

THE PROBLEM ADDRESSED

Because solar energy production is variable, photovoltaic (PV) self-consumption produces lack and surplus of electricity that represent economic losses. The collective self-consumption (CSC) by energy communities is an emerging practice that helps reducing the surplus by mixing various consumer profiles. However, surplus often remains, and it can be reduced if finer weather and consumption forecasts are available and if consumption is smartly guided for the CSC community members.

Built on the Energy4Climate (E4C) center and LMD expertise in solar energy forecast and microgrid management, the AI algorithm of SunShare provides customized daily consumption scenarios for each consumer, that increases CSC global and individual gains, decreases users' electricity bill and enables more solar electricity in the energy mix.

TECHNOLOGY

- Innovative solar PV forecasts based on satellite images processing (a more accurate method for solar energy compared to classic weather models)

- Machine-learning-based electricity consumption forecasts adapted to various user profiles
- Optimization process to compute best scenarios
- Innovative ways to diffuse information such as nudges for users combined with home automation services

COMPETITIVE ADVANTAGES

- Specific expertise of hours ahead PV production forecast
- We expect to reduce the needed electricity import by 10% per year for a CSC energy community.
- The team has an operational experience in microgrid management and in selling photovoltaic forecasts
- Deep knowledge of CSC regulatory aspects and market in France and growing for european countries

APPLICATIONS

- Self-consumption optimization
- Smart-home management
- Variable energy management
- Renewable energy trading

DEVELOPMENT STATUS

TRL 5-7

- We can assess the rentability of existing CSC communities
- Operational PV production forecast systems (Cros et al., Energies, 2020)

INVENTORS & CONTACTS

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PUBLICATIONS

- <https://www.researchgate.net/profile/Sylvain-Cros>
- <https://www.researchgate.net/profile/Jordi-Badosa-2>

LOOKING FOR

- Co-development partners (energy utilities, microgrid industry, PV project developers ...)
- Terrain data (power consumption and production, CSC users testimony ...)