LIGHTNESS

Engaging communities in the future of energy

SUSTAINABLE PLACES 2022

This project has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement n° 953020.

Engaging people and technologies

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08/09/2022

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5 Key findings

1. Lightness project *- Engaging communities in the future of energy*

Empower citizens to generate, share and sell renewable energy and thereby contribute to making the European energy sector more sustainable and democratic

Coming together to produce, exchange, or sell renewable energy at a fair price and contribute to a just energy transition

2. Envisioning the future of energy

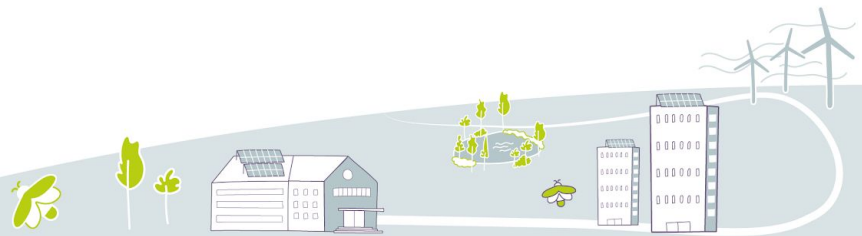
3. Working areas

Social engagement

Low-cost technological package

Innovative business models

Regulatory roadmap



3. Working areas *Social innovation*

- Citizens' **participation and empowerment**, working towards a more democratic energy system
- How to **shift the energy culture**?
- **3 pillars of engagement**:

Explore

Context analyses of needs, wants, desires

Recruit

Inform and involve different users

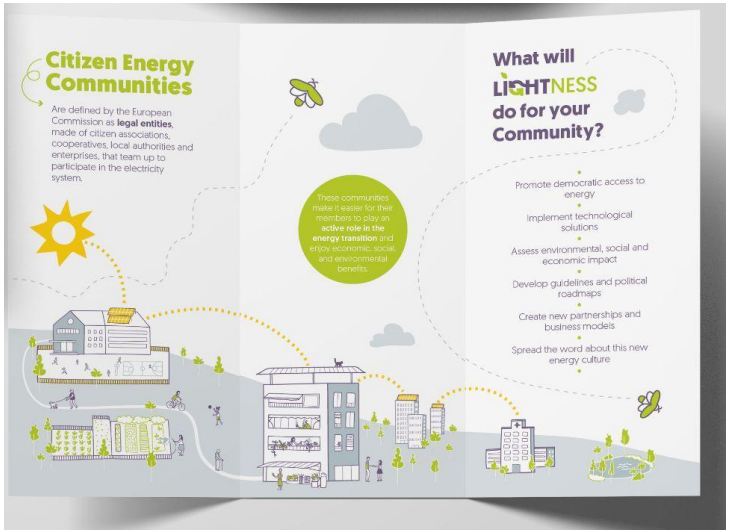
Co-design

Participatory methods and co-creation of the app

3. Working areas *Social innovation*

Tools to engage end-users:

- **Interview** guide
- Living engagement plans that integrate **feedback loops**
- Relatable and human centric **brochures**
- **Facilitation tools**

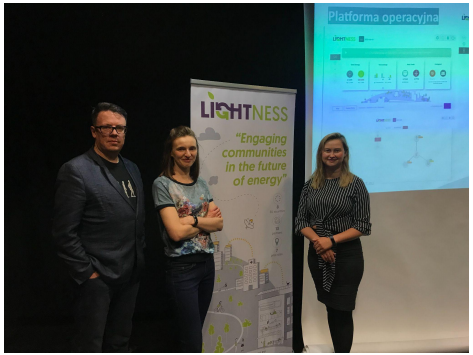


+ *For kids!*

3. Working areas *Social innovation*

Workshop in Woerden, *The Netherlands*

Workshop in Cagliari, *Italy*



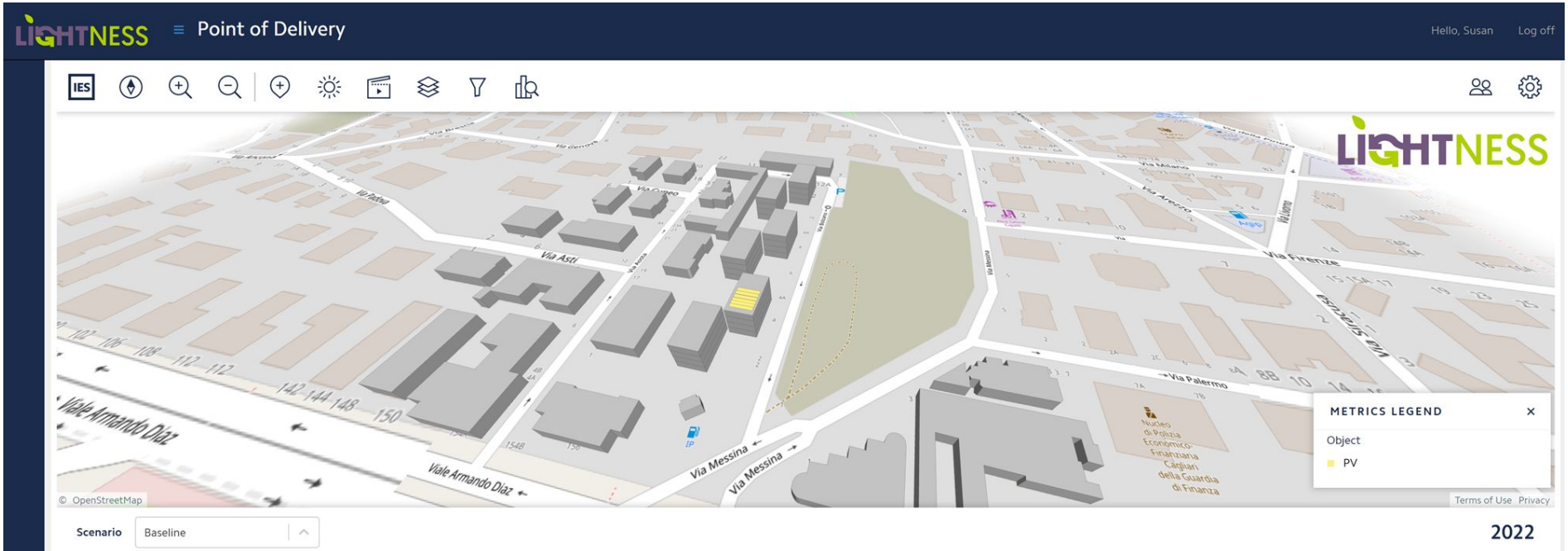
Workshop in Wroclaw, *Poland*

Workshops in Alginet, *Spain*

3. Working areas *Technological innovation*

- **Dashboard to envision scenarios** for the a holistic analyses of the pilots
  - Technical indicators to help pilot leaders make informed decisions
  - Indicators differ based on each community; energy poverty, size of batteries, etc. based on population, climate, etc.
- **Co-designed app to track and control energy usage**
  - Gamification and features to engage end-users and promote learnings and behavioural changes

3. Working areas *Technological innovation*

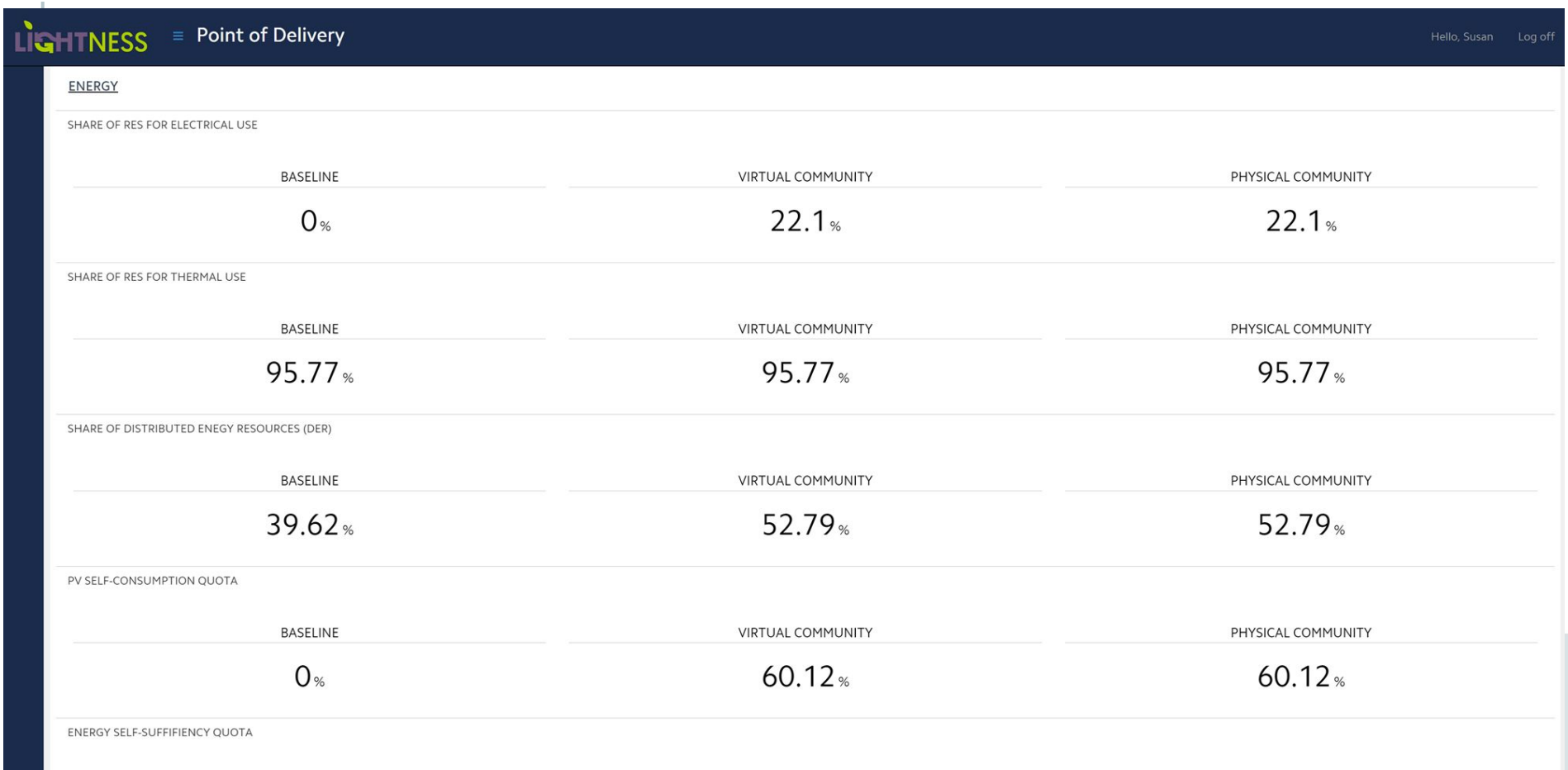


Scenario: Type of Energy Community

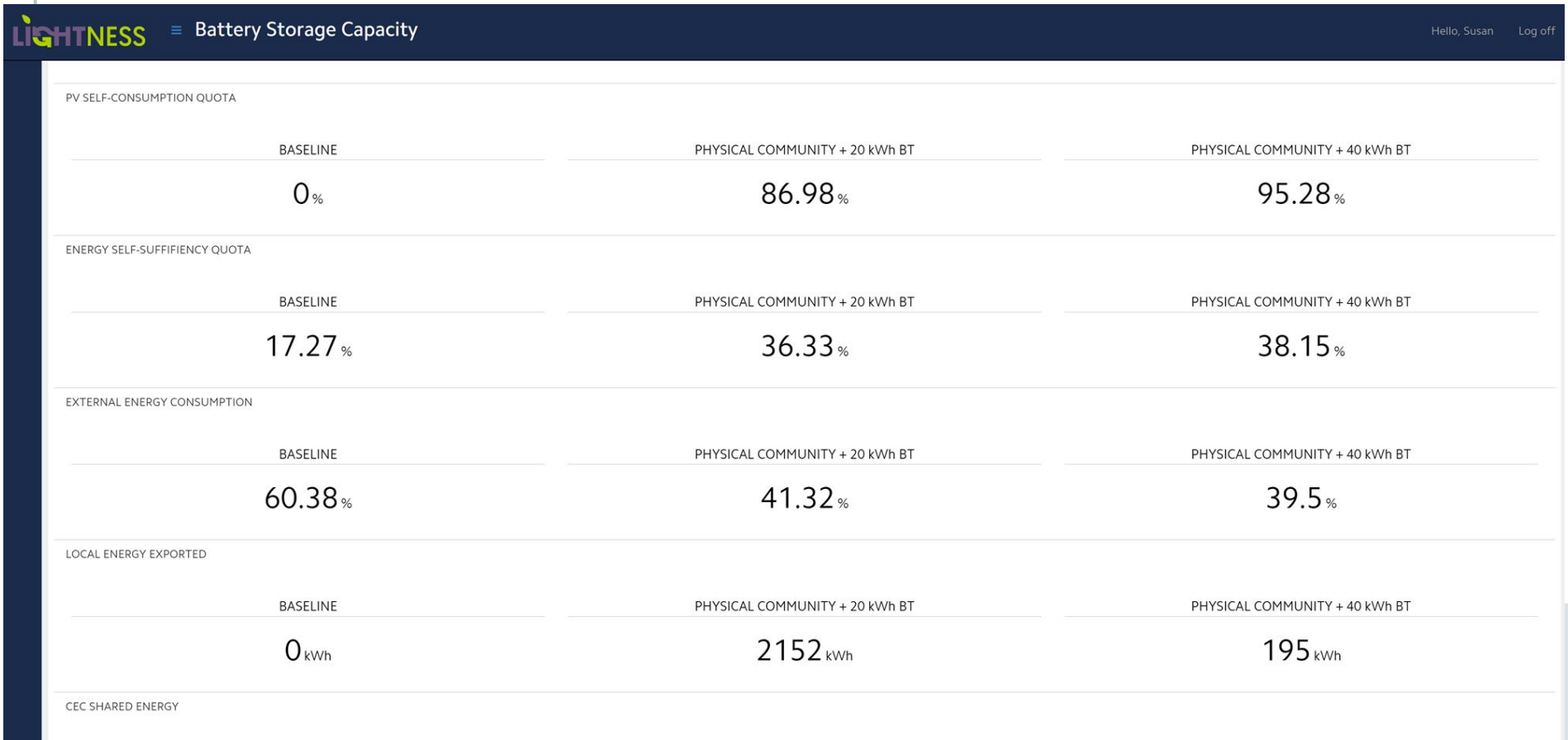
This is an analysis into the two types of citizen energy community (CEC) that could be implemented for the condominium in Cagliari. Two options are possible: a virtual community or a physical community. The virtual community scenario refers to the implementation of the CEC where each apartment retains its own connection, point of delivery (POD), to the grid, and local renewable electricity generation is physically connected to the common energy used for centralised heating, cooling, domestic hot water and lighting of the common spaces. In this scenario, each apartment will retain its own POD and there will be one centralised POD at condominium level. As the energy community is virtual, the energy is not physically shared, meaning that the condominium can consume local solar PV generation for common use only, injecting any excess into the grid. As this scenario involves the constitution of the CEC as a legal entity, the users receive a public incentive for the "shared energy", while still paying their bill to the energy prodiver. The physical community scenario involves the aggregation of the condominium into one POD, allowing residents to consume the local PV generation in their apartments, while also allowing consumption for common uses. As there is no formal CEC formation, all energy consumed by the building is considered "self-consumption", with no "shared energy".

Three economic cases have been considered for each scenario: the Superbonus 110% scheme, the Ecobonus 50% scheme, and the absence of any funding scheme.

3. Working areas *Technological innovation*



3. Working areas *Technological innovation*



3. Working areas *Technological innovation*

1 Engagement screen

Gamification features and tips

2 Gamification widgets

You can see various widgets that help you stay engaged with the platform. Collect points and badges by following our tips and recommendations. The more sustainable you are, the more points you will have, and thus the higher your rank will be.

3 Other widgets available

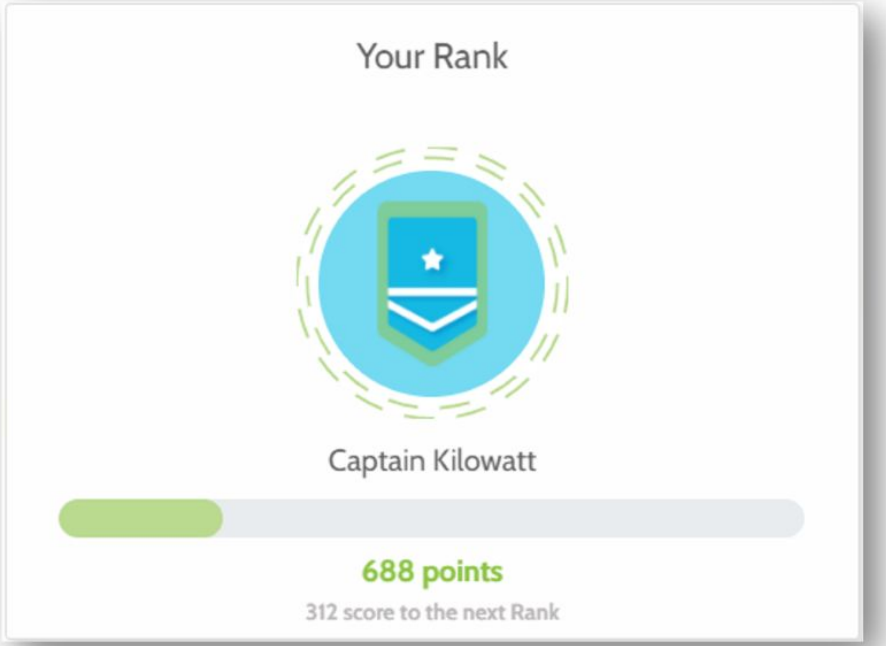
You might see other widgets on your dashboard, or widgets whose functionality is "locked". Contact us via the Help menu to learn when they can become available for you.

4 Period selector

Scores and badges are awarded per day. Therefore, you can only select a single day on this screen. Other time periods are disabled.

3. Working areas *Technological innovation*

Engagement widgets



Your Rank

Objective

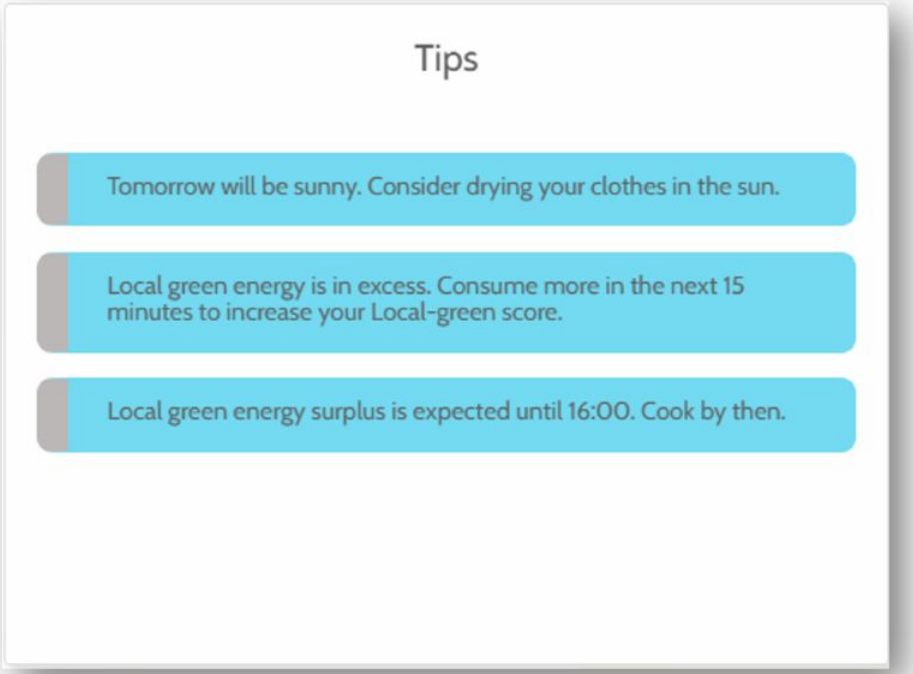
Display your current rank, based on your total score

Data displayed

- *Your rank*
- *Total amount of points*
- *Total amount of points needed for the next rank*

3. Working areas *Technological innovation*

Engagement widgets



Tips

Objective

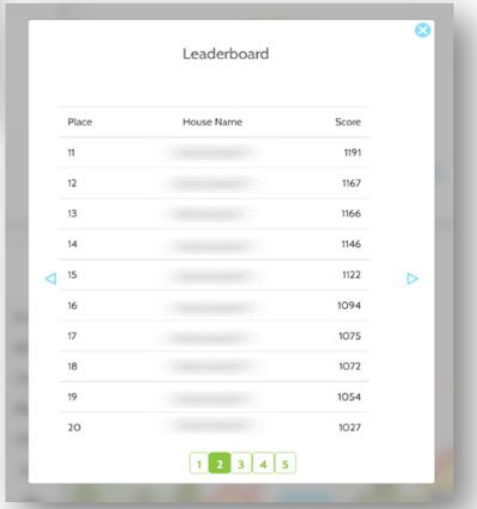
Display tips on how you can contribute to your community sustainability and lower your bill

Data displayed

- *Various tips based on the measured data, forecasts and machine learning calculations*

3. Working areas *Technological innovation*

Engagement widgets



Leaderboard

Objective

Display how your total score compares to the total scores of your community members

Data displayed

Leaderboard with following columns:

- *Place – the ones with the highest score are at the top*
- *House name – the name of the building in your community*
- *Score – the total score earned by each building.*

Other Features

- *You can access the full leaderboard by clicking on the leaderboard widget*
- *You can access multiple pages of the leaderboard by clicking on the arrows*

4.Pilot Sites

1. Poland
2. The Netherlands
3. Spain
4. Italy

4.Pilot Sites POLAND

Apartment blocks in Wroclaw

- 19 Building blocks
- 285 Apartments

Key highlights:

- Recruitment is a critical phase, combined with exploratory ways to reveal needs and wants
- Social innovation means needed for technological innovation to work

4.Pilot Sites THE NETHERLANDS

Two residential communities in Woerden and Quatre Bras

Key highlights:

- Challenges of engaging the elderly and technologically illiterate residents
- Time and social ties needed to appropriate and feel empowered with the app

4.Pilot Sites SPAIN

Energy Cooperative in Alginet

- 15-30 buildings

Key highlights:

- Economic factors are key drivers in the Spanish context
- Getting people involved and active takes time to change the culture from passive to active users
- Participatory workshops are great tools!

4.Pilot Sites ITALY

Cagliari Smart Condo

- 1 Residential building
- 8 apartments

Key highlights:

- Social ties between residents are an asset → adopt a technology, understand the need of PV, integrate new behaviors and interests
- Crowdfunding campaign success!

5. Key findings

Driving challenges

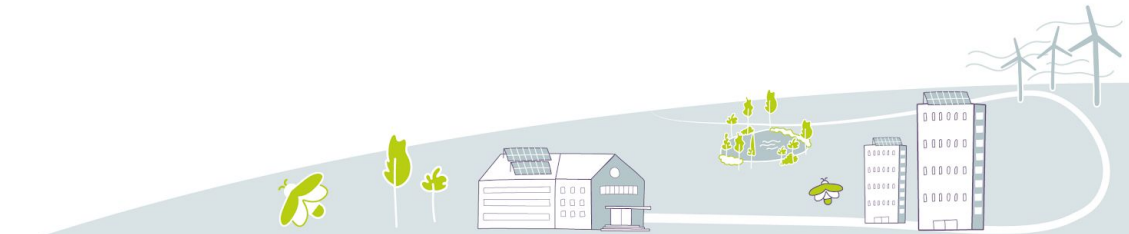
- Sociocultural dimension of the transition
- Bridge the gap between social aspects and technological developments
- Engage the younger, elderly, poor, and technologically or energy illiterate

Ways of mitigating those risks

- Train technological pilot leaders in social methods
- Use SSH methods to reveal practices and behaviors and pave the way towards a new culture

LIGHTNESS

Engaging communities in the future of energy



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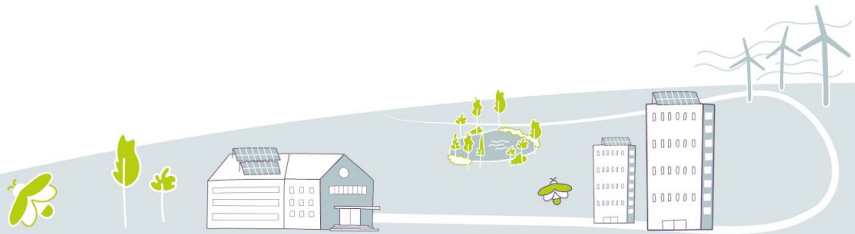

Thank You

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