



Internship Proposal: Investment optimization of local renewable production and storage in France

Background

irex Consulting is a straightforward business engineering consultancy specialized in the energy & utility sectors. We are experts in tackling operational business challenges across the entire value chain – production, sourcing & trading, grids, and supply.

Assignment

Context

In a shifting energy landscape, more and more renewable energy sources are introduced in the energy mix. This happens on a large scale (eg windfarms) as well as on a small scale (eg solar home installations). Nowadays an increasing number of small to medium business is also considering introducing these local energy sources to lower their energy bill and secure energy provision. However, as this is not their core business, most of them have limited knowledge about dimensioning these installations. In 2020, irex conducted this study for the Belgian market, and the intent is to extend it for the French market. The general objective of this internship is to develop a tool which can be used to automatically determine an optimally sized installation of a renewable energy source of for consumers, and create insights the context of small scale injection in France.

Approach

1. Determine calculation methodology: define input, constraints, output and optimization formula
2. Market study and data gathering: consumer consumption data, production data and constraints, economic and regulatory information
3. Build model: The model will be implemented in an environment to be defined
4. Results interpretation: Analyze and understand the results and perform sensitivity analysis
5. Include new technologies: The above steps can be iterated for other technologies. This will depend on the progress made so far and will be discussed with the internship supervisor.

Objectives

- Market analysis of renewable production and system framework in France
- Set-up methodology for calculating optimal distribution between production and storage in function consumption profile and economical triggers
- Development of Proof Of Concept of economical optimization tool for different types of production/storage

Preparation Material

- Information about energy markets in France:
 - [Market Reform Doc](#)
 - <https://prix-elec.com/energie>
 - https://www.energie-info.fr/fiche_pratique/les-acteurs-du-marche/
- General information about PV panels in the French market
 - <https://www.insunwetrust.solar/blog/le-solaire-et-vous/panneau-solaire-autoconsommation/>

Schedule Beginning of July -- End of August

Supervisor

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