



The Power of Consumers: On the Interplay Between Consumer-Centric Markets and Energy Justice

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Abstract As electricity systems undergo a profound transformation characterized by decentralization and the emergence of millions of new electricity consumers, including electric vehicles and heat pumps, the complexity of modern electricity markets is on the rise. This development presents a unique opportunity for consumers to actively participate

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in electricity markets. To avoid divergent developments, it is essential to comprehensively consider the interplay between electricity market design and energy justice. This chapter identifies main barriers to consumer-centric electricity markets and outlines a modern cycle of energy justice and consumer-centric electricity markets. Consumer-centric electricity markets, which put consumers at the heart, can be a catalyst for energy justice. Conversely, energy justice and its various forms can help design and successfully implement consumer-centric electricity markets aligned with a low-carbon economy and society. Policymakers must address both policy areas cohesively to avoid the emergence of electricity markets that fail to harness justice potentials. Consumer-centric electricity markets have the potential to drive transformative change, making it imperative to empower consumers in this evolving landscape. Now is the time to give power to consumers.

Keywords Energy transition · Electricity market · Consumer-centric market · Transformation · Energy justice

27.1 INTRODUCTION

Our world is changing. This is particularly true for electricity systems, which become highly decentralized with millions of new electricity consumers such as electric vehicles or heat pumps. Despite its challenges, this development is a great opportunity for consumers to play a new, active role in electricity systems, i.e., by actively purchasing electricity and in this way saving money. Given new players and market roles in modern electricity systems, the corresponding system complexity is growing and growing. Current policy discussions in Europe and around the world on

future-proof electricity market design underscore the key role of electricity markets in addressing this increasing complexity.¹ In particular, policymakers seek for new market design solutions that can successfully pave the way toward a sustainable economy and society (see, e.g., the current reform of the EU electricity market design or the implementation of Australia's new wholesale demand response mechanism²).

At the same time, there is an increasing awareness of social aspects of the energy transition, which is, for instance, also highlighted in current EU policy considerations.³ Against this background, the interplay between *electricity market design* and *energy justice* needs to be understood and considered in an integrated way to avoid divergent developments in these two important policy areas. As we will discuss in this chapter, on the one hand, a *consumer-centric electricity market*, which puts consumers at the heart, can be a catalyst for energy justice.⁴ On the other hand, energy justice and its various forms like procedural justice can help design and successfully implement consumer-centric electricity markets that are ready for a low-carbon economy and society.

¹ Heffron, R. J., Körner, M. F., Schöpf, M., Wagner, J., & Weibelzahl, M. 2021. The role of flexibility in the light of the COVID-19 pandemic and beyond: Contributing to a sustainable and resilient energy future in Europe. *Renewable and Sustainable Energy Reviews*, 140, 110743.

² European Commission. 2023. Reform of the electricity market design. https://energy.ec.europa.eu/system/files/202303/SWD_2023_58_1_EN_autre_document_travail_service_part1_v6.pdf and International Energy Agency. 2022. Demand response. <https://www.iea.org/reports/demand-response>.

³ European Commission. 2015. A framework strategy for a resilient Energy Union with a forward-looking climate change policy. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52015DC0080&from=EN>.

⁴ Elia Group. 2021. Towards a consumer-centric and sustainable electricity system. https://www.eliagroup.eu/-/media/project/elia/shared/documents/elia-group/publications/studies-and-reports/20210618_elia_ccmd-white-paper_en.pdf.

27.2 BARRIERS TO CONSUMER-CENTRIC ELECTRICITY MARKETS

Notwithstanding the relevance of consumer-centric electricity markets, there are currently severe *barriers* to consumer centricity in electricity systems. These barriers are diverse and for instance relate to technical, economic, regulatory, and social issues.

From a *technical* perspective, the lack of standardized smart meters is a current hurdle in many countries such as Germany, as data is necessary for reliable forecasts and market activities. Without the availability of data, for instance demand management by consumers and the application of innovative consumer-centric business models are not possible. *Economically*, a consumer-centric electricity market may be associated with high initial investments. In order to realize consumer-centric electricity markets, targeted incentives for active consumer engagement must be set to cover such investments.

Moreover, new forms of dynamic tariffs and grid charges must be introduced.⁵ From a *regulatory* perspective, the standardization of regulations (e.g., within the EU) and the simplification of market entry barriers are still a regulatory challenge on the way to a consumer-centric electricity market. In order to achieve *social* acceptance of a consumer-centric electricity market, it is decisive that, despite the complexity of electricity markets, lack of knowledge does not lead to disadvantages for different players. Fears of new technologies or a lack of comfort should be successfully addressed. Overall, participation of the population is crucial for the functioning of a consumer-centric electricity market.

⁵ Hanny, L., Wagner, J., Buhl, H. U., Heffron, R., Körner, M. F., Schöpf, M., & Weibelzahl, M. 2022. On the progress in flexibility and grid charges in light of the energy transition: The case of Germany. *Energy Policy*, 165, 112882.

27.3 ON THE INTERPLAY BETWEEN CONSUMER-CENTRIC MARKETS AND ENERGY JUSTICE

As discussed in our introduction, consumer-centric electricity markets and energy justice must be considered in an integrated manner. Bringing together consumer-centric markets and energy justice, Fig. 27.1 illustrates how the former can foster different forms of energy justice, while the latter can act as a booster for successful consumer-centric markets. In the following, we will illustrate the resulting *modern cycle of energy justice and consumer-centric markets* by using some examples.

With consumers becoming active market players, consumer-centric electricity markets can contribute to a change in the way how benefits and costs in the electricity system are shared (see the gray arrow in Fig. 27.1). In this way, consumer-centric electricity markets can directly foster distributive justice. As the example of the integrated EU electricity market shows, cross-border electricity markets can also increase “responsibility for others that goes beyond borders,”⁶ which relates to

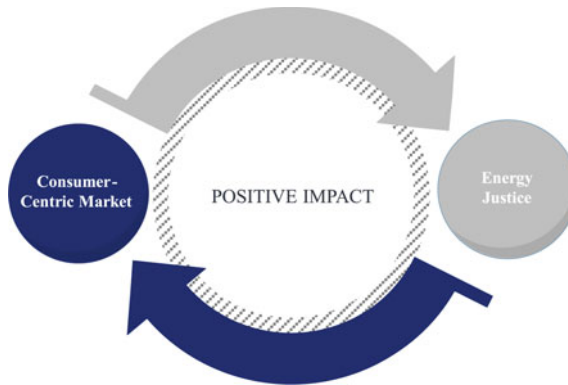


Fig. 27.1 The modern cycle of energy justice and consumer-centric markets

⁶ Sovacool, B. K., Martiskainen, M., Hook, A., & Baker, L. 2019. Decarbonization and its discontents: a critical energy justice perspective on four low-carbon transitions. *Climatic Change*, 155, 581–619.

forms of cosmopolitan justice. As future-proof electricity markets actively contribute to CO₂ savings, they can be an important means in the global fight against climate change.

Justice forms like recognition justice, which focuses on vulnerable groups (e.g., different household types), can guide the design of new consumer-centric electricity markets and remove existing barriers as described in the previous section (see also the blue arrow in Fig. 27.1). In this way, all relevant consumer groups can play their role without any discrimination against for instance small-scale electricity consumers. The same holds for procedural justice including forms of public participation, which can—in the form of the cycle shown in Fig. 27.1—positively impact other forms of justice.

27.4 CONCLUSION

In this chapter, we focused on the question, how consumer-centric electricity markets can foster energy justice and vice versa. As we argue, it is of high importance that policymakers consider both policy areas in an integrated way to avoid the emergence of electricity markets that cannot harness the possible justice potentials. Current political developments indicate that electricity markets must be reformed, and the Intergovernmental Panel on Climate Change (IPCC) of the United Nations demonstrates that action must be taken now because the *carbon clock* is ticking. Consumer-centric electricity markets can, therefore, serve as a booster to enable transformative change.⁷ Here, procedural and recognition justice dimensions play an important role, as participation and the inclusion of all consumers are highly relevant for a consumer-centric electricity market.

With the *carbon clock* ticking very fast and loud, policymakers cannot afford to waste underlying opportunities in the form of inefficient or outdated policies. Instead, now is the time to give power to consumers.

⁷ Heffron, R. J., & De Fontenelle, L. 2023. Implementing energy justice through a new social contract. *Journal of Energy & Natural Resources Law*, 41(2), 141–155.

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