    

**Microgrid Service Provider for Local Energy Communities**

The consortium has described the role of an integrator, which needs to be filled in order to enable the Local Energy Communities (LEC) to become relevant participants in the energy system of the future. They need expertise and scale, the initial capital investment has to be spread over time and an all-in-one solution at a price that does not exceed others on the market should provide the end user with complete peace of mind.

# Initial target group

The developers of major urban renewal projects and, secondarily, the residents (buyers and potential tenants) of new-build houses and apartments. Under (future) EU legislation, end users should be able to join together to form local energy communities in order to achieve maximally locally generated and renewable energy.

# Which problem are we solving for them?

Building a forward-looking energy system for new projects increases the purchase price, with the result that in 2018, people are still choosing sub-optimal solutions. As a consequence, costly measures to bring CO2 emissions down to those required by the standards will have to be adopted in the relatively short term in order to maintain the value of the property. The solution we propose is to take the cost of the energy management out of the development project and offer it to the local energy community separately as well as combined into one service with the energy cost. We bring scale and expertise to the local energy community, which can thus act as a viable participant in the desired energy transition.

# Key benefits

We ensure that the costs and benefits of a future-oriented energy system are synchronized (from CAPEX to OPEX). Using a leasing formula with a sufficiently long lease period, we make it possible to bring to market a solution that is optimal in scale and at a lower price than a solution that is supposedly cheaper but, from a sustainability perspective, is less valuable. For the individual owner, a future-proof energy system helps maintain the value of his or her property.

# What do we promise?

We ensure that the members of a local energy community (LEC) can obtain their energy comfort at the LEC at a price that is no higher than the usual alternatives, and with minimal environmental impact. The one-stop shop formula includes:

* (helping) establish an appropriate legal structure for the local energy community to participate in the energy system;
* design, implementation and operation of the energy management

in a balanced collaboration with the best-in-class suppliers and other system participants;

* the hardware needed to produce renewable energy is owned by the service provider;
* financing: a leasing formula, with the local energy community as the lessee;
* ensuring local production and consumption;
* valorisation of flexibility;
* purchase of deficit (consumption > production);
* keeping the books and taking care of settlement, billing and payments;
* installation, maintenance and service in the public domain remains the responsibility of the Distribution System Operator (DSO) in accordance with the SLAs in force. This allows for an opt-out (i.e. withdrawal by a participant) and supports the freedom to decide whether or not to take part in the LEC;
* maintenance and service, including a hotline, in collaboration with parties such as the DSO, preferably via a digital channel;
* take-back, redeployment and/or refurbishment of renewable assets (principles of circularity).

# Product and service offer

The Energy Community service provider, or Energy Lessor, offers the local energy community and its members an all-in managed energy package that comprises, in addition to the energy product itself, servicing over the entire life cycle. In this proposal, the role of the Energy Lessor is filled by KBC. The lessor aggregates the necessary skills of the participating partners into a managed service package for the end user.

# Financial plan

The essence of the business case lies in the energy multiplier that is an integral part of the concept’s DNA. That is, of each kilowatt hour supplied to the end user, only a part will have to be purchased on the market. The difference between what is supplied and what is purchased is the energy multiplier, in other words the gross energy margin.

The multiplier, or leverage effect, is achieved by the smart microgrid production and purchase infrastructure, in terms of the mix (solar panels, heat pumps, boreholes, batteries, household appliances), the function (local production, local storage, smart users) and the dynamic management (just-in-time buying, selling and storage at the best price).

The microgrid network infrastructure and service is provided by the public network manager of the energy network used by the Energy Lessor to offer its services. The costs of the microgrid network infrastructure and service and of the connection of the microgrid to the public network manager are charged in accordance with a (future) regular rate. These partly determine the cost of the entire microgrid infrastructure (= microgrid production and purchase infrastructure + microgrid network infrastructure).

The cost of the microgrid infrastructure and service will be covered by the gross energy margin. The final result is the net margin for the Energy Lessor.

The end user will benefit from permanent ‘red’ benchmarkable prices for the electric and thermal fully managed kilowatt hours.

The risk for the Energy Lessor must first be analysed in detail based on the business casing and cost modelling.

The core of the business case is in turn further strengthened by a series of extensions to the core, which can also be included when calculating the simulations: rapid changes in terms of emissions, climate legislation, regulatory interventions (subsidies, tax levies, etc.) by the authorities, and trends towards local production, co-production, more highly subdivided microgrids, further liberalisation of the market.

One of the possible core extensions is an interesting form of remuneration of the suppliers and system participants involved, based on their contribution to the multiplier effect of the site or even a group of sites. This way, the financial risk is borne in part by the suppliers, and the motivation of the parties in question will thus be assured and mutual trust among all participating parties enhanced. The contribution figures are objectively measurable and will be provided by the management system.

# Replicability

The model can easily be replicated for all (large-scale) urban renewal projects for which construction has yet to begin. During an initial, exploratory testing with some 25 project developers and construction groups within Flux50, there was sufficient interest in testing the business model based on real cases.

If, based on experience in the field, it appears that the assumptions are valid, replication in other market segments is possible. These include for example the renovation market for collective residential buildings or the renovation of groups of individual homes and smaller apartments for which an LEC can be set up.