COMMUNITY VALUE PROPOSITIONS

The core value proposition is the driving force behind the energy community. Typically, energy communities are initiated as a reaction to a challenging situation, such as insufficient grid connection to the main grid, high carbon emissions, the desire to increase the energy self-sufficiency or in general unrealized opportunities.

GENERATE RENEWABLE ENERGY

DESCRIPTION

The pattern "generating renewable energy" is often a core value proposition of renewable energy communities. Through the generation of renewable energy, the communities contribute to the transition to a low-carbon energy system. The value proposition of this pattern comes from replacing carbon intense energy infrastructure with renewable solutions, independent of whether the energy is then consumed by the community itself or whether it is provided to external energy consumers.

Typical applications of this pattern would be the generation of solar and wind power, but it can also be the provision of low-carbon mobility or heat.

IMPLEMENTATION REFERENCE

- 100% solar power from the community (Sonnen Community)
- Replace diesel generators (Alpiq Green Battery)
- 100% electricity, heat & mobility (Ecopower)
- Citizens wind power (Viure de l'aire & Smart Åland)
- Generate renewable energy through cooperative investment model (Ecopower & Som Energia)
- Avoid carbon-intense or nuclear power and flexibility generation (Tiko, ThermoVault)

INCREASE SELF CONSUMPTION

DESCRIPTION

With adopting the pattern "increase self-consumption" the community strives to become as energy self-sufficient as possible in the domains electricity, mobility and heating. In this case, it is common that the community has a partial or full ownership of the local energy system that promotes the deployment of decentralised energies. The focus is on implementing local energy systems which allow higher self-consumption within the community. The key motivations to adopt the "increase self-consumption" pattern are: reduce grid connection costs from consumption peaks, promote local economic activity, become independent of energy price fluctuation and strive for (energy) self-sufficiency.

Furthermore, an important aspect of this pattern is the empowerment of the customers through local ownership of the energy system.

IMPLEMENTATION REFERENCE

- The energy (heat + electricity) self-sufficient village (Feldheim)
- Energy neutrality through smart energy management, heat pumps, storage & e-Mobility (Schoonschip Energie Coöperatie)
- Virtual storage of solar power (EON Solar cloud)

INCREASE GRID RELIABILITY

DESCRIPTION

In the pattern "increase grid reliability", the community intends to improve the security of supply through its activities. For some communities, the grid connection capacity in their respective area can be lower than required to fulfil the capacity needs, leading to more frequent outages. For this reason reducing the grid connection overload with local measures contributes to an increased grid reliability.

Overall, adapting this pattern will be based on the local situation. In some cases, improved grid reliability can significantly contribute to more stable economic activity in the area.

IMPLEMENTATION REFERENCE

- Avoid grid expansions (Sonnen Community, Schoonschip Energie Coöperatie)
- Cooperation between the grid companies and the local community (Green Energy Cooperative)
- Reduce outages (Kiwipower, Tiko)

REDUCE ENERGY CONSUMPTION

DESCRIPTION

With the pattern "reducing energy consumption", energy communities focus their activities on the demand side by increasing efficiency (making energy-consuming technologies more efficient in the sense that they use less energy to produce the same output) or/ and by increasing sufficiency measures (reducing the general need to consume energy by adopting energy-saving behaviour).

Overall, the core value proposition of this pattern can by interpreted as a reduction of energy dependence and consequently less energy generation is needed to cover the demand.

IMPLEMENTATION REFERENCE

- Promote, stimulate and deliver energy efficiency through behavioral change (FeedBack)
- Achieving efficiency and sufficiency through ICT -to- Human ecosystem (PeakApp)
- Enerjoy app from IWB
- Verified saving through improved efficiency (ThermoVault)

REDUCE ENERGY COSTS

DESCRIPTION

By applying the pattern "reduce energy costs" the community strives to reduce the amount of money spent by community members for electricity, mobility and/or heating. A cost reduction can be achieved by providing cheaper energy services, but also by shifting the demand to low-tariff times, or by improving efficiency and sufficiency. For the particular situation of commercial consumers, peak loads are a crucial factor that often determine the amount of the energy bills. Reducing peak loads can substantially reduce energy related costs and ensure new revenue stream by providing flexibility services to, for example, grid operators.

Furthermore, by sector coupling, investments can become more cost efficient and profitable for the benefit of the community.

IMPLEMENTATION REFERENCE

- Higher-price for excess solar PV electricity (Sonnen Community)
-Shopping mall as virtual power plant for energy & flexibility (Vibeco)
- Save through smart heat management (Tibber)
- Generate revenue through flexibility services (Tiko, Kiwipower, Alpiq, Eneco Crowdnett)
- Peak shaving/shifting (ThermoVault, Open Energi)

BECOME A LIVING LAB

DESCRIPTION

By adopting the pattern "become a living lab", energy communities focus their core value proposition on serving as a testing and learning facility for new energy solutions. Living labs are often formed as open innovation ecosystems where new concepts and technologies are implemented, assessed and showcased.

Such living labs, for instance, allow the implementation and testing of technical tools in the context of a community setting or testing of behavioural concepts with the members of the community.

IMPLEMENTATION REFERENCE

- Tech park which serves as real life laboratory (EUREF campus)
- Green living lab community (Greenreality)
-Smart rural living lab (Penela, Portugal)
- Building community on foundation of future standards (Smart Otaniemi)
- Testing building for new technologies, materials and systems in the energy and construction industry (NEST)

List of living labs in the EU can be found here:
- Extensive list of living labs in EU