Toolbox for reaching local authorities - PV4 All

September 2024

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Introduction

This toolbox is a central product of the PV4All project. Photovoltaic energy is so technically advanced that this form of energy generation is not only ecologically but also economically extremely sensible. Efficiency continues to increase.

Mainly due to the geographical location of the countries in the Baltic Sea region, relatively little has been invested in the expansion of PV energy in recent years, although the usefulness of PV energy has also been proven here.

As part of our project, we have set ourselves the task of developing and, if possible, testing various small-scale solutions in order to sensitize different target groups to the topic and thereby pursue the goal of increasing the use and acceptance of this form of energy generation.

Securing the results was an important part of this for us. Above all, other institutions pursuing similar goals to ours should be able to learn from our experiences and build on them. Accordingly, we have categorically summarized our solution approaches and integrated them into a toolbox. As we were able to determine that a central differentiation of the individual tools lies in the defined target group, we divided our approaches into target group-specific documents.

The documents now available are the product of a 1.5-year process. After we had developed an initial draft, the project partners decided individually which of the approaches were particularly promising locally and depending on local circumstances (the institution's area of work; networking with stakeholders; legal framework conditions for PV in the respective country) and tested these in the form of pilot projects.

The experience gained was thoroughly evaluated and formed the basis for the revision of this toolbox. This document is the result of this revision. Activities that were carried out in the framework of PV4All are included but also activities outside the project scope are included. Each partner has contributed with activities for the toolbox. In that way the reader can use the toolbox for inspiration for PV information and of promotion activities but also read and learn about experiences from carried out activities.

Educational webinars for pVs	
Target Group	
Municipal representatives	
Potential of target group	
Co-operation and spreading the knowledge	
Issue	
Educational webinars	
Activity	
Introducing PV 4 All –project. Points to consider when purchasing solar power systems. Introducing the solar calculator (Tool 4)	
Responsible institution	
Benet Solutions	
Relevant partners	
• Municipalities in Central Finland	
Resources needed	
• A computer and internet	
Obstacles, barriers and restrictions	
Coordinating schedules	
Piloted in PV4All	Yes
Title of the local implementation	*Finland*
One of our first aims was co-operation with municipalities. We contacted to municipalities in Central Finland and offered an opportunity to collaboration. We had an educational webinar with 12 municipalities in Central Finland. This was part of the Climate neutrality co-operation in Central Finland. Municipalities are: Kannonkoski, Karstula, Kinnula, Kivijärvi, Kyyjärvi, Pihtipudas, Saarijärvi and Viitasaari and Keuruu, Multia, Petäjävesi and Uurainen. We gave a general information about the PV4ALL project, points to consider when purchasing solar power systems and knowledge of legislation of solar energy in communities. We introduced also our solar energy calculator, our tool 4.	
Recommendations	
Co-operation with municipalities	

Energy communities

Target Group

Municipalities and companies considering the construction of solar energy. Apartment buildings, where tenants could buy solar electricity produced on the roof of their apartment building (social aspect).

Potential of target group

The hope is to share solar energy to all citizens

Issue

Energy communities

Activity

Finnish legislation has been amended so that by 2023 all electricity network companies must offer the possibility of setting up an energy community. The community can be a solar energy community.

1. An energy community within a building.
2. An energy community consisting of several buildings.
3. A distributed energy community.

An energy community is most often set up to facilitate the production and consumption of solar energy.

The aim is to give visibility to solar communities and to provide an advisory service according to the needs of the community.

Responsible institution

Benet Solutions

Relevant partners

- Motiva
- Finnish Solar Energy Association
- Local network companies

Resources needed

- Planning details
- Cooperation
- Time and money

Obstacles, barriers and restrictions

Networking of partners: how to reach potential solar communities?

Piloted in PV4All	Yes
Title of the local implementation	*Finland*

We kept this tool in our minds during the work and we presented it on every possible occasion. We introduced it in our webinars.

Recommendations

Energy communities will be important in the future, so dissemination of knowledge will be important.

Highway and railroad noise preventing fencings with PVs

Target Group

- *Highway designers;*
- *Highway constructors;*
- *PV developers*

Potential of target group

Co-operation

Issue

Contacts, presentation of new ideas

Activity

Installation of PVs on the southern side of noise reducing fencings near the roads and highways.

Responsible institution

Roads maintenance company.

Relevant partners

- *Ministry of Transport and Communications of Lithuania*
- *Lithuanian Solar Energy Association*
- *Lithuanian Energy Institute*

Resources needed

Obstacles, barriers and restrictions

Still requires more information on the topic as this is rather new development in Lithuania

Piloted in PV4All	No
	Lithuania

Short description

Lithuania has almost 14,000 kilometres of highway and paved roads. Unfortunately, not a single metre of them is used for renewable electricity generation, despite the abundance of both noise barriers and green dividing strips. The same is true of the rail network. Thousands of hectares of buffer zones around railways are still unused. If trains were to be electrified, the electricity generated in such areas could be used immediately for electric trains. This would reduce the cost of travel for passengers and reduce freight rates.

However, Road Maintenance company (AB "Kelių priežiūra"), has built a new 200 kW solar power plant earlier this year, which will provide for the internal needs of the company's complex in the Kaunas district. It is estimated that this solar power plant will save the company at least EUR 30,000 per year. In total, AB "Kelių priežiūra" operates 7 power plants with a capacity of only 300 kW, none of which are installed in the transport infrastructure. The Ministry of Transport and Communications could set an example by seeking to generate revenue, reduce costs and contribute to the green energy transformation, instead of constantly asking for increased budget allocations (which are still in short supply).

Recommendations

Road infrastructure has a lot of energy potential - roadsides, noise barriers, fences, train tracks, cycle paths and more could all be harnessed for solar energy.

Identification of relevant areas for further PV development

Target Groups

- *Lithuanian Ministry of Energy*
- *Lithuanian Solar Energy Association (LSEA)*
- *Lithuanian Thermal Engineers Association*
- *Municipalities*

Potential of target group

Act as multipliers to potential PV policymakers and developers

Issue

Since more traditional activities in PV development are on-going and reasonably supported, new development ideas identification, including new support and business schemes are important via brainstorming of all participating parties

Activity

Common meetings and discussions on actual issues; Targeted information to all interested groups and stakeholders; New information, available for all interested parties at partners websites, etc.

Responsible institution

Lithuanian Energy Institute

Relevant partners

- *Lithuanian Solar Energy Association (LSEA)*
- *Lithuanian Association of Thermal Engineers (LTERA).*

Resources needed

Live, phone and online discussions. **Information collected and provided during the meetings, webinars is disseminated among the participants of the events (webinars) as the request for was high. As the discussions appeared also interesting, the records of the webinars were also provided to the partner associations and their members.**

Obstacles, barriers and restrictions

Significant amount of information from various countries, from interested stakeholders is available, however, identification of the most important and reasonable areas for further development requires discussion, better and deeper knowledge, additional regulation.

Piloted in PV4All	Yes
Meeting with Lithuanian Solar energy association for discussion about PV sector and future development in Lithuania; ***Discussion with Thermal Engineers association regarding the use of PV with heat pumps for heating and cooling needs.***	*Lithuania*

Discussion on actualities in PV sector with 2 important associations.

Several meetings, on-line and phone discussions were held with partners and defining the most appropriate activities for Lithuania, the main problems, policy changes, available support schemes and new innovative possibilities. Close collaboration with partners makes further education available, as they provide qualified information and presentations.

Recommendations

The bundled version of all information provided during the events under PV4All project was prepared in English and can be presented to interested stakeholders in BSR countries.

Lighthouseproject for media attention on plug-in PV

Target Group

Private people, politicians, decision makers, policy maker

Potential of target group

Private individuals who live in apartments (rented or owned) who cannot install solar panels on their own roof can use their balconies for plug-in PV.

Issue

The possibility of installing solar systems on balconies is not yet widespread and there are many questions about implementation and uncertainties due to media reports about risks such as fire.

Activity

To make plug-in PV for balconies better known, the aim was to equip a building with as many modules as possible. In order to provide an incentive for as many parties as possible to participate, a sponsor was sought who would offer the modules free of charge.

Responsible institution

Different possibilities, such as:

- Housing company
- Private owner of a multi-family house
- NGOs

In general you need an institution in response with the interest of organizing the action

Relevant partners

- Sponsors for the power plants
- Media
- Tenants with the interest of having a balcony power plant

Resources needed

- Expertise in public relations
- Access to multi-family houses and the tenants
- Solar modules, inverters & superstructures
- Knowledge in installing the power plants

Obstacles, barriers and restrictions

The hardest part was to find a suitable building (sufficient sun; balconies; external sockets) with several interested residential parties.

Piloted in PV4All	Yes, in:
Lighthouse project plug-in PV equipping a block of flats with numerous plug-in PV	*Germany*

A building cooperative in Hamburg that was finishing their two apartment blocks built in 2024 was interested in the sponsored modules and 24 modules were agreed to be installed. In order to provide an incentive for as many parties as possible to participate, a sponsor that handles refurbished PV modules was found who offered the modules free of charge.

One big advantage was that the building already had external sockets making the installation easy.

A Hamburg-based non-profit organization that specializes in the self-installment of plug-in PV panels helped with the ordering of the equipment and the advice for balcony owners on installation. The inverter and supporting structure were paid for by the owners themselves. During a press event, several modules were installed at the same time to showcase the simplicity of the installation. The PV4all team, the sponsor as well

as the non-profit organization were present to give interviews and give insights into the project and plug-in PV in general.
Recommendations
Because there are multiple actors involved, there has to be a coordinating position that communicates the schedule because there are key events (such as the delivering of the modules to the property or the ordering of all components) without the project stalls. We recommend to do a rehearsal installation to find out if everything is fitting so that there are no complications during the press event.

Mapping the plug-in pVs possibility in Finland

Target Group

Decision/policy makers (legislation change), Tukes, media

Potential of target group

They have possibility to change the law

Issue

Mapping the plug-in pVs possibility in Finland

Activity

Work to promote legislation and the general climate to make it possible to procure plug-in solar systems in Finland in the future.

Responsible institution

Benet Solutions

Relevant partners

- Motiva
- Finnish Solar Energy Association (Sary)
- Finnish Clean Energy Association (Lähienergialiitto)
- Finnish Safety and Chemical Agency (Tukes)
- media

Resources needed

- Planning the strategy

Obstacles, barriers and restrictions

The problem is that current legislation prevents the deployment of systems and the modification of building facades.

Piloted in PV4All	Yes
Title of the local implementation	*Finland*

We contacted many stakeholders. First, we surveyed the background of the legislation. Then we contacted Tuukka Heikkilä, a senior expert in the energy industry, and Sakari Hatakka, chief inspector of the Finnish Safety and Chemicals Agency. They both carefully justified the reasons that the plug-in system does not comply with the requirements of Finnish legislation. In particular, the following reasons emerged:

- The photovoltaic system must be able to be separated from the general distribution network

- The distribution network company must know about small-scale production

- The electrical networks of the properties are dimensioned and built so that the electricity is fed through the distribution center and protective devices *- If current is supplied to the circuit past the protective device (from the socket), the overcurrent protection does not work as designed and the wire and circuit may be overloaded.*
Recommendations
It is important to keep the conversation going. For example, technological advances can change things.

Organization of meetings, e.g., of the National Environmental Protection Fund with representatives of City or Municipality Offices, and invitations of RES companies to these meetings.

Target Group	
Institutions that provide subsidies and Municipal Offices that inform residents about aid programs from the EU.	
Potential of target group	
Better cooperation, understanding the problem, finding AND developing joint solutions.	
Issue	
In Poland in the meantime the regulations are changing a lot regarding photovoltaics.	
Activity	
Meetings of the National Fund for Environmental Protection with representatives of municipalities, as well as invitations to these meetings of companies from the RES industry will help to understand the problem and develop joint solutions for easier obtaining of information, subsidies.	
Responsible institution	
National Fund for Environmental Protection with representatives of City or Municipality offices	
Relevant partners	
Companies in the RES Industry	
Resources needed	
Time spent organizing meetings AND exchanging information.	
Obstacles, barriers and restrictions	
- Shortage of skilled workers/financial constraints cause problems in obtaining information easily and physically. - political situation, - lack of cooperation between institutions.	
Piloted in PV4All	yes
Title of the local implementation	*Poland*
Organization of a webinar where the National Environmental Protection Fund and the European Funds Information Point were invited as speakers. *Representatives of cities and municipalities also took part in the forum.*	

Thanks to this, representatives of individual cities and municipalities will be able to provide information on possible aid programs, subsidies to residents.
Recommendations
An important aspect is to give impetus to cyclical online and stationary meetings of institutions implementing aid programs and representatives of cities and municipalities.

Use of Solar Energy in local authorities – seminars

Target Group

Public authorities - local authorities, energy companies, housing associations for local authorities

Potential of target group

Installing pV in on buildings owned by the local authority and buildings in the local authority

Issue

The local authority often has objectives for renewable energy or locally produced solar energy (electricity) but it can be difficult to realise the potential of using available solar energy by installing pV on buildings in the local authority.

Activity

The purpose is to help municipalities promote and increase implementation of solar power through good examples of solar energy installations in Skåne and exchange of experiences to convey knowledge, tools and inspiration. How do you work successfully with solar power for municipal and other properties and taking into account the wishes of residents and business? What should a solar strategy look like as part of municipal energy planning? Is it economic beneficial?

One seminar will inform about good examples, experiences and planning tools to use for a local authority to enhance use of solar energy. An electricity grid owner will present what work is needed when a new pV facility will be developed and installed in a local authority. Another seminar will inform about how a local authority can work with pV installation from the perspective of profitable investments and how pV facilities can be procured. A third seminar have an exchange of experience how a local authoritiy could work with pV installations and how it could work with planning of pV installations.

The seminars could be organised in the following way:

- General planning information
- Profitable pV installations in a local authority
- Knowledge exchange

Responsible institution

Solar Region Skåne (associated partner)

Relevant partners

- Sustainable Business Hub
- Energy Agency of South Sweden

Resources needed

- A computer and projector for powerpoint
- A venue to arrange the seminar in
- Human resources to organise the event

- Presenters of good examples, planning and strategy work
- An electricity grid owner informing about regional conditions for pV facilities
- Presenters of economic calculations of municipal pV installations and procurement rules.
- A person from a local authority presenting planning prerequisites for pV

Obstacles, barriers and restrictions

One challenge is to identify how a local authority in the best way could organise the work to improve and enhance local prerequisites for installation and implementation of pV facilities.

Piloted in PV4All	Yes

Three seminars for local authorities were held in the PV4All project. During the first seminar a more general view on how to work with solar energy in municipal planning and municipality buildings where held. From electricity grid owner E.ON, a presentation was held about the capacity in the grid and what to take into account when applying for a pV installation in the local authority. During the second seminars presentations where held about financial possibilities for local authority when installing a pV facility. First it is important to understand how to procure a pV facility and what possible demands a local authority can put on the supplier when procuring a pV facility. Secondly, it is important to calculate how the financial details will add up when installing the pV facility on a municipal building. Will the pay-off be ten, twenty or thirty years? What capacity should the facility have to get best financial benefit from the facility? Third seminar was about knowledge exchange, where a local authority presented how the work with planning regulation for installing pV facilities for citizens. The seminar ended up with group discussions where participant from local authorities discussed what obstacles there are to work with and increase pV installations in a municipality and how to come around these in the best way.

Recommendations

It is important that the local authority look into what planning material there are for energy and pV already developed. It is important to have an ongoing dialogue with the electricity grid owner to understand and have knowledge about grid capacity and possibilities to install more pV facilities. It is important to work with procurement in an organised way, putting right demands on suppliers for pV facilities and know how to evaluate the bids. It is important to do accurate financial calculations of the planned installations of additional pV facilities to understand the size to install and when to install or not. Some conclusions from group discussions from representatives from local authorities:

- *Develop proper guidelines for how to decided incoming applications from citizens who want to install pV facilities in regulated areas.*
- *Be aware of that authorities liked defence authorities or air plane authorities can take very long time to answer if they approve pV installations in areas where they have interest.*
- *Tell applicants why the authority decided in the way they did about the pV faclitiy in the decision letter.*
- *Develop guidelines on how to evaluate electricity produced from pV installations.*
- *Important to have guidelines how to evaluate the construction of the building when installing pV.*
- *Important that the politicians understand solar energy and that the civil servants understand what the politicians want when it comes to solar energy in the local authority.*
- *Important to have a dialogue with the grid owner and that there are capacity in the local grid for additional pV installations.*
- *Important to have a dialogue with citizens and companies in the local authorities about solar energy.*
- *Develop a map where buildings that are very suited for solar energy are present.*

Webinar for plug-in pVs

Target Group

Private persons - Individual stakeholders from public

Potential of target group

Emphasise and support promotion towards authorities about the benefits and needs for plug-in pV

Issue

Plug-in pVs are not allowed to connect with a wall socket to the electricity grid in Sweden

Activity

In Germany it is allowed to connect a smaller pV facility (plug-in pVs) with a wall socket to the electricity grid in the apartment or house. In Sweden it is not allowed to connect these small pV facilities with a wall socket.

To gain more information about the situation in Germany for plug-in pVs and the legal situation for plug-in pVs in Sweden, Sustainable Business Hub will together with associated partner Solar Region Skåne organise a webinar the 4 October 2023. In the webinar, ZEBAU will present the situation in Germany and the Swedish National Electricity Safety Authority will present the Swedish legislation. After the presentation there will be time for questions and dialog.

Responsible institution

Sustainable Business Hub

Relevant partners

- Solar Region Skåne (associated partner)
- ZEBAU (partner)
- Swedish National Electricity Safety Authority

Resources needed

- A computer and internet
- Expert to give lecture
- Human resources to organise the lecture

Obstacles, barriers and restrictions

How could the Swedish law be adapted that plug-in pVs will be allowed in Sweden?

Piloted in PV4All	Yes
International outlook and legal framework in Sweden for plug in pV	*Sweden*

In the project, Zentrum für Energie, Bauen, Architektur und Umwelt GmbH was invited to the webinar, who shared information about Innovations and development of plug-inPV in Germany. Following to that, The National Electrical Safety Board of Sweden described judicial position regarding plug-in PV-systems why plug in pVs are not allowed in Sweden. The resason is that the law in Sweden do not allow plug in pV. The national Swedish Radio made a program about plug in pVs in March 2024, where plug in pVs in Germany were described and the The National Electrical Safety Board of Sweden again described why plug in pVs are not allowed in Sweden.

Recommendations

The recommendation from the National Electrical Safety Board of Sweden was that a member of an electric organisation needed to start to work for a judicial change in the law, allowing plug in pV.