**Break-out sessions**

**Group 1: Smart Building-integrated PV Systems**

*Leader: Jacques Kimman, RVO*

*Notes made by Wiesje van Nunen, RVO*

***Jacques*** *– Opening question on PV integration in the participants’ countries.*

**Summary of Discussion**

* Agencies play an important role in making connections between the different levels, e.g. by the collection of examples, the facilitation of knowledge exchange and the facilitation of networks and bringing stakeholders together;
* In order to be successful one always needs a **combination** of several instruments, ranging from financial instruments to networking and knowledge instruments.
* Esco’s could play an important role, but should be facilitated in order to avoid re-inventing the wheel, and in most of the countries Esco’s operate in a more broader sense than only in the energy sector;
* New developments, like block chain technology, could be very helpful for supporting dynamic contracts between participants;
* Architects play a crucial role in smart sector integration of PV in facades and are thus an important stakeholder for the Agencies.

**Leonardo** **(Austria**)– There are a lot of opportunities for PV as a façade element in Austria. There are pilot projects, there are also issues with upscaling. We should create a one-stop and comparative approach. All in all optimistic about development of PV in Austria.

**Rui (Portugal)** – There are very good opportunities in Portugal as well. Started a lot of incentives, big impact PV on large buildings. Over the next decade there is a lot of will to boost PV. We could integrate smaller PV in buildings and develop communities. There is political will for this and ADENE has been appointed to be involved. Tackle smart sector integration by communities. Jacques: how to include architects? Rui: we have a good number of experts. Most architects are engineers. They are engaging in areas of energy efficiency and designing of the communities.

**Vassilis** **(Greece)–** The integration of PV in buildings has a good experience in Greece. Since 2009 resulting in increase in installed capacity. However, the challenge is to include other technologies inside the building. During the economic crisis construction has been heavily reduced, so there was no room for innovation. Another obstacle is that the intro’ of renewable resources is not connected to innovation. In order to include PV technology we need a strong emphasis on innovation. Best approach could be to include architects and engineers in the design methodology. Jacques: how do you see the link between design and exploitation-realisation phase? Vassilis: the whole process needs to provide turn key application. Technical chamber needed to provide the framework. Building is a deliverable. Not only focus on the design, but also on the operation of the building itself. Include price of that operation into the price of the consumer. Include small incentives inside the current goals.

**Anil (Turkey)**– We are all new in building approach integration – to the Green Certificate regulation. Public buildings are important in Turkey. There is an energy saving target of 15% in public buildings in order to use public resources efficiently. Jacques: do you see façade innovation? Anil: yes, after covid energy efficiency has become more important and we have to grasp these opportunities. There is one main stakeholder because the government is owner of public buildings and therefore responsible for everything. There is not too much happening in the private sector, but in the future they will be involved as well.

**Bert (Netherlands)**– What is happening is inspiring. You see integration at many levels. First level; is physical integration – it has to fit. The position of those buildings in the community changes, because it can become an energy provider and therefore an active participant. Because of the size their role can become quite significant. It is almost a social integration as well, PV on buildings. The position of buildings in the energy system has to be integrated into the energy system. Even in the Netherlands, we are moving to a situation where we have 5 to 10 GW installed. In total capacity it is enough for NL consumption, but the actual revenue is a much smaller percentage. Simple feeding schemes are no longer efficient. The bigger it gets, the more complex it gets.

***Jacques –*** *What do people think is necessary with respect to instruments and interventions and what is the role of the agency?*

**Rui (Portugal)** – To have a good inventory of examples and demonstration projects. Sometimes things do not work how we want it to and examples could help with this challenge. Examples for different countries could work, as renovation not always work how we want it to. Some solutions can fit many Member States and these examples can help facilitate knowledge exchange.

**Leonardo** **(Austria**)– Creation of networks, to also facilitate knowledge exchange between regions, architects, cities and the European level. This is a role of the agency; they could help build these networks and make the connection between the different levels. Looking at integration of PV in broader context, we should also be looking at a district approach; looking at a set of buildings and how they comply with energy efficiency and how they exchange with broader energy systems. Integrate single building into set of buildings and set of buildings into broader context (community).

**Vassilis (Greece)** – Have clever incentives in order to boost activity in that sector. Don’t know what these incentives could be yet but we could experiment with how small policy measures could facilitate this boost. The agencies could propose specific measures to policy makers. Incentives are part of broader efforts, like with the district approach and knowledge exchange.

**Leonardo** – Austria is changing subsidy solar PV into solar PV in buildings; either in the building itself or on the roof.

***Jacques*** *– How can we use blockchain?*

**Leonardo** – they use blockchain for the dynamic contracts in the solar community and to keep the transparency.

**Wiesje** – example of the use of Blockchain: Equigy by Tennet.

**Group 2 Smart Integration of renewables and vehicle charging**

*Group Leader: Frank Klinckenberg, Consultant for RVO*

*Notes made by Rebecca van Leeuwen, RVO*

Frank asked about the current situation in the countries in this group relating to smart integration of renewables and vehicle charging.

**Summary of discussion:**

* We need to identify multi- sector business models;
* Integration should be at the level of the stakeholder;
* Need to look at bridging the gap between individuals and policy;
* Opportunities of energy communities should be promoted more widely;
* Need to bundle collective affordability = fundamental.

**Stanislas (Slovakia) –** There are bothopportunities and struggles. Subsidy for charging exists – main driver is Ministry of Economy**.** Trying to motivate consumers which is not easy.

Slovak Battery Alliance carrying out research. Developing intelligent network.

Growing market in Slovakia, but lots to be done. Charging infrastructure not optimal – mostly in larger cities.

**Colin (UK) in** Transition phase. In its infancy in the UK.

The Power Loop Project is a good example in the UK, but has been delayed due to Covid 19.

Within this project we are trying to get consumers interested in leasing electric cars. Bio-directional charging. About 130 people “volunteers” are taking part in this pilot project

Octyous energy supply and Energy supplier UK Power Network are involved in the project. Back Office charging infrastructure. Need off- street parking and smart metering.

Need pilot projects to understand and to build evidence base.

Consumer choice between electric and conventional vehicle will depend on affordability and charging infrastructure.

**Philip (UK) –** economic efficiency of individual sectors is key as opposed to multi sectors.

Trying to convey electric vehicles as an economically viable opportunity.

It is all about bundling a business package. Integrating battery storage, renewables to make business opportunities compelling

Interest from DNOs – electrification of heat and reinforcement costs could rise through the roof if not done properly

Collaboration case = key

Stakeholder integration – where energy agencies could play a part

**Barto (Netherlands)**

Very interesting . Important to consider what is the best integration level we can find.

Like what Colin and Philip said, the level of integration should be at the stakeholder level.

Consumer – personal story – holistic point of view.

Bridge gap between policy and consumer side - energy agencies could play a role. We energy agencies understand the consumer, the entrepreneur and projects – on a national level, but also on a regional and European level.

**Philip (UK)**

Opportunity of the network – policy look at issues at massive scale

Business and consumers much more on a micro level

Role for agency to translate this policy level to the people on the ground.

**Charles (Greece) -** Greening the Islands project

Local people enthusiastic in making island renewable. One aspect includes some electric transport. No results to share yet. No infrastructure in place yet to reach target

Individual enthusiasm is the trigger. New push to use renewable resources – energy communities.

Incorporation of electric mobility into the local population is a key priority.

Good point for Just transition – electric cars are expensive.

We need to get into the second- hand market.

Affordability and Just transition

Only the richer can afford an electric car electric.

Mobility with renewables and heat is the challenge.

Communities – social housing – good opportunity.

Greece – need to lower the unit price

**Rebecca (Netherlands)** – welcomed the point on energy communities made by Charles and emphasised the EU Heroes project which she coordinates on solar pv communities.

Integration of electric cars and charging was also explored in some of the case studies identified. <https://www.euheroes.eu/>

She also mentioned the Lombok project in Utrecht where a housing estate is using bio-directional charging using electricity generated by solar panels on the roofs of houses in the estate, plus on a primary school. A very successful project.

In addition Rebecca told a story about her own personal dilemma. Recently installed solar panels on garage roof – enough to power the charging of an electric car, but no incentive to invest in an electric car as yet. Too expensive. Also our boiler is broken. Should we invest in a renewable source heating system (hybrid heat pump) given the upcoming phase-out of gas? We are not there yet. Still rely so much on gas in the Netherlands. The challenge is how to convey the right messages and provide the right incentives to encourage consumers/ citizens to make the right sustainable integrated choices.

**Philip** – key issue – identify from policies at national or European level how to translate practical cases and integrated solutions with consumer at an affordable price and integrated. Need pilot collaborative projects to get evidence base to learn from and we can learn from story- telling, like the example from Rebecca, to help policy makers to understand and to provide the right incentives.

**Group 3: Consumer and policy engagement: win-win? What intermediary role could an energy agency play?**

*Leader: Marion Bakker, RVO*

(Case: How to keep the consumer engaged (or -bottom-up initiative alive) - if you want to upscale the market?
*Notes made by Katie Hoy, EST*

**Summary of the discussion:**

* No 1 stop shop for advice for improvement to homes;
* Austria do have a 1 stop shop advice project, but issues with take- up.
* Need to support consumers step by step
* Big data solution for privacy issues
* France – Info’ desks – free and tailored advice to consumers
* Ireland – SEAI don’t work so much with consumers but with SMEs. Start with providing knowledge and awareness
* Difference between citizen and consumer. In communities citizen is more aware than the consumer

**Sweden** – works through intermediaries with consumers through local regional energy advisors. Has more one-way communication with consumers, rather than two-way comms. Swedish energy agency has a portal where they collect some information from consumers, but again this is one way.

**UK** – mapping potential of building for consumers. In Scotland work with local government to help them target their policy and initiatives with the data that we have. EST has a lot of contact with consumers, we use their input to design our programmes (e.g. community groups owned renewables). This advice is very much driven by the national policy drive, which means there can be some gaps in the advice that we give to consumers. In Scotland, the advice is more innovative and forward thinking, but in other areas not so. To achieve the net zero targets we need to involve the consumers to understand how they can be involved in meeting these targets through their actions. Need to have different messages ready for the different audiences (e.g. energy poverty). There is no one stop shop, no single authoritative advice for consumers to know what actions they need to take when making energy efficiency improvements to their home.

**Austria –** they have a one stop shop advice project, but they have experienced problems in the take up, because it is very complicated and you need to have all parties on board that would be involved, so it doesn’t always work so well. Their experience is that you have to support consumers step by step.

**France** – They have Information desks on renovation, for all types of consumers which gives free tailored advice to householders based on their situation. On the website there is further information about saving energy in the home. In France there have been problems with fitting smart meters, based on rumors around the negatives in having smart meters. ADEME has published a document to give impartial, expert advice and to dissipate these rumors. ADEME also gives support to municipalities as well in order for them to give better advice to their advisors.

**Italy** – industry and services at national level there is a problem in the feedback that we as policy implementers get from consumers on initiatives. Need to get data from smart meters not just from surveys. The data lies in private companies and they won’t share the data. To overcome this governments should send messages to agencies to share and communicate the data. A problem with this is because they don’t want to share the data. The energy agency really needs not integrate more with the consumers to make them understand why it is important for energy agencies to have this data. We need to start analysing the big data.

**Italy** – difficult to build the trust with home owners, particularly difficult with energy poverty homes. ENEA is trying to work more with these people. ENEA provides advice to the Ministry of Energy. ENEA have a lot of data but if they want to add this data to other data sets it is impossible. To do this they need to get over the privacy issues

**Netherlands** – In the Netherlands they overcome the data privacy issues by – implementing a system where they measure the data from the serial number of a device e.g. gas boiler or hybrid heat pump in one system, and then in a different system they record information about home-related data based on national databanks, so that these two pieces of big datasets cannot be linked. NL can discuss this example with Italy afterwards.

**Spain** – questioned is there a difference between citizen and consumers? Have very conventional ways in approaching citizens, have a phone service where consumers can ask questions to the industry. In the building renovation programme there is a part for energy communities. Virginia expects this more conventional approach to change. An energy community is based on citizens.

**Ireland** –Found that trusted intermediaries, e.g. representative bodies, are good to work with when communicating with SMEs… it is the easiest way to get SEAI message across, they don’t talk exclusively about energy, but more about what will benefit them in terms of resilience and future-proofing. SMEs are concerned about cash flow, staff retention, regulations, and of course Brexit and Covid, so it is important to try and address these concerns when engaging on energy and decarbonization. There is a knowledge gap with SMEs, and the main thing many of them know about SEAI is the grants aspect; they are not necessarily that interested in the behavioral part of it, and so SEAI are working at building up their knowledge. Have developed online Energy Academy modules, which is free online training on very basic things such as how to read their bills etc.,. SEAI approach is to start with the knowledge and awareness first and then lead onto the bigger measures and investment. SEAI works with domestic consumers, the public sector, and large industry as well, not just SMEs. The approaches differ across these sectors.

**Finland** – have been giving energy advice for a number of years. Give some online advice as well on their website. Also provide a match making service for PV installers and homeowners, where installer give advice on what a particular householder might want and the householder can ask questions and discuss their needs. Run a series of ‘after work’ events, where they gathered information on failures. Homeowners can apply for monetary support to change their heating system to a more efficient system.

**Bulgaria** – also make a difference between citizens and consumers. They work closely with the intermediary companies as well, the Utility companies and municipalities. Have a website to give advice as well, but most advice goes through the utility companies and municipalities.