



WP LTE | ACTIVITY 3 | DELIVERABLE LTE 1.3.2

CO-CREATED MAXIMUM 3 VALUE PROPOSITIONS (VP) FOR TARGET GROUPS

PARTNER RESPONSIBLE: STICHTING DUURZAME PROJECTEN LOENEN

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1 CONTEXT & DEFINITIONS

In a changing energy landscape with more ownership for the consumers and an enormous growth of Distributed Energy Resources, there is room for new concepts. One of them is a “community-based Virtual Power Plant” (cVPOP). These new initiatives fit well into the new EU Energy Directives that are now being adapted. This report deals with three Value Propositions that could help initiatives to attract the attention and interest of community initiatives to adapt the cVPP concept and follow a training on it. These differ from VP’s that were described in other deliverables in this project, where the values of communities were selected to develop the appropriate activities of a cVPP.

1.1 VIRTUAL POWER PLANT

A virtual power plant (VPP) can be defined as:

“A portfolio of distributed energy resources (DERs), which are connected by a control system based on information and communication technology (ICT). The VPP acts as a single visible entity in the power system, is always grid-tied and can be either static or dynamic.” (Plancke, De Vos, Belmans, & Delnooz, 2015, p. 2)

A VPP can serve different functions in the energy system; a distinction is often made between technical- and commercial-VPP, which aim at respectively providing grid support services to grid operators and trading energy in wholesale energy markets. Most existing VPPs and other smart grid experiments fulfil both functions and are driven by, and serving the needs of, utilities and incumbents in the current energy system (Verkade & Höffken, 2018; Van Summeren et al., 2019).

A VPP driven by a community, which we refer to as community-based virtual power plant (cVPP), is a novel phenomenon Emerged in the context of this Interreg NWE project. It requires a good definition of ‘community’ and the implications of their involvement.

1.2 COMMUNITY

Community, in relation to an energy system, is a social network of people (and organizations) that collectively engage in energy-related initiatives and projects, ranging from renewable energy generation, energy conservation and efficiency to energy management. These networks are often place- or interest-based but can also be virtual or sectoral. They may include not only citizens but potentially also actors like municipalities and (local) small medium enterprises. The involvement of a community distinguishes community-based from commercial projects such as the VPP because it implies that such initiatives operate on a different ‘community logic’. This is based on the “values” that are defined important by the community, they could be structured along the model of “FIETS”:

- Financial values
- Institutional values
- Environmental values
- Technical values
- Social values

More in-depth information about “community” and “community logic” can be found into the project deliverable “Del T1.2.1 Value propositions and their communication plan”.

1.3 VALUE PROPOSITION

A definition of a Value Proposition could be:

A value proposition is a promise of value to be delivered, communicated, and acknowledged. It is also a belief from the customer about how value (benefit) will be delivered, experienced and acquired.

A value proposition can apply to an entire organization, or parts thereof, or customer accounts, or products or services. Creating a value proposition is a part of business strategy. Kaplan and Norton say "Strategy is based on a differentiated customer value proposition (reference internet). Satisfying customers is the source of sustainable value creation."

Developing a value proposition is based on a review and analysis of the benefits, costs, and value that an organization can deliver to its customers, prospective customers, and other constituent groups within and outside the organization.

In a formula: Balance of the Value (motivation) = Perceived Benefits – Perceived Cost.

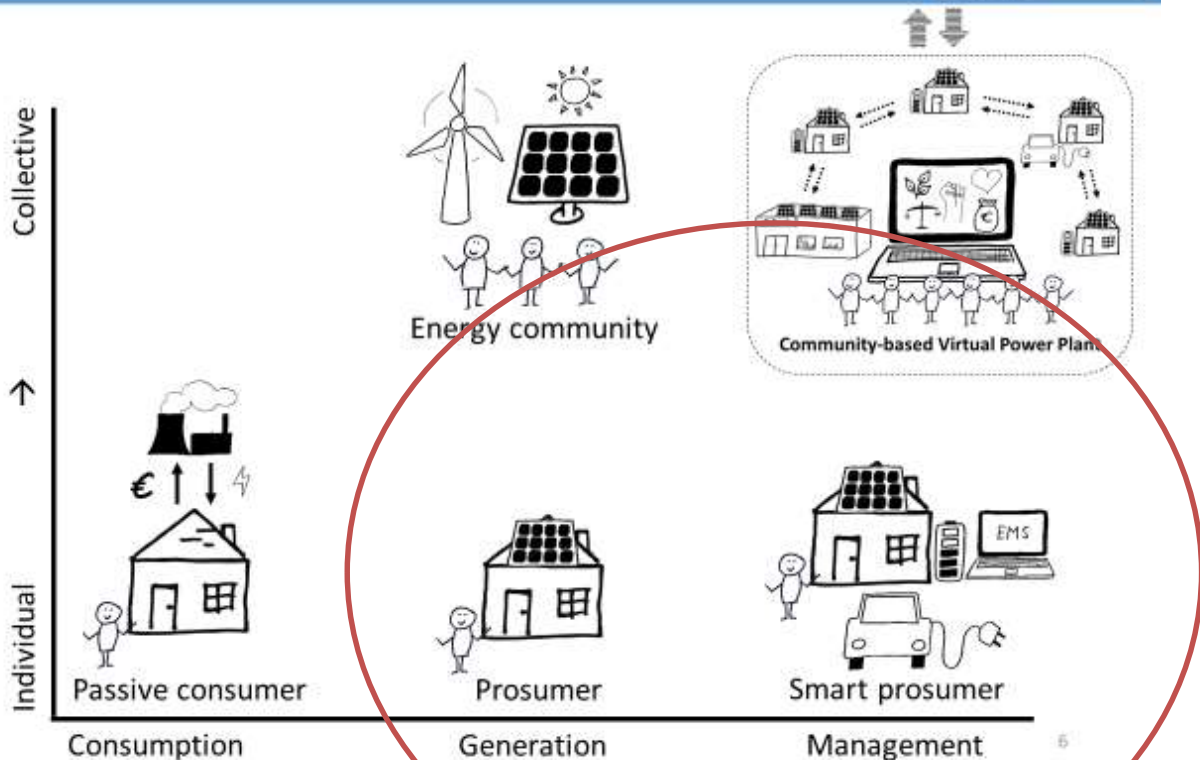
If the outcome is positive, there is a motivation to act (buy). Essence in this formula is in the word “perceived”. For the benefits, these are both tangible features as intangible benefits. For costs, these are also tangible as intangible.

1.4 TARGET GROUPS

The target groups for the Value Propositions can be differentiated in roughly three groups:

- Light prosumers: interested audience, e.g. starting initiatives in the energy transition
- Organized prosumers: e.g. an existing community
- Energy ambassadors: professionally involved in the energy transition

From passive consumer towards...


 Interreg
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cVPP


For all these target groups, the Value Propositions must be attractive enough to raise the interest to more information, e.g. the training (deliverable LTE 1.3.1). To promote this, the three main VP's as described in this deliverable, are published in an attractive factsheet and distributed to the relevant low carbon networks (deliverable LTE 1.3.3).

2 THREE VALUE PROPOSITIONS

In this chapter, we started with an overview of along list of Value Propositions that should help convincing communities whether to become a cVPP. These differ from VP's that were described in other deliverables in this project, where the values of communities were selected to develop the appropriate activities of a cVPP.

From the long list, the Implementing Partners have chosen three VP's that we think are the best understandable and convincing VP's for the target groups.

LONG LIST OF POSSIBLE VP's

1. During the training you will hear about the challenges of the energy transition and learn about one of the social/technical ways to help with the integration of RES

2. A cVPP helps a community to achieve its renewable goals by managing electricity production and consumption locally with the aim to be self-supporting.
3. A cVPP helps a community to achieve its renewable goals by managing electricity production and consumption locally with the aim to earn money to invest in new RES by helping the DSO with congestion prevention.
4. A cVPP helps a community to achieve its renewable goals by providing a platform for peer2peer delivery of electricity to those who do not have own RES available.
5. A cVPP helps you to Increase the number of energy services you can offer to the community members. After all, it is important for communities to keep community members satisfied.
6. A cVPP helps to strengthen the economic position of the energy community through diversification. After all, you want to make sure you can surf on new business opportunities if they become possible.
7. Fundamentally, a cVPP is a tool to increase energy democracy, through taking up a larger part in the energy landscape. After all, a new energy system creates new roles, so it would be a bit sad if energy communities can't take a share in it.
8. Implementing a cVPP helps the community to ensure a role in policy recommendations. After all, new VPP legislation can go any direction. If you, as a community, are not involved in VPP activities, you will much less be able to fully understand opportunities and you won't be able to steer the policy towards the good direction.
9. **Short-term, tangible benefits starting a cVPP:**
 - a. Insight in energy consumption and costs
 - b. Benchmarking with other participants
 - c. Explore options to conserve energy
10. **Mid-term benefits joining a CVPP (months):**
 - a. For PV-panel owners: insight in direct self-consumption versus dispatch to the grid
 - b. Preparation on the effect of different rates for own consumption versus dispatch
 - c. Insight in the potential of home or local batteries for electricity storage
 - d. Match supply and demand as far as possible
11. **Long-term benefits joining a CVPP (end of 2020 and later):**
 - a. Preparation on the new EU directives (RED and CED), that provide more possibilities for energy communities to deal smarter with energy
 - b. Early participation in the energy system of the future
 - c. Generate income with the flexibility of surplus of generated electricity

Taking into account that in the three countries of the Implementing Partners, the legal boundaries are different and consequently the way the current cVPP's can operate, out of the long list we have chosen for the **VP's #5, 6 and 7** as being applicable in all three cases.

In the next three paragraphs they are further elaborated.

2.1 VP 1

A cVPP helps you to increase the number of energy services you can offer to the community members. After all, it is important for communities to keep community members satisfied.

Energy communities consist of individual citizens that have a collective ground to be part of an energy community. In general, their members have common values or at least they accept the community logic of the energy community. Nevertheless, individual citizens have several needs when it comes to energy matters, and regularly search for new partners in their quest to fulfill their energy needs. For many citizens, this line between partners is still sharp. People enjoy the supply of electricity and gas from an energy supplier and for the retrofitting of their house, they contract a contractor. Related service providers are for examples banks (financing) and governments (advice, administration).

However, in recent energy markets, energy (related) activities and energy (related) suppliers become more and more intermixed. Gigantic energy suppliers start to sell their own solar panels, offer services on retrofitting and even organize leasing and maintenance. Also, large equipment providers, search for new methodologies to extend their market share, by including installation. Luckily, also energy communities tend to extend their activities to services. This overlapping of activities puts prosumers more and more to the choice whether to shift from one service provider (for example an energy community) to another. One danger in this evolution is the potential shift from energy communities towards larger energy (service) providers that can offer all services at once. Energy communities, that respect the community logic and might focus on other priorities than only profit, might therefore loose there market share and relevance.

In further energy market evolutions, we can expect this intermixing to become even more stringent. In fact, the introduction of a working citizen-accessible flexibility market (with roles such as aggregators and Esco's), which is basically a prerequisite for cVPP development, creates new incentives for vertical and horizontal market integration. For example, imagine that energy suppliers possess or operate large amount of residential flexibility assets. This can lead to advantageous tariff schemes for prosumers that appeal to this energy supplier. Therefore, these prosumers could be stimulated to abandon their community logic and chose only for the lowest cost.

To anticipate on these market evolutions, it can be of strategic importance for energy communities to extend their activities and become a cVPP. This might stimulate members and shareholders to stay loyal to their values.

2.2 VP 2

A cVPP helps to strengthen the economic position of the energy community through diversification. After all, you want to make sure you can surf on new business opportunities if they become possible.

Most energy communities mostly organize one activity where they can become more and more relevant. Many of them focus on becoming energy supplier (or at least producer) and thereby step in direct competition with large energy suppliers, which of course makes growth rather difficult. Not because they can't find people to become part of their energy community, but because they don't have access to energy producing assets such as wind mills and solar installations. A fast growth of new energy communities therefore mostly needs governmental intervention.

However, governmental intervention can be as well be negative for the further growth of energy communities. Even if new European concepts such as renewable energy communities and citizen energy communities appear, new rules on subsidy schemes for renewable energy can be disadvantageous for the growth of renewable energy and energy communities.

One trend that seems difficult to undo is the introduction of the citizen-accessible flexibility market in Europe. All over Europe, digital meters appear and this will allow for tariffing schemes that represent better the systems cost. From the perspective of business opportunities, this is a fully new market that opens up and creates enormous opportunities. If energy communities don't become part in it (by becoming a cVPP), this market will be fully absorbed by large energy (service) suppliers.

From the viewpoint of stable growth, the uptake of new business opportunities for energy communities can as well be of strategic importance. If governments change their policies, at least one or 2 activities of an energy community can assure sufficient income.

2.3 VP 3

Fundamentally, a cVPP is a tool to increase energy democracy, through taking up a larger part in the energy landscape. After all, a new energy system creates new roles, so it would be a bit sad if energy communities can't take a share in it.

The production of renewable energy involves several aspects that favor democratic control. Renewable energy is in many cases visible and therefore can impact landscapes. Economic participation and participation in the choice on where to put them so the social disadvantages can be minimized, is favorable for their rollout. Wind and sun can be interpreted as a local good and therefore should be benefitted by the local communities. Renewable energy is also a major driver in the fight to climate change, which affects all world citizens. If citizen communities take part in renewable energy, it could be reasoned that less chances exist that choices for renewable energy inflict in choices for fossil fuel based technology, which is the case in large energy suppliers.

The same holds for new flexibility markets. Flexibility is a new answer in the combat against climate change and is essential in the success of a renewable energy market. Within this new market, several choices can be made that define the exact use of this flexibility. Flexibility can be used differently in a market that has only money as a driver and in market with ever stable 80% fossil fuel and nuclear based electricity production, compared to a market where the environment and social inequality play a role and where 100% of the total energy is supplied in an acceptable way. Communities that adopt flexibility, by becoming a cVPP, can help to assure that energy democracy can be maintained in this new market while all the same ensuring the good use of the flexibility market.

3 CONCLUSION

In this document three Value Propositions are described that should seduce energy communities to start a cVPP initiative. They contain three important elements of the energy transitions:

- Strengthen the local communities/initiatives being able to offer more services for the members and keep them satisfied
- Giving communities more power by strengthening their economic position bu diversification and economies of scale
- Develop local, community driven options for offering flexibility to the grid in order to keep the energy transition possible against reasonable network system costs.

With these three VP's the target now is to raise the number of interested communities to adopt the cVPP concept. The described VP's address both the growth of the community concept as well as the power to act, where the cVPP is one of the driving options.