reports are still more people-centred than the reports from the Swedish Energy Agency and recognise social differences to a greater extent, which could be seen as an implicit nod to distributional and recognition justice. This is perhaps not surprising given that the EU reference scenarios are built not only on EU policies but also national policies from the member states. The reference scenarios project future development of the EU energy system, transport system, and greenhouse gas emissions both in the member states individually and the EU as a whole. For example, the reports acknowledge energy poverty in EU member states, which touches on distributional justice by recognising unequal access to affordable energy. However, this recognition remains superficial: there is no deeper analysis of how burdens and benefits are distributed across income groups, nor any consideration of compensatory measures for vulnerable households. Similarly, recognition justice is only partially addressed. Although energy poverty is mentioned, the reports lack an intersectional understanding of how factors such as age, gender, and class intersect to shape vulnerability within energy-poor states. This omission risks homogenising affected populations and ignoring the lived realities of marginalised groups.

Procedural justice is even more absent. The reports rely on expert-driven methodologies and techno-economic modelling, privileging the epistemic authority of established technical and economic knowledge. This technocratic approach reinforces a governance model where decisions are made by specialists rather than through inclusive processes that value diverse perspectives. Improving procedural justice would require institutionalising participatory mechanisms – such as citizen assemblies, stakeholder consultations, and transparent scenario-building workshops – that allow affected communities to influence decisions. It also demands greater transparency in modelling assumptions and open access to data, enabling scrutiny and accountability. Without

these measures, procedural justice remains limited. Recognition justice is also relevant here: public opposition is acknowledged, for instance in the section on nuclear power plant siting, but the reports fail to explore whose voices are heard and whose are silenced, or how representation of marginalised communities could influence decisions about energy infrastructure.

Other people-centred examples, such as the analysis of renovation rates for residential buildings, further illustrate these gaps. The reports note that income and class determine renovation activity and that: '...the majority of renovations is carried out by medium and high-income classes' (The European Commission 2021: 67). This observation implicitly raises distributional justice concerns – lower-income households are excluded from efficiency gains and cost savings – but the reports do not consider policy interventions to correct these inequities. Nor do they address recognition justice by exploring how renters, single-income families, or elderly populations experience these dynamics differently. Finally, intergenerational justice is absent throughout: there is no discussion of how scenario outcomes affect future generations in terms of energy access, environmental sustainability, or economic opportunity.

In summary, both the Swedish Energy Agency and the DG Energy of the European Commission's work demonstrate an understanding of distributional justice and an awareness of social differences, albeit at a rather superficial level. These implicit references to energy justice and social disparities can nevertheless be seen as a step toward a more comprehensive understanding of multidimensional energy justice – particularly when compared to our previous research on gender recognition (Magnusdottir & Kronsell, 2015, 2016, Singleton & Magnusdottir, 2021, 2025). In our previous research from 2015-2016, the Swedish population and the entire EU population were treated as homogeneous groups in climate strategy documents produced, among others, by the Swedish Energy Agency and DG Energy of the Commission (Magnusdottir & Kronsell, 2015, 2016). This tendency reflects a broader pattern in policymaking often observed in gender mainstreaming, where gender concerns are added to existing policies, structures, and norms without the necessary transformation of those norms and the underlying knowledge production.

Path-dependent practices and sticky knowledge production

Moving on to the interviews with civil servants at the Swedish Energy Agency and DG Energy of the EU Commission, we explored how the respondents understood justice issues in the work on energy scenarios and if these issues were visible within their institutions. We were also interested in learning more about institutional practices, for example, how new knowledge and ideas were placed on the agenda – related to the scope for institutional change and possible obstacles.

Interviews with officials at the Swedish Energy Agency revealed an uncertainty about how questions about energy justice were recognised in the respondents' work on energy scenarios:

These questions are definitely relevant but not something that I can say that I work with or come across in my unit. (Respondent at SEA, 2021, author's translation)

Some of the interviews also indicated a lack of experience or at least uncertainty about how to address and include issues of justice in the work on energy scenarios although respondents claimed that justice issues were relevant for their work and needed to be addressed:

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I think that we, meaning both the Energy Agency but also other authorities and the politicians, have been very focused on the middle class in our work and there questions of justice might not have been important. (Respondent at SEA, 2021, author's translation)

The statement about the focus on the middle class is interesting as it is an explicit recognition that potential justice issues, connected with all three dimensions (distributional, recognition and procedural) might be ignored. Respondents also emphasised the role of politicians and the fact that the Swedish Energy Agency has its mandate from the government, meaning that as a governmental agency it risks losing legitimacy and credibility if the agency goes beyond governmental mandate:

We get our mandate from the government, and I think it is important that we follow that... we are not here to invent projects or ideas outside the scope of our work. We do however have a better knowledge to inform the political side, e.g. via our scenarios and related work, what needs to be done and thereby at least highlight certain aspects. (Respondent at SEA, 2021, author's translation)

This is in line with our previous research on how Swedish climate authorities, including the Swedish Energy Agency, work with gender and other social differences in their climate work, where the question of legitimacy has been emphasised:

Private business may do anything that is not illegal but an agency must do what it is assigned to do. So one must always have an assignment in order to work with social equality and inclusion. (SEA respondent at SEA, 2022, author's translation)

'Inside activism' was also a concept that was brought up in the interviews as something that should not be a part of civil servants' work and should not be accepted within governmental authorities (SEA respondents 2020-2021, Hysing & Olsson 2018; Singleton & Magnusdottir, 2021). These responses are interesting and indicate a possible institutional obstacle to transformative energy politics in the form of path-dependent institutional norms and practices, where good governance is 'neutral' and risks reproducing existing strategies and knowledge unless changes are initiated by the political side.

Interviews with civil servants at the DG Energy of the European Commission indicate a greater awareness or visibility of justice and therefore perhaps a difference in institutional practices since the respondents all claimed that justice issues were relevant in their everyday work.

Energy justice is visible in the sense that it is very relevant in different strategies, although it might not be framed in these terms. (Respondent at DG Energy, 2022)

This is not surprising given the size and heterogeneity of the EU population and the fact that several EU members states have, for example, dealt with energy poverty on a regular basis. Respondents mentioned energy poverty in different parts of Europe but also differences between urban and rural populations as examples of justice issues that needed to be taken into account in their work:

Energy poverty and as equal as possible access to energy between different regions is a security issue but obviously also a question of justice. (Respondent at DG Energy, 2022)

The educational background of the respondents at DG Energy was slightly more diverse, (law degrees, social science, and natural science backgrounds) than the background of the respondents at the Swedish Energy Agency, which might be of relevance to study further. Still the answers from DG Energy were similar in the sense

that respondents were struggling with the question of how to move from rhetoric to real actions in their work, or as one respondent asked:

How do you execute energy justice? (Respondent at DG Energy, 2022)

This question of implementation or ‘doing energy justice’, is similar to questions about gender and energy politics, where research has revealed that the process of gender mainstreaming and inclusion of gender and other social factors has been slow and difficult to translate into real actions (Alber et al., 2021; Fraune, 2015; Ryan, 2014).

Concluding remarks

Ecological modernisation and natural science stickiness narrow epistemic norms and practices shape the work on energy scenarios in the two energy institutions we explored. Examples from these two institutions indicate that existing techno-economic knowledge is being reproduced and prioritised, making justice issues and people-centred practices less visible. Increased global awareness of social differences and justice, is therefore still to be fully translated into concrete plans and activities, and energy institutions in general are central for moving from rhetoric to real actions. Our findings indicate that there still scope to move forward, despite institutional obstacles in the form of sticky norms and path-dependent practices, and our respondents generally consider energy justice important although difficult to practice.

What measures can energy institutions then adopt to operationalise energy justice?

First, robust legal frameworks and sustained political commitment are essential. Institutional path dependency and entrenched techno-economic norms cannot be dismantled unless policymakers recognise the multidimensional nature of energy justice and its critical role in achieving a sustainable future. Closely linked to this is the issue of institutional legitimacy: legal provisions and political directives that explicitly incorporate energy justice are necessary to authorise and steer decision-making within energy institutions. Furthermore, legal frameworks play a pivotal role in enabling the diffusion of formal rules, knowledge, and practices across governance levels – for instance, when national legislation informs or is integrated into EU directives, which are subsequently implemented by member states and their respective institutions.

Second, adopting an intersectional perspective is crucial for understanding the complex and multidimensional character of energy justice, including its differential impacts on diverse social groups and future generations. A deeper intersectional understanding is also central for driving institutional transformation toward more balanced approaches across the various dimensions of energy justice. This may entail greater emphasis on recognition and procedural justice, ensuring that diverse forms of knowledge and voices are meaningfully incorporated into policy-making processes. Moreover, it could involve a stronger focus on sustainability, intergenerational equity, and even non-human considerations, alongside a shift in economic thinking – from prioritising GDP and conventional growth metrics toward what has been termed a ‘well-being economy.’ This paradigm argues that prevailing growth models are both inefficient and unsustainable, generating inequalities that impose prohibitive social and ecological costs (Lang & Marsden, 2018).

Third, lessons from gender mainstreaming research highlight the risk of creating parallel processes, where gender-related measures become superficial add-ons or top layer rather than being embedded into the core of policy frameworks. Studies show that mainstreaming efforts in EU institutions have often lacked coherence and coordination,

resulting in fragmented implementation and limited transformative impact (Alber et al., 2021; Mergaert & Minto, 2021). This challenge underscores the importance of avoiding tokenistic approaches and ensuring that energy justice is not treated as an isolated agenda but is systematically integrated into energy policies. Increased cooperation between sectors – such as energy, social policy, and climate governance – and active engagement of diverse actors are therefore crucial for achieving full recognition of energy justice. Energy institutions must assume responsibility for fostering these connections, creating mechanisms for cross-sectoral dialogue, and inviting a plurality of voices, including those representing marginalised groups, into decision-making processes. Evidence from gender mainstreaming in EU energy transition policies further suggests that without intentional integration, justice-oriented principles risk being sidelined by dominant techno-economic priorities (Carroll, 2022; EIGE, 2021, 2024). Embedding intersectional and justice-based considerations into institutional structures and policy cycles is thus essential for moving beyond symbolic commitments toward substantive change.

Finally, an increased understanding is needed among policymakers about the risks and effects of doing ‘business as usual’ and thus maintaining path-dependent institutional practices preventing the move forward to just energy policies. Institutional change is urgent and necessary – energy justice must move from principle to practice now to secure a sustainable and equitable future.

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