

AN INCLUSIVE AND COMMUNITY-ORIENTED SOCIAL LICENSE TO AUTOMATE: FIRST INSIGHTS

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Introduction

The energy transition presents one of the most prominent challenges on the path to a sustainable future and has become an even more urgent concern in the context global upheaval and associated supply and price crises. In a system with a high share of renewable energy sources, end-users have the potential to play a crucial part in ensuring grid stability through demand side management (DSM). Automated DSM solutions offer great benefits regarding optimal use of flexibility potential but rely on a social license to automate (SLA) [2]. Further development of the SLA concept, integrating in-depth insights in diversity-specific considerations and a community-oriented perspective, promises to facilitate the granting and maintaining of such a license on a larger scale and in a more sustainable manner.

Automated and semi-automated DSM solutions promise support to consumers in adapting energy use but are currently often geared towards users as “one fits all” solutions, thereby failing to sufficiently take heterogeneity in motivation, household practices, knowledge, literacy, and ultimately flexibility potentials into account [2]. Further, energy communities (EC) could serve as a stepping stone towards engaging a great diversity of citizens collectively and foster trust towards energy efficiency applications and demand side management mechanisms to secure future energy supply [3]. This contribution presents first results of the “Social License to Automate 2.0” project which is dedicated to exploring how automated DSM can accommodate gender and diversity aspects and build on energy communities for promoting a social license.

The role of gender and diversity in flexibility

A literature analysis [4] on the impact of gender and diversity on DSM flexibility revealed three primary barriers in household demand side management (DSM) programs: (1) There is an unresolved tension between DSM technology being perceived as a masculine domain and the home as a feminine domain. Contributing to this is the tendency to design DSM technology and communicate its availability and benefits typically with male, technology affine users in mind, failing to engage women sufficiently. (2) Low-income households face challenges in accessing the technology needed to enable both flexibility and savings. This brings the risk of excluding them from the cheapest available energy when it is made dependent on being able to afford specific equipment. (3) The literature shows disparities in participation opportunities in relation to age; while the elderly are being challenged by a lack of digital literacy and apprehension towards new technology, younger consumers are limited by social constraints that impact their ability to exercise control over household consumption.

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A diversity-oriented analysis of the Flash Eurobarometer 514 survey data examining the EU's response to energy-specific challenges across 27 countries [5] showed, that women and older people are more likely to carry out energy conservation behaviours such as unplugging appliances, turning off lights, and lowering the room temperature. Further, men are more likely to be involved in energy-related purchasing decisions and having children within the household decreases the likelihood of behavioural change.

Energy Community Potential

A critical review of EC initiatives (e.g., renewable energy communities, citizen energy communities, energy cooperatives, and several national EC initiatives) regarding their legislative background was carried out and a conceptual framework to investigate how EC initiatives address social aspects was developed [6]. Different strengths and weaknesses were found with e.g. some EC initiatives enabling improved distributional justice, where benefits were directly and equitably shared with the community, whereas others support procedural justice through involving citizens in the initiation process and the governance. The analysis also underlined that EC initiative features, such as governance, initiating actors, and modes of community operation, have significant implications on social aspects and thus on the overall social license negotiation. Results suggest that strengthening the social impacts of EC initiatives will be key for perceived legitimacy, development of trust, and the granting of a social license.

Flexibility Profiles

The analysis of household survey responses within the ECHOES project (31 countries) to gain a diversity-specific understanding of general attitudes towards DSM automation in Europe revealed that women, younger people and people who perceive themselves to be "better off" are more positively inclined towards automated DSM [7]. Results also point towards intersectional effects, indicating that gender in relation to status impacts attitudes; women who perceive themselves as better off are more willing to accept automation, while for men their perceived social status does not seem to relate to their willingness. Consumption profile analyses of Austrian single households available through the PEAKApp project show gender-related load profile differences with higher peaks for women during weekdays, overall higher consumption baselines on daily consumption profiles for males, higher consumption peaks for women in winter, and overall lower consumption for women in summer.

Conclusion

Based on these emerging findings first steps were made towards extending the social license concept towards inclusivity and community-orientation. These include an emphasis on the need to contextualize the impact of (automated) DSM, reaching out to end-users and helping them understand DSM within their everyday contexts in easily relatable forms, as well as the need to truly consider how social factors can be integrated in the conceptualization and execution of EC initiatives.

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