
Plan Overview

A Data Management Plan created using DMPTuuli

Title: Local Energy Markets, a Nascent Market driven by Business Model Innovation

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Project abstract:

Energy systems are evolving rapidly. Centralised grids are giving way to decentralised architectures, in which novel Local Energy Markets (LEMs) are emerging, with prosumers, aggregators, and operators sharing or trading energy and flexibility at the local level. However, LEMs remain a nascent market, where roles and rules are still being defined, the way value is distributed is not yet locked in, regulatory frameworks and business models are diverse, and it is difficult to replicate at scale.

This research asks three questions: Is there a dominant design for LEMs that accelerates adoption? Which business models drive their growth? And how do LEMs integrate effectively into existing energy systems?

The methodological approach is based on mixed methods, combining systematic literature review, two rounds of expert interviews across multiple countries, case study analysis, and quantitative modelling. Theoretically, the work draws on nascent market theory, dominant design, business model innovation, and socio-technical transitions.

The output aims to give researchers, market designers, and policymakers the conceptual tools to move LEMs from experiment to scale.

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Local Energy Markets, a Nascent Market driven by Business Model Innovation

1. General description of data

1.1 What kinds of data is your research based on? What data will be collected, produced or reused? What file formats will the data be in? Additionally, give a rough estimate of the size of the data produced/collected.

Data consists of interview transcripts from expert interviews (audio recordings converted to text, anonymised) - approximately 25+20 interviews conducted with experts and case representatives. Plus secondary data, namely, academic papers, policy documents, regulatory texts, market reports, and smart grids projects public deliverables, gathered via systematic literature review (SLR).

It will also include quantitative datasets from publicly available energy market prices and energy tariffs used for modelling and forecasting.

The main research outputs will be working papers, conference papers, posters and the final article-based dissertation in .docx and .pdf formats.

1.2 How will the consistency and quality of data be controlled?

The expert interviews follow a structured guide per group of interviews. It is consistently used across all participants, and recordings are transcribed verbatim. A coding codebook for each of the two groups of interviews with definitions for themes.

The secondary data is collected from peer-reviewed sources, official regulatory repositories, and verified public datasets.

All research outputs undergo an iterative review cycle with the supervisory team before submission.

2. Ethical and legal compliance

2.1 What legal issues are related to your data management? (For example, GDPR and other legislation affecting data processing.)

Expert interview participants provided informed consent, and all transcripts are fully anonymised prior to analysis. No personal data is retained beyond what is required.

2.2 How will you manage the rights of the data you use, produce and share?

All secondary data are used in compliance with applicable copyright and open-access terms.

IP arising from the doctoral research (including the LEM-SIM simulator and the SV² framework) is owned by the researcher. Secondary data are used in compliance with applicable copyright and open-access terms.

3. Documentation and metadata

3. How will you document your data in order to make the data findable, accessible, interoperable and re-usable for you and others? What kind of metadata standards, README files or other documentation will you use to help others to understand and use your data?

All datasets will be documented with descriptive metadata in accordance with the Dublin Core standard. They include title, creator, date, subject, description, and rights.

Interview data includes anonymisation logs and coding codebooks.

File naming conventions follow a consistent scheme to ensure traceability throughout the research lifecycle.

4. Storage and backup during the research project

4.1 Where will your data be stored, and how will the data be backed up?

All data is stored in password-protected cloud storage (OneDrive and Dropbox) with automatic versioning. Local backups are maintained on an

encrypted hard drive.

LUT University's institutional storage infrastructure is used for shared research documents accessible to supervisors.

4.2 Who will be responsible for controlling access to your data, and how will secured access be controlled?

The principal investigator together with LUT IT services manage the list of persons having access to the data.

All data is stored in password-protected cloud storage (OneDrive and Dropbox) with automatic versioning

5. Opening, publishing and archiving the data after the research project

5.1 What part of the data can be made openly available or published? Where and when will the data, or its metadata, be made available?

Published articles will be made available open-access in accordance with LUT University's open science policy, licensed under Creative Commons Attribution 4.0. Anonymised interview data and coding frameworks will be available upon thesis submission under CC BY-NC 4.0.

Quantitative datasets derived from public sources will be published with full documentation.

Proprietary components of LEM-SIM will not be released as open-source.

5.2 Where will data with long-term value be archived, and for how long?

Data with long-term value will be deposited in EUDAT/B2SHARE and Zenodo upon thesis submission, with a minimum retention period of 10 years in line with Finnish research data guidelines.

Published articles will be permanently archived in LUTPub, LUT's institutional repository. Dataset records will include persistent identifiers (DOIs) to guarantee long-term findability.

Proprietary components of LEM-SIM will be retained by the researcher indefinitely as active IP.

6. Data management responsibilities and resources

6.1 Who (for example role, position, and institution) will be responsible for data management?

The doctoral student (Luisa Matos) is solely responsible for data collection, storage, documentation, and archiving. Supervisors (Prof. Behnam Ivatloo and Prof. Gonçalo Mendes) are informed of data management practices through regular supervision meetings.

6.2 What resources will be required for your data management procedures to ensure that the data can be opened and preserved according to FAIR principles (Findable, Accessible, Interoperable, Re-usable)?

The DMP will follow LUT University's open science policy and the FAIR principles. No dedicated budget is required beyond existing institutional cloud infrastructure and the researcher's personal encrypted storage.