

Transparency and Involvement of Society and Policy in a Data Sharing Platform

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Abstract:

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1 Introduction and Motivation

Today, energy system models are becoming increasingly powerful and detailed regarding techno-economic parameters [1]. However, current models rarely include social and political factors, although these factors constitute important determinants for the design of energy systems [2]. For instance, any power system modelling remains irrelevant if public opposition prevents the construction of wind farms or power lines. Availability and accessibility of robust data on social and political factors are essential for policy-relevant energy modelling, but, as of now, data regarding these factors is scarce. In addition, the decentralized character of the energy transformation makes the local level increasingly important. Hence, integrating qualitative and quantitative data of the decentralised energy transformation (e.g., aspects of acceptance) is imperative for policy-relevant system modelling.

In Task Area 2 (TA2) of the nfdi4energy research project, we explore social and political drivers and constraints of the energy transition, generate and link the relevant data, and prepare it for incorporation on a data sharing platform. The aim of this task area is to co-design a scientific energy data and research sharing platform that can feed into new or existing energy models to help inform the public and political decision makers to determine socially acceptable energy pathways of the future. In addition, we will involve citizens during the project lifetime in the development of a platform that enables and incentivizes the active participation of public stakeholders in energy system research. Consequentially, the intention of this abstract within the “Linking RDM Track” is to provide an overview of the platform engagement design process for society and policy. Furthermore, we aim to discuss potential challenges with the academic audience at CoRDI 2023.

2 Task Area Objectives and Procedures

Our work in TA2 of the nfdi4energy project consists of six measures that we classify into two dimensions, depicted in Figure 1. One dimension represents the involvement of society or policy. The other dimension focuses on the measure goal of either enhancing energy system modelling with societal and political factors or engaging the public in interacting with the energy data sharing platform.

First (1), we identify future users of the nfdi4energy platform and compile a list and graphical overview of all relevant stakeholders. Additionally, we aim to identify local social drivers and constraints for the energy transition. To this end, insights into societal attitudes, perceptions, and desires regarding energy as a public good will be generated through three qualitative case studies (using a most different case design). We will conduct interviews, focus groups and workshops to examine the perspective of citizens and civil society actors in more detail and continuously integrate their perspective into the platform design process throughout the project.

Second (2), to ensure that energy system models represent a feasible option space for the future, we collect relevant regulatory data for the energy sector (i.e., landscape-related, environment-related and economic regulations). Moreover, we identify different energy and climate policy logics of past governments and large opposition parties to link them to technological change and public acceptance for Germany and other European countries.

Third (3), we identify factors determining social acceptance, support and opposition of the energy transition as well as visions for the future. Through a structured review, we identify and compile existing findings and empirical data on public sentiments regarding energy and the energy transition (e.g., [3]). The empirical and regulatory data sets are assessed with the gathered regulatory data in order to find factors determining social acceptance. In addition, the empirical data collected will be used to provide insights into future behaviors and social trends.

Fourth (4), we facilitate holistic energy system modelling with an accessible, standardized and extensive registry of modelling concepts and parameter estimations. Hence, we identify general concepts and guidelines for representing societal and political factors into energy system models. Furthermore, we collect, standardize, and integrate corresponding data and methods into the data sharing platform. Therefore we examine the status quo of incorporating societal and political factors into energy system models and develop guidelines and data sources for future energy research.

Fifth (5), we aim to motivate the public and society to share their data on the energy data sharing platform by incorporating gamification elements. Therefore, we identify use cases for gamification features, which we later implement and evaluate through user experiments.

Sixth and last (6), we identify and operationalize the most adequate visualization tool for conveying model results to stakeholders from society and politics. With a structured review, we identify best practices and requirements for scientific result communication through interactive visualisation (e.g., [4]). The most promising of the identified approaches is prototypically implemented and evaluated in a lab or online experiment.

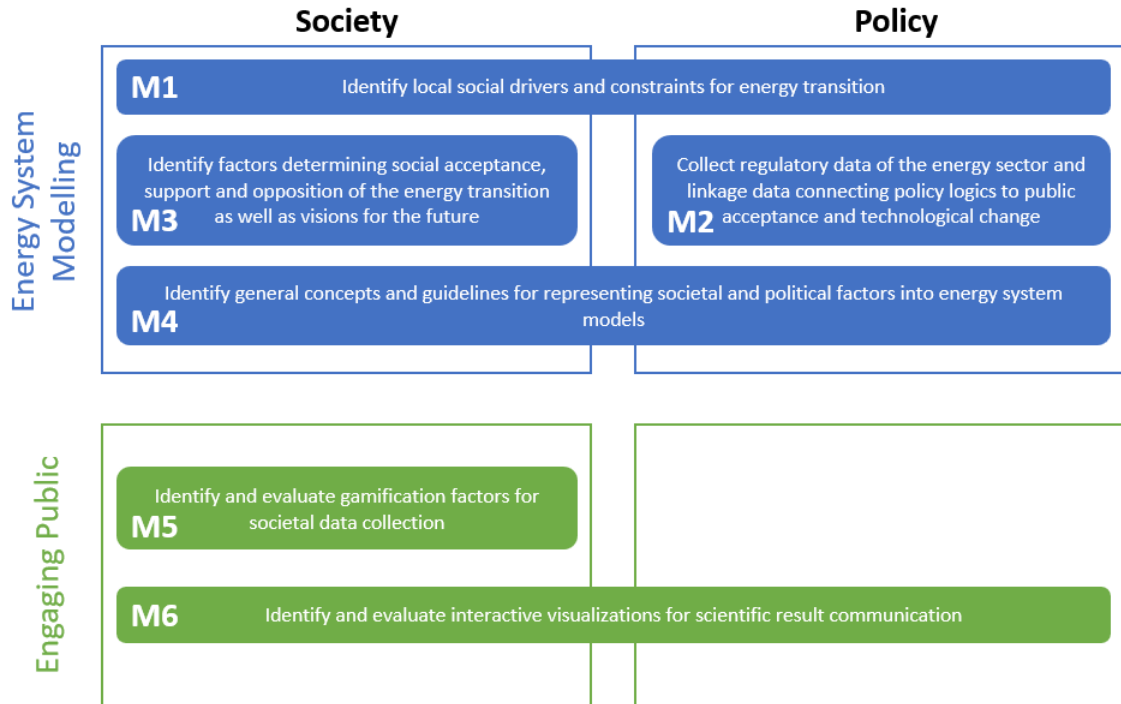


Figure 1. Classification of measures enabling transparency and involvement of society and policy in a data sharing platform.

3 Conclusion

In conclusion, our work contributes to the inclusion of public interests in the conceptualisation of energy data sharing platforms. To ensure that our results are considered in the development process of the energy data and research sharing platform, we stay in close communication with other task areas during the project time span.

Author contributions

Conceptualization, C.S., P.J.; methodology, C.S. writing—original draft preparation, C.S.; writing—review and editing, C.S., P.J., J.L., M.S., J.Z., N.K.; supervision, C.W., A.W.

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Competing interests

The authors declare that they have no competing interests.

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