

# Social License to Automate Overview and Outcomes

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Federal Ministry Republic of Austria Climate Action, Environment, Energy, Mobility, Innovation and Technology





The Social Licence to Automate concept refers to:

"...the extent to which an initiative has the approval or acceptance of communities of stakeholders, and captures a cluster of factors beyond that of formal legal approval which can shape its reception"

Adams, S., Kuch, D., Diamond, L., Fröhlich, P., Henriksen, I. M., Katzeff, C., Ryghaug, M., & Yilmaz, S. (2021). Social license to automate: A critical review of emerging approaches to electricity demand management. *Energy Research & Social Science*, 80, 102210. <u>https://doi.org/10.1016/j.erss.2021.102210</u>





Runtime: Oct 2019 – Oct 2021

**Participating Countries:** Australia (Coordinator), Austria, Netherlands, Norway, Sweden, Switzerland



**Analysis of 26 Cases**: feasibility studies, trials, demos and mature automation projects, over 6000 participants



## Methods

- Common template to collect case data regarding areas of focus
- Original studies for in-depth analysis of particular aspects
- Country profiles to understand contextual conditions

## Areas of focus

- User interactions (AT)
- Energy practices
- Sociotechnical systems
- Institutional settings
  - Business models & incentives (AT)

**Benefit Communication is ALWAYS important** 

# User Interactions

Analysis of interface features and user experience and their role in the granting of a social license

Carried out based on automation level (AL)

## **Results:**

Social

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Automate

Deciding factors for interaction design requirements (and incentives) are: Degree of **required effort** and degree of **experienced impact** of automation (depends on affected load)  $\rightarrow$  **Both decrease with increased AL** 

From low AL (manual & manual programming): Engagement & Enablement ...To medium AL (acceptance & veto): Control ....To high AL (full automation without / within parameters): Transparency







# **Energy Practices**

Analysis of factors enabling flexibility and energy practices that lend themselves to shifting

Focus on routines around **EV charging** and use of **home appliances** 

## **Results:**

- Core shifting considerations are need, cost and availability of RE with differing flexibilities within households
- Responses to automation depend on loads affected and routines and meaning associated with these loads
- → Automated DSM more likely to be accepted if automation corresponds with already existing routines and support rather than interrupt personal energy practices



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Analysis of the **translation path** of DSM: From **problem framing** to provided **solution** and **benefit** and how the translation impacts negotiation and experience

Role of **middle actors** in translation process

## **Results:**

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- It is important to align framings and benefit communication with users' values and expectations
- Understanding of DSM influences perceived value
- It is crucial to provide a sense of being in control to users
- **Middle actors** play a core role in negotiation/translation and trust building



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Mapping of **institutional settings** for implementation and planning: Involved actors, roles, interests and regulatory contexts

Business models and incentives

## **Results:**

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- **Coalitions** of actors with varying interests, leading to a **lack of integrated solutions** that consider market, grid and user interests
- **Roles are changing** currently it is unclear, who will govern flexibility
- **Incentives:** Focus often on (relatively weak) financial aspects; environmental benefits are often a strong motivators under-used
- Business case themes: expand EV charging infrastructure, use of existing flexibilities, measures against energy poverty, use of non-monetary motivations







Key findings

The **most successful** cases analyzed in this task:

- Built on existing communities and personal contact
- Made use of **moments of change**
- Communicated a **clear goal** that was **shared** with the project participants (often looking beyond financial aspects)
- **Compensated** participants in ways that were perceived as **fair** (in relation to effort, impact on comfort and communicated benefit)
- Provided transparency regarding automated processes and followed informed consent protocols
- Stayed in touch with project participants and provided updates on the project and communicated achieved benefits



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# **Identified Research Gaps**

Topics of particular interest for **future research activities** are:

- How can a more **diverse user group** beyond the typical "technology-savvy male" be recruited and engaged?
- What are the deciding factors in **differences in flexibility potentials** and how can **user involvement be designed accordingly**?
- How can **middle actors** be more consciously and successfully **integrated** in the translation process of automated DSM?
- Which role can **energy communities** play in achieving a social license?
- Development of more integrated solutions that considers the interests of grid, market and users equally



Photo credits: Alexas\_Fotos on Pixabay



# Social License to Automate 2.0 Outlook

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# Mission & Motivation

## • "Environmental imperative to decarbonize requires

- a rapid increase in demand-side energy efficiency,
- alongside growth of intermittent distributed renewable generation at the grid edge, placing energy in the heart of communities"

(Users TCP Strategic Plan)

- Clean Energy for All Europeans Package (CEP)
  - *"…new rules will reinforce consumer rights, putting them at the heart of the energy transition; they will create growth and green jobs in a modern economy leaving no region and no citizen behind."*

(EC Commission 2019)



Source: https://energy.ec.europa.eu/topics/energy-strategy/cleanenergy-all-europeans-package\_en

# SLA 2.0 - Overview

- explore which roles energy communities can play within the Social License concept,
- How concept can be expanded and adapted to better consider the needs and abilities of a more diverse user group,
- which steps need to be taken to ensure incremental engagement in implementations.
- Subtask 1: The role of gender and diversity factors in flexibility
- Subtask 2: Contribution potential of energy communities
- Subtask 3: Flexibility profile analysis and data quality requirements
- Subtask 4: Synthesis, adaptation of the social license concept and stakeholder recommendations

24 months, start November 2022 (the earliest)

LEAD: FH Technikum Wien

Co-LEAD: AIT



# The role of gender and diversity factors in flexibility

 OBJECTIVE: Understand the role of gender and diversity factors in energy consumption flexibility and the tailoring of engagement approaches

## OUTCOME:

- deepened insights on various topics through international cooperation
- gender- and diversity-focused analysis to identify key markers for flexibility potential
- hypotheses on adaptations towards Social License Concept
- Understand the role of gender- and diversity factors in flexibility profiles and recommended engagement approaches based on these insights.

- **Duration:** M1 M18,
- **Coordination:** AIT, Lisa Diamond

#### • RELATED ACTIVITIES:

GEL- OPD, LEAFS, SYSPEQ, SERVE-U, DE4ALL,

#### CONTRIBUTIONS:

international social science partners for cooperation on selected topics

# **Contribution potential of energy communities**

 OBJECTIVE: Understand users as actors within societal or community contexts through energy community (EC) approaches.

Interdisciplinary analysis of EC approaches - technological and stakeholder- related

## OUTCOME:

- Comparison of community approaches in thematic clusters across countries
- Stakeholder involvement regarding their roles in communities
- Need analysis to provide a social license to automate in the context of community energy approaches
- Summary of results in conference contribution

- Duration:
  - M1-M18,
- Coordination: AIT, B and T

AIT, Bernadette Fina and Tara Esterl

#### RELATED ACTIVITIES:

Community energy projects and stakeholder contacts (e.g SYSPEQ, SERVE-U, Flex+, ..)

#### CONTRIBUTIONS:

Interdisciplinary team, energy technology ; Community energy project cases and implementations

# Flexibility profiles and data quality

• **OBJECTIVE:** Big data analysis of load profiles and household data on flexibility profiles in relation to diversity of user groups and consolidated assessment of what is needed to close any data gaps

## • OUTCOME:

- Input towards subtask 1, information on DSM strategies with full account of user diversity
- Recommendations for future research & implementation strategies in data handling
- a pre-print research article about diversity aspects in flexibility profiles

- **Duration:** M1 M18,
- Coordination: JKU, Andrea Kollmann

## RELATED ACTIVITIES:

Data sets from PEAK APP, LEAFs project

#### CONTRIBUTIONS:

Existing load profile data for explorative analysis; Data expertise

# Synthesis, adaptation of the social license concept and stakeholder recommendations

• **OBJECTIVE:** How can a Social License within energy communities contribute to a better balance between decarbonisation, energy security and affordability.

## • OUTCOME:

- Recommendations towards different stakeholder groups (industry, policy makers)
  - Integrate more diverse user groups into DSM through adjusted means of participation
  - Guidance on data needs and quality criteria for DSM to allow for improved and more standardized identification of available flexibility potential
  - opportunities offered by EC to support the granting of a social license through specific community characteristics.



• **Coordination:** FHTW, Andrea Werner

#### RELATED ACTIVITIES: Other IEA Users TCP Tasks

CONTRIBUTIONS:
All members involved in previous Subtasks



# Thank you!



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