RENEWABLES NETWORKING PLATFORM

Analysis of local & regional bottlenecks and good practices

Contents

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EU Overview

At EU level, unfavourable funding conditions were identified during the 22 June European workshop as a considerable hurdle to the development of locally owned renewable systems.

As a result of European legislation, a growing number of Member States have started to switch to auctioning mechanisms which have had the effect of dramatically reducing the market share of cooperatives. In parallel, questions were raised during the event around the validity of the recent news that over 90% of the latest wind auctions in Germany had been awarded to cooperatives, which could in fact have been corporations “disguised” as such through a series of legal tricks, meaning the development of community energy projects was much lower than anticipated.

According to other observations, countries where community energy projects took a longer time to get off the ground where the ones, like France for example, where the feed in tariffs were simply not high enough. On the more positive side, France recently introduced bonus criteria as part of its auctioning system for community energy projects, introducing democratic governance as a new metrics along cost, a model to replicate elsewhere in Europe. Overall, it was largely agreed that the two definitions for community energy introduced by the European Commission in the proposed market design and renewable energy legislations were a very hopeful step in the right direction and needed to be reinforced in the upcoming negotiations with the European Parliament and Council. A point was made about the importance to properly assess the cost-benefit ratio of locally powered and owned renewable energy systems, for example by imposing such regular evaluations upon Member States.

Obstacles to the further development of remunicipalisation, another aspect to local ownership of renewable energy systems, was also discussed. They mainly included legal constraints stemming from the national level and limiting the scope of action of a local authority in the field of energy management and operation. The European electricity market was also considered a high-risk environment discouraging many local authorities from action. Another major bottleneck was the competitive pressure and resistance from private players. Last but not least, uncertainties linked to the evolution of the national and European policy frameworks was also highlighted as a major obstacle.

France

During the national workshop organised in Paris in December 2017, feedback collected from the participants at all levels showed the main bottlenecks halting the further deployment of renewable energy solutions at local level was the lack of adequate resources and funding from the national government, along with insufficient coordination between sectors and government levels.

Discussions during the workshop did not go into the specificities of each renewable source, but a number of notable trends have converged out of the various statements.

One was the need for easier procedures for shared energy ownership. Indeed, the French energy transition law of 2014 has brought considerable improvements, especially better regulating the participation in renewables projects through crowdfunding or the involvement of local authorities. A “participative bonus” has been introduced in public tenders for renewable projects being funded through crowdfunding. However, it still needs further simplification of procedures allowing smaller project holders to face the competition with big players during tenders and shortening delays (and therefore uncertainty).

Second was better access to funding and reduced costs. For renewable producers wishing to get access to the grid, connection costs are still too high and often dissuasive. They need to be reduced. These costs could also be better evaluated if the French grid managing company Enedis and local governments (owning the grid) would tighten dialogue and cooperation.

Alternative financing options are hard to find for drivers of renewable energy projects. National and EU funding should be streamlined towards renewables, giving them an advantage over fossil-fuel based installations.

Third, the need for a clear definition for local energy communities was also highlighted as an important driver for change.

In the revised EU renewables directive, energy communities need to be precisely defined. First of all, in order to allocate resources to this particular group. Second, because it will prevent any abusive, non-local beneficiary.

Additionally, participants also found that institutional support to renewable players, others than traditional utilities, was also often lacking.

At all governance levels, the support of renewable energies needs to prevail. This starts with the definition and sharing of objectives and also includes the everyday (technical, financial, legal-administrative) support of developers and local/regional governments. Many of those wanting to get engaged in renewables are lacking knowledge of how to concretely put their idea in place. A one-stop-shop for guidance would be useful. In addition, public efforts to integrating citizens and local authorities in the energy governance are not yet enough.

Last but not least, a stronger coherence between public policies came up as an important prerequisite to further deployment of local renewable energy solutions. Any urban project should make sure it embeds and takes advantages of local renewables potential. Local government

planning schemes should therefore be coherent with and complementary to overarching climate and energy strategies.

Poland

The national context and policy framework obviously have a key influence on local opportunities for renewable energy development. At present, the Polish government renewable energy policy focuses on supporting small-scale (prosumers-related) installations that are viewed as complementary to large-scale conventional generation units and not posing a competitive threat to their position. Along this principle, the fossil fuel-based and small-scale renewable-based energy systems are to be developed in parallel, helping to increase energy security in the country.

According to the workshop outcome and expertise from the consortium's national partner in Poland, the biggest obstacle hindering further development renewable energy at local and regional level is frequent changes of legal regulations - which make it difficult to plan long-term investments - and excessive dependence on non-repayable grants as a financing source.

In general, local authorities' awareness towards sustainable energy development is increasingly quickly in Poland, in large part due to their determination to improve air quality. Investing in renewable energy technologies and developing at least partly independent local energy systems has thus become a priority, provided that conditions are favourable, and financing is available. Some Polish cities are boldly testing new grounds (such as the development of prosumers installations connected to the grid, the establishment of local energy clusters, etc.), while the rest are waiting for the results of pilot projects to replicate already proven solutions, without engaging in risky activities themselves. Overall, one of the main challenges faced at local and regional levels is to reduce dependence on large generation units, often powered by imported fossil fuels and managed by large holding groups that do not treat the municipalities as partners.

In addition, local authorities' needs and investment plans – as outlined in their Covenant of Mayors Sustainable Energy Action Plans - far exceed funding available from public sources, especially considering that in the period post-2020, even non-repayable grants are expected to be reduced. Currently local authorities mostly rely on such grants when planning and implementing low-carbon projects, including those foreseeing renewable energy installations. There is limited knowledge and case studies of practical use of other available financing sources, including private capital. Looking ahead, this indicates a clear need for more capacity building and technical assistance on this front.

Moreover, heavy competition is often observed between municipalities applying for external funding opportunities, meaning the financial support often ends up in the hands of the larger and more experienced municipalities, which have adequate human resources (often whole departments specialising in obtaining funds) to prepare good quality project proposals.

Last but not least, public opposition to some types of renewable energy investments remains high. These concern mostly larger projects such as the construction of biogas plants or investments in the area of wind power generation, mainly due to a lack of awareness, previous bad experience, etc.

At household level, municipalities often struggle to encourage citizen investments in renewable energy installations because of the high upfront costs of such technologies compared to much cheaper alternatives. At present, the most sought-after options are solar thermal collectors and (mostly air-sourced) heat pumps. Well-planned incentive schemes targeting individual households have thus been identified as a key driver moving forwards.

Slovakia

In Slovakia, the workshop findings led to the general conclusion that the legislative environment for renewable energy was very unstable: a number of amendments mostly lead to narrowing the space for renewable energy development, and support instruments as structural funds are too complicated for potential applicants.

The participants thus formulated a series of demands to national and EU authorities.

As far as renewable heat is concerned, they suggested the following:

- Fostering the integration of renewable energy sources into centralized heat supply systems
- Legislatively define land use planning requirements for the submission of an assessment of the utility of the use of RES in building construction, in case it is not possible to connect the building to the CHS system
- Making sure that connection to the central heating system come hand in hand with a parallel support the use of solar energy for the production of hot water
- Limiting renewable energy from biomass due to negative impacts on agriculture and biodiversity (monoculture)

On the links between energy efficiency and renewable deployment, they insisted on better coherence to avoid situations where for example it is not possible to support the installation of renewable energy solutions before the implementing certain energy efficiency requirements. The need to increase awareness of Energy Performance Contracting as an important financial instrument for increasing the energy efficiency of buildings was also highlighted - especially in relation to the limited possibility of drawing on the EU Structural funds in the next programming period. so that, for example, in buildings it.

Regarding the need to develop renewables penetration at household level, the promotion and introduction of dedicated incentive schemes were considered a priority along with dedicated local tax instruments to limit the use of fossil fuel combustion.

Enhanced renewable energy deployment at local level was also linked to a better consideration of research, notably through increasing the political ownership and elaboration of the national renewable energy strategy notably through public policies based on fact-based research and facts. It was also highlighted that the issue of grid stability in the case of higher renewable energy penetration needed more research investments as well as the related issue of energy storage.

Finally, a case was also strongly made that improved coherence was also needed in the overall national renewable energy strategy. Ensuring synergies and coordination between national objectives and the decentralised development strategies at local and regional levels was considered crucial, as it would come hand in hand with targeted support from the national level.

Last but not least, participants called on the simplification of public procurement rules for inclusion of renewable energy at local authorities' level.

Spain

During the national workshop held in Madrid in December 2017, challenges mentioned often referred both to the current legal framework and, related to it, the new role but limited powers of local authorities to drive the transition towards a 100% renewable energy system. In Spain, the national government is neither coherent nor supportive in developing sustainable energy policies. To the contrary, it even puts on the brake, thereby making the implementation of renewables very difficult. Relevant mentioned topics as well as lacking tools and measures can be summarized as follows.

Demands to national and EU authorities:

- Devolve powers: The role of local authorities' in the fight against climate change and in driving the energy transition is very important. The creation of municipally owned energy companies should be largely facilitated.
- Make participation systematic: It is important to rely on all players, civil society and businesses. The citizens express their wish that they want to participate. Therefore, they need to receive a clear message that solutions are within their grasp.
- Connect governance levels: there is a strong need to create permanent links between the national government and the local level for jointly designing the right energy and climate policies and tools (e.g. by creating an observatory on urban regeneration).
- Foster self-consumption to achieve energy and Climate objectives, democratizing the energy sector. Through new governance methods at the local level, local governments can play an important role in this democracy process.
- Redefine rules: The level playing field for new (citizen) players in the energy market should be the same as for big companies. As regards cooperatives, the fees paid by consumers should be defined in a way that burden is equally distributed.

- Bring funding within reach: It is important that financing is accessible to all territories (e.g. through structural funds) and citizens who are engaging in the energy transition (leveraging on crowdfunding).
- Raise ambitions: The European Union, the national and local governments have to take responsibility and set more ambitious and binding objectives to reduce the carbon footprint and support renewables. The legal framework should not focus on sectors only but be broadened so as to consider the urban ecosystem as a whole.

The Czech Republic

Participants to the Litoměřice event of November 2017 generally agreed that there is a significant potential for the development of renewable energy at national level, as well as successful examples and projects at local and regional scales. However, many obstacles remain.

They notably include a low awareness of renewable energy projects on the part of citizens, and the corresponding need for increased campaigning and mobilisation.

Controversy is also increasing in the country around a feeling of overcompensation of renewable energy projects and a perception of bad business cases which do not help in supporting local deployment.

Additionally, there remains a high level of legal uncertainty around the role municipalities and local and regional authorities in general can play in operating renewable energy infrastructure.

Some risk aversion on the part of local governments was also highlighted as a typical obstacle, as renewable energy solutions are often perceived as venturing into unchartered territory.

Last but not least, participants agreed that more comprehensive models and frameworks of renewable development at local level were needed as well as concrete projection tools to better identify the economic benefits and local development of such technologies at city level.

The Netherlands

In the Netherlands, the main obstacles to the deployment of renewable energy projects at local level is public acceptance. Indeed, in such a high density country, renewable energy infrastructures such as wind turbines often have to be located near citizen houses, with all the complaints this later creates in terms of reported nuisance, whether related to noise levels or shades. From the outcome of the national workshop and additional interviews conducted with our partner Klimaatverbond (Climate Alliance), it seems these issues mainly arise when the projects are imposed top-down by the national governments, such as in the case of big wind farms development by large utilities. On

the contrary, when project developments are based on a cooperative model, offering people the opportunity to get shares in the installations, the projects are often better perceived. However, this solution still doesn't constitute a silver bullet in itself, as it also presents some risk of social divides between green-minded healthier city residents - that often end up taking shared in the wind turbines located in the nearby rural neighbourhoods - and the people actually living in the said area. Also, projects carried out by groupings of citizens are considered less "professional" by some citizens and there can be a lack of trust in co-investing as a result. In many cases, involvement from the local authorities is a good strategy to add legitimacy and credibility to a project. Overall, heavy communication campaigns carried out well ahead of the first project development phase are an essential parameter to ensure citizens buy in.

The issue of wind turbines construction has become very politically-charged in the Netherlands, and experience has shown that when a city is politically committed to CO2 reductions and sustainable energy development, through initiatives such as the Covenant of Mayors, the projects are more likely to come to fruition that to the support of local elected representatives.

An additional factor that helped trigger the development of such a technology in the country stems from the fact that a figure-based MW target for wind energy deployment had been adopted at national level. In the future, the benchmark will be limited to a CO2 reduction objective, meaning there would be less opportunity to "force discussions" on this topic at provincial and city levels.

The other big hot topic issue in the Netherlands is the switch from natural gas to sustainable heating at household and neighbourhood levels, with district heating from waste heat sources playing an important role. A favourable development in this sense was the adoption of a new law in January 2018 imposing that all new neighbourhoods should be sustainable and thus built without connections to the natural gas system. Alternatives are to connect to the district heating network if there is one or go all electric. The downside of this all electric alternative is that the power provided might then come from coal sources, although offset through the buying of green certificates.

Concerning existing neighbourhoods, the main obstacle to encourage the switching to alternative energy sources was the long payback time of such investments. A solution discussed in the workshop which was mainly shared among participants was to create loan opportunities where the loan is linked to the house rather than to an individual, meaning the debt would automatically be transferred to a new buyer in the case of a house sale for example.

Austria

Following a series of exchanges with the Erneuerbare Energie Osterreich, the consortium identified the main bottlenecks and barriers to the deployment of renewable energy sources at local level.

- Lack of knowledge on community energy potential

Concept of energy community is quite new in Austria. They are starting to develop knowledge only now, but in general there is hostility towards the democratisation of the energy system. Private companies are the main actors in RE projects.

The main obstacle in citizens' participation is that prosumers can't sell the excess of energy to the grid. Grid operators are usually linked to big utilities which are operating in a situation of oligopoly (even if this is starting to change) so access is difficult.

That is why the citizens as prosumers would need special network tariffs and more communication and awareness raising is necessary. For PV home storage systems in particular, it is necessary to develop quality standards and launch public consultation on climate and energy. Only in this way can end customers make clear (and transparent) decisions in the acquisition of such systems. The costs for the network infrastructure must be fairly distributed to all network users, even if self-supply increases.
Best practice from Vienna: Citizens' Solar Power Plant

- Excessive administrative burden

Integrated local energy systems, powered entirely by renewable sources, require optimization and adequate flexibility, particularly in respect to buildings, local heat and power networks, industry and mobility. This is currently lacking in Austria: many requirements, regulations and legal obligations pose an excessive burden on whoever wants to deploy RES.

- Lack of an adequate legislative framework for energy storage

Storage systems are important in order to ensure stability and flexibility. At the moment, there is no clear framework regarding the installation of local storage systems in Austria.

- Lack of funds to support innovation in the energy sector

Digitization can offer solutions to the challenges of the energy transition. It can allow for decentralization, flexibility and efficiency, but also help achieve the integration of different systems. ICT programs and projects at local level are necessary and more funding should be devoted to market innovative storage technologies (such as the 100,000 rooftops program).

Belgium

Following desktop research and interviews with local elected representatives and citizen cooperatives, the consortium identified the following obstacles to the development of renewable energies at local level.

- Social acceptance and the issue of shared governance

Wind energy development has been slowing down in Belgium in the post-2010 period. In the region of Wallonia, the growth rate of the sector has fallen from 58% in 2010 to only 4% in 2014 due to regulatory uncertainties and legal disputes. In order to address problems linked to public acceptance, a number of local authorities have adopted policy instruments to support citizen participation in energy projects. This is notably the case in the province of East Flanders, where wind farm developers must offer a minimum of 20% citizen participation in new projects. In 2013, the Walloon government also put in place a similar regime by requiring wind developers to offer a 24.99% stake to municipalities and 24.99% to citizen cooperatives.

However, according to the Belgian cooperative Ecopower, large energy utility incumbents have attempted to "cosmetically" add some citizen participation element to their projects in order to benefit from the related support schemes. This "participatory" element often took the form of a marginal financial participation from citizens with absolutely no control and shared governance over the said projects.

That is why the new definition of citizen energy communities should find a proper legal translation in Belgium, whereby citizens are not just mere financial contributors but actual decision makers of the new projects through a shared governance, also guaranteeing increased socio-economic benefits for the territory.

- Inappropriate incentives

In Brussels, some households are considering replacing their photovoltaic installations (which are supposed to have 15 years lifespan) in order to benefit from 10 additional years of green certificates. This constitutes a perverse effect of the support scheme implemented in the Brussels region, the only one where green certificate are still granted. Indeed, this would mean households would be compensated twice for PV installations and the PV panels would seize to be used before the end of their lifespan.

Another support mechanism that is criticised by the Belgian association for the promotion of renewable energies (APERe) is the net metering schemes. According to APERe, such system discourages households from energy savings because they can draw energy from the grid at no extra cost when they're not self-consumed production has been high enough (the meter runs backwards) and it also means they are not sizing their PV installations to maximize the local production, but just to keep it in balance with their expected consumption.

- Lack of resources

Numerous cities and municipalities in Belgium lack resources to dedicate to the development of an energy and climate plan. Although a growing number have signed the EU Covenant of Mayors – including the 2030 commitments – many are those that feel inadequately equipped to embark on the initiative. A dozen elected representatives have notably indicated that the reporting framework of the initiative is way too complex and demanding for their administration to handle.

In addition, the development of renewable energy projects requires the ability to answer sophisticated call for projects, notably as it relates to the EU Research and Innovation programme. However, cities have indicated that there too, the requirements are too demanding for in-house staff to handle, and local resources often make it complicated to externalize such tasks. As a result, it is often the bigger municipalities with larger resources that benefit from EU funding.

- Political rivalries

At present, local politicians in Belgium still struggle to speak with a united voice and share common goals when it comes to the implementation of climate and energy projects. Political rivalries indeed sometimes prevent administrations to break down silos and make several departments (finance, health, housing, education, public works, …) join efforts towards the achievement of a collective target. At regional level, in 2010 three ministers of the Brussels region managed to team up to create a "job-environment" alliance and take credit for a collective project that proved very successful. However, beyond that specific example there is still very little evidence of a more collaborative approach to climate and energy policymaking at the local and regional level.

- Lack of "beyond gas" scenario

According to a city representative speaking on conditions of anonymity, in Flanders there are growing fears of infrastructure lock-ins due to the unwillingness of the distribution system operator to play a more progressive and neutral role in mapping out future energy scenarios. The role of heat pumps and district heating and cooling systems is for example completely discarded on false assumptions that renewable gas will provide the panacea. However, numerous studies have already concluded to the limited potential of such green gases to cover heat demand. According to findings from E3G the interviewed city reported on, the limited potential and currently unfavourable economics of green gas mean this alternative should be used for harder-to-decarbonise sectors.

That is why greater cooperation between local authorities and distribution system/grid operators should be encouraged. A good example of such cooperation is represented by the geothermal pilot project in Mol and Dessel launched by The Flemish Institute for Technological Research.

To find out more:
http://www.pourlasolidarite.eu/sites/default/files/publications/files/na-2015-ic-energies-renouvelables.pdf
http://www.renouvelle.be/fr/debats/remplacer-son-installation-photovoltaique-apres-10-ans-absurde
https://www.renouvelle.be/fr/debats/comment-financer-le-reseau-electrique-et-integrer-durablement-les-prosumers
https://www.e3g.org/library/renewable-and-decarbonised-gas-options-for-a-zero-emissions-society

Cyprus

Although improvements are expected during 2019, Cyprus is currently mostly relying on fossil fuels for its energy needs. The island has an enormous solar potential: they could reach 2030 goals in months and the time for the investment to reach a break-even point is very short (from 4 to 6 years). After discussing with local stakeholders, we identified 3 main obstacles to the deployment of renewables (PV mostly).

- Lack of political will at national level

Discussions around the use of the natural gas reserves of Cyprus have been going for years. With progress being delayed for many years on the subject, natural gas was used as an excuse to delay renewables installation on the island. Indeed, Cyprus policy is refusing to abandon oil-based infrastructures aiming to use the same infrastructures for gas in the future. It is also not providing enough technical and financial support to local authorities in this field. Therefore, a lot of public land with enormous solar potential remains unexploited.

At the same time Electricity Authority of Cyprus, the national utility, which uses heavy fuel oil (778 thousand tonnes in 2017) and diesel fuel (255 thousand tonnes in 2017) to operate its power capacity of 1478 MW, paid 19.3 million EUR for emission allowances in 2018. This cost was passed to consumers, and in 2019 the cost in allowances is expected to rise to 38,9 million EUR, an increase of 101%.

With the situation seeming to be out of control, the power capacity in Cyprus has been increased recently by approximately 15%. The foundation ceremony for the building of a new privately held power plant of 230 MW power capacity was held on 15 February 2019. This new power plant costed around 200 million EUR is based on oil/natural gas. Such investment levels and investment promotion have not been seen for photovoltaics.

Action at Local/Municipalities level is one of the last hopes. One great example is the soft loan scheme for photovoltaics developed by the city of Aradippou.

- Lack of funds for local renewables deployment

Local authorities find it difficult to access EU Structural funds in order to use them for reaching their SEAP commitments with projects in renewables. In addition, the ETS funds do not reach the local level, instead they go to national level and there is no clear way to check if they are re-invested in sustainable projects.

Instead, income from photovoltaic parks should go in a Municipal fund that will be used for the implementation of SEAP actions and to offer Municipal grants for investments in renewables.

Another option could be to assign Cyprus' ETS auction revenues to Municipalities for the implementation of actions linked to SEAP with clear registration of projects and of their environmental benefit (CO_2 reduction).

- Lengthy process for the approval of RES project

Despite the willingness to invest in RES at local level, many projects die because of the lengthy process necessary to obtain licences and permits. Private actors tend to get tired and loose enthusiasm over such projects resulting in loss of potential investments opportunities. Any benefits from visionary politicians at local level cannot be received due to the delays, which consume the valuable time until next elections.

More information and sources

https://www.eac.com.cy/EN/EAC/FinancialInformation/Documents/2017%20Annual%20Report%20Engl-Digital%20Final.pdf

Phileleftheros online newspaper on 22 February 2019, in Greek language: http://www.philenews.com/oikonomia/kypros/article/660261/-38-9-ekat-ga-rypoys-stoys-logriasmoys-tis-aik

Business Magazine 11 June 2018, in Greek language:

https://inbusinessnews.reporter.com.cy/business/energy/article/187599/g-chrysochos-gati-eiserchomaste-stin-paragg-energias).

Denmark

Following a series of exchanges with the Nordic Folkecenter for Renewable Energy, the consortium identified the main bottlenecks and barriers to the deployment of renewable energy sources at local level.

- Competitive bidding processes pose a threat

Guaranteed prices and feed-in tariffs had created accessible market conditions for all players to implement renewable energy projects. In contrast, bidding processes pose a **challenge for small local investors**, as the administrative procedures are more complicated and the often-demanding pre-qualification and granting criteria raises uncertainty of being granted. Previous nearshore wind tenders held in Denmark as well as other tenders held worldwide show that generally tenders benefit large investors, who are not always welcome by local communities (see section about local opposition). Common tenders for onshore wind, open-door offshore wind and solar photovoltaic have been introduced in Denmark for 2018 and 2019.

Feed-in tariff scheme should be maintained for projects with local developers and investors, who are local residents and/or local consumer-owned SME, when 100% of the ownership is open to all local residents at cost price or over 50% of the ownership belongs to a local foundation for local development and common good.

- Urgent need for sector integration

In 2017, wind power supplied 43% of the Danish final electricity consumption. In the past years, annual average spot market prices have been lower than the levelised cost of onshore wind energy –the cheapest source of electricity in Denmark− due to low fossil-fuel prices and the merit-order effect. This has negatively affected the economy of wind projects and of other electricity production units such as CHP plants, which have operated for too few hours per year. In February 2018, decentralised natural gas CHP plants run out of the capacity subsidy, making their economy unsustainable and likely forcing many of them to shut down. This affects the consumers of plenty of district heating systems, who need to **find economical alternatives** for their heat generation.

It is many years that the need for integrating the electricity and heat sectors was pointed out as indispensable for implementation of large shares of fluctuating renewable energy sources. In spite of the multiple economic advantages, the integration has not been possible yet because of **taxes on electricity used for heat**. Less socio-economical solutions such as biomass or solar collectors have been promoted instead.

Efficient policies for RE infrastructures' integration are needed, in order to improve the economy of the different technologies and ensure stability of revenue for RE producers.

- Local opposition to RE installations

Local opposition to new RE installations is a major obstacle for the achievement of the energy targets of highly democratic countries like Denmark. Local opposition has been especially strong for onshore wind, but cases of opposition to nearshore wind and biogas have also been documented in the country. After the cancellation of several onshore wind projects and even entire municipal wind plans, the Danish Energy Agreement of 2018 intends to reduce the amount of onshore wind turbines and to implement as much of the wind capacity as possible offshore –which will benefit the large investors.

There are multiple arguments local communities can have against renewable energy development: aesthetic, noise, smell, increased traffic… However, this may be mitigated when local residents feel they can **participate in the decision-making** process and the benefits are equally distributed throughout the local community. Imbalances in distribution of negative impacts and benefits seem to be the main reason for opposition towards projects of private investors, be them local or not.
The measures for enhancement of local acceptance for onshore wind turbines introduced in the Act for Promotion of Renewable Energy of 2008 (now also applicable to solar photovoltaic farms) have not been sufficient to tackle the issue. Therefore, new measures and policies to support local ownership for the common good are needed.

- Land access

Land is a limited and valuable resource for renewable energy implementation. More restrictive wind planning regulations have resulted in increasing **competition of wind developers**, who need to

secure access to land for their projects. Therefore, a new profile has been born in the large wind developer firms known as “the land hunters”. In some cases, large project developers sign contracts that include exclusivity clauses with landowners several years before any project application (if any) is submitted for assessment to the local municipality. As a consequence, when the municipal wind plan is announced publicly, the best spots may already be taken, and local residents interested in building wind projects have encountered problems to access land. The behaviour of large wind developers could be seen not only as an strategy to secure land for their own projects, but also to put some windy areas on stand-by and, in this way, delay the energy transition.

Best practice: Copenhagen wind farm cooperative

Germany

Following exchanges with local stakeholders, the consortium identified the following barriers to the deployment of renewable energy at local level in Germany:

- Lack of renewables-friendly spatial planning

Spatial distribution of generation plants increasingly gains in importance as there is a significant concentration of demand for energy in the industrial regions in the West and South, as well as in the metropolitan areas. There are some high-yielding solar-energy sites, which need more attention in the South of Germany, but the potential offered by roofs in cities should also be considered. The high-yielding wind-energy sites in the north and north-east of the country have not been exploited sufficiently and offshore has not been exploited yet.

In many cases, the Länder have the power to decide upon spatial planning, which often leads to a transfer of competences to the local level. Yet, because of the **lack of regulatory measures related to regional planning**, this causes great challenges for municipalities, as they do not have the technical and financial resources to dedicate to such task. Binding land-use plans developed at federal level add another layer of complexity, by limiting municipalities in the development of renewable energy projects.

There have been many cases where land-use plans developed by local governments have been declared invalid. The problems lie in the identification of the areas where it is possible to deploy renewable energy installations. There is a **lack of supreme court case law** to support this identification and blocking a project is quite easy for sectoral associations. If they believe that a RE project could affect their interest, they can stop it without the obligation to justify their opposition (burden of proof).

- Social acceptance of neighbouring communities

Bad planning doesn't only put renewable energy projects at risk, it also creates scepticism towards renewables amongst the population. Nevertheless, there are additional factors that hinder social acceptance of renewable energy projects such as: the visibility of solar and wind facilities in the landscape, the degree of involvement and the possibility to influence the design of the project, the financial involvement of residents, as well as the question of how far the added value will remain in the region. Despite the already existing citizen participation models for PV and wind projects, **new models for citizen participation** should be developed.

Cities should be encouraged and supported in engaging the citizens in projects of local and district heating, energy efficiency, as well as distribution grid infrastructure.

- Lack of profitable business models to harness locally produced renewable energy

Currently, locally/individually generated electricity is to the largest extent only used by the owner directly or fed into the public grid. To make better use of the generated electricity, it is necessary to find business models that provide an **opportunity for different market actors**, such as municipal utilities and residential prosumers. Measures such as exemption of statutory fees, levies and taxes, premiums and compensations are available, but capitalizing on these benefits is only possible if the project is compliant with the legal requirements. Because of the lack of clarity of the regulation, which is characterized by unsystematic specific exemptions, long-term planning is extremely difficult.

Regulation should be clear in order to allow the identification of future economic gains for prosumers and to encourage investment.

- Disadvantageous policy framework for citizen energy

At local level, publicly owned "Stadtwerke" allowed for an indirect citizens' control on energy decision through local stakeholders sitting in the board. However, a 'Stadtwerk' does not automatically guarantee better participation of citizens and many 'Stadtwerke' are not necessarily supporters of the energy transition due to assets and ownership models linked with the fossil incumbents.

Among the challenges to citizen energy, the main one is the tendering system introduced in 2017 with the updated EEG (Renewable Energy Act), which increased the requirements for small and medium sized businesses, including Stadtwerke, in order to continue to receive financial support. It also removes investor security from community projects and introduces pricing risk that community initiatives are less able to manage than established corporate entities.

The EEG allows for exemptions in the tendering process granted to citizen energy companies for wind turbines ('Bürgerenergiegesellschaften'). The definition of these citizen energy companies is very vague so that some wind project developers launched citizen companies involving only a few local residents – 'fake citizen companies', in order to access those exemptions.

Looking at the Renewable Energy Cooperatives side, it has been noted that the current framework doesn't allow full participation of the citizens in the energy market because of **high market-entry barriers**, **unfair competition** with the big players and limitation of the right to produce and store energy that eliminate any possibility of economic gain for prosumers.

Best practice: Active citizenship for renewable energy

Greece

Although renewable energy sources form a larger part of Greece's energy mix, there are still obstacles at local level that prevent the energy transition to clean energy away from fossil fuels, such as coal/lignite, oil and natural gas.

- Lack of dialogue and information at local level

Generally, local communities (even local authorities in some cases) are not well informed about the multiple environmental, economic and social benefits of RES. This **lack of information and awareness** has also led to protests against RE installation.

Local communities oppose to the deployment of renewable energy sources (RES), especially wind power, when they don't see benefits, either social or financial, for them. They also feel that their opinions aren't valued, since all the decisions are taken at central level. Therefore, they present various arguments, such as the -supposed - aesthetic degradation of the natural landscape and noise production, to block the installation of RES systems.

Greece also hosts many touristic sites that see the introduction of RES as a threat to their income. In addition, there are sites that are protected under Natura 2000, where biodiversity protection legislation prevents any action that could endanger local species.

All local stakeholders need to take part in the decision-making regarding RE development in their territories. The benefits should be equally distributed to the local communities in order to facilitate acceptance and support. Additionally, educational programmes should be put in place to inform and raise awareness about RES environmental, social and economic benefits.

- Higher economic costs of renewables compared to fossil fuel

The cost of renewable energy is still higher than the one based on fossil fuels, which is a serious obstacle to overcome considering the economic crisis in Greece since late 2009. But, the cost of RES technologies such as solar PVs has been significantly reduced, to promote investments in such systems, and could be considered competitive even to conventional sources.

- Discontinuous operation and energy fluctuation

One of the major problems facing RES, especially wind and solar power, is their non-continuous operation, which in many cases does not contribute to their financial viability and reinforces people's scepticism towards them.

Additional support to research and development in the field of energy storage is needed. The good impact of such support is demonstrated by the TILOS project.

- Lack of public support for RES communities

Energy Communities are civil partnerships between municipalities promoting social economy and innovation in the energy sector, while tackling energy poverty and promoting energy production, storage, own consumption, distribution and strengthening energy self-sufficiency at local level.

For Energy Communities to be successful, active involvement and cooperation of citizens, local authorities and SME is essential. The recently adopted law on Energy Communities still hasn't been applied in practice by the government. This happens because the political system still supports the investments in fossil fuels technologies that benefit from a centralized energy system. Public support to Energy Community is essential and should be defined in the national law. Own-consumption and local production of energy should be actively promoted.

Italy

According to Italy's National Energy Strategy approved at the end of 2017, in 2030 renewables should cover 28% of final energy consumption. This means that in a bit more than a decade, in order to cover 55% of the energy consumption with renewables, wind energy production should double and the photovoltaic one should triple.

Following a series of exchanges with Italian stakeholders, the consortium identified the following barriers to the deployment of renewable energy at local level in Italy.

- Legal uncertainty

Legal uncertainty is one of the main barriers to the deployment of renewable energy sources in Italy. This has important effect in terms of finding investors as not many are willing to risk their assets is such an unpredictable legal environment: frequent modifications to legislation (sometimes with retroactive effect), especially about support schemes, uncertainty about eligibility and the amount of the incentives or measures have a negative effect on market stability.
This does not only apply at National level: Italian regions appear to have confusing and sometimes conflicting regulations when it comes to energy. New projects are difficult to implement due to limits deriving from the transposal of national laws and the lack of clear and transparent criteria for the evaluation and to determine the environmental impact related to new installations.

- Excessive complexity and duration of administrative procedures

The distribution of competences among different public bodies (national, regional, local) and the non-homogeneous implementation of national laws at the local level cause uncertainty and an excess of bureaucracy. There is too much fragmentation of competences among national, regional and local bodies. This not only prevent new projects but also makes the refurbishment of old plants quite complicated.

- Land use and environmental concerns

Considering the high number of installations foreseen in the closest future (before 2050), major limiting factors in the development of renewables could arise on the side of possible environmental conflicts, such as impact on the landscape but also conflicting use of agricultural land.
Besides involving the local communities in the decisions making process and also in the economic benefits deriving from renewable energy installation, areas that have no agricultural potential or that have not been used for a long time could be identified and used for this purpose.

A good example of stakeholders' cooperation of local level is provided by the municipality of Castellammare di Stabia.

- Lack of modern infrastructure

Italy's old transmission and distribution networks are not well suited to accommodate new energy models such as distributed energy or energy storage. Recently, also on the distribution network managed by the DSOs, there has been a decrease of the energy absorbed and an increase of the energy produced through renewable sources (Distributed Generation) at individual level, with consumers becoming prosumers. This situation destabilizes voltage regulation in a distribution network conceived in traditional way. Protection systems are also negatively affected by these phenomena.

Investments are needed in the adaptation of transmission and distribution networks (smart grid) to make it compatible with new local energy models.

Luxembourg

Following exchanges with Climate alliance Luxemburg office and research through the national regulator and some local energy companies; the consortium identified only few bottlenecks and barriers to the deployment of renewable energy sources at local level as the law defining conditions (feed in tariffs) is currently under revision and should boost the sector (by the end of 2019).

- The context in short:

Luxemburg is importing a lot of its energy from neighbouring countries, specially to supply the industries in the south. Two local energy companies, in the south too are distributing energy; while

most of the territory is covered by a public company (52% of the capital) Ennovos and Creos (production-distribution); partially owned by the State and by the municipalities. In addition, storage capacity in lakes, installed in the 50's (and owned by a private company), add flexibility in the market.

- Favourable feed-in tariffs

Until 5 years ago, only a handful number of local cooperatives were present in Luxembourg due to not attractive feed in tariffs, and only available for installation of max 30kwh. When the legislation changed and included projects till 200 kwh, two years ago, a number of projects emerged. However, the most important change, due before the 31st of December 2019, is expecting to really boost local cooperatives and city-citizen partnerships (special advantageous conditions below 500 kwh peak hours). It will also allow old installed solar projects to increase their capacity. Furthermore, it is easy for municipalities to enter into a partnership with local communities, they can, for example, propose land, or municipal roofs for 1€ symbolic per year to local cooperatives (or group). For the wind production, the semi-public national company for energy is providing assistance for project development and each new project is always proposed to local communities.

Municipalities should be informed about the new law, so that they can facilitate the emergence of local projects.

- No policy on heat demand/ generation

The number of district heating generation is very low, located in the south but the potential for more rural-urban partnership with farmers is largely untapped. The example of Beckerich farmer's cooperative providing wood to generate heat is quite unique in the country, at as been largely supported by the local council. No information on how individual geothermal potential is assessed neither supported.

- Unclear competencies of local authorities

From local actors, one of the main demands is to clarify the competencies of municipalities in the energy production and distribution. Apart for taking shares in the *société civile* (private company) to own solar panel and sale electricity, other competencies are not clearly given and it is a real bottleneck to engage municipalities into a more proactive role in energy policies.

Further information:

http://www.pacteclimat.lu/fr/les-mesures/mesure/approvisionnement-depollution
Web of legal information for local authorities on all environmental and energy policies

https://web.ilr.lu/FR/ILR
National regulation agency

https://www.soler.lu/fr/
Company, owned by the State and municipalities and private investors to support the development of wind projects

Portugal

Following a series of exchanges with the Portuguese Renewable Energy Association (APREN), the consortium identified the main bottlenecks and barriers to the deployment of renewable energy sources at local level.

- Small scale renewable systems (up to 1 MW)

Since 2014, the renewable local market in Portugal has been dominated by self-consumption projects with publishing of the Decree-law (DL) 153/2014 that promotes the installation of small scale units (until 1 MW) for prosumers and small and medium-sized businesses.

With the publication of this DL, that aims to introduce new solutions to produce decentralized energy and technological innovation, accommodating the figure of “prosumer” of electricity (or producer in self-consumption) within the scope of the Independent Electric System.

This law establishes the legal regime applicable to the production of electricity sold in its entirety to the utility public network (RESP), through small production facilities (UPP) from renewable resources. The production is based on a single technology whose net power is 250 kW or less and allows the producer to sell all the electricity produced to RESP, based on a model of discount offer at the reference tariff.

It also established the legal regime applicable to the production of electricity for self-consumption in the installation associated with its production unit (UPAC), with or without connection to RES. This regime is designed mainly to consume all production in site, but the surplus can be sold to the grid at market price.

Also, this regime brought a simplified procedure, for systems below 1.5 kW, suited mainly to household’s consumers: no permits are required, only a notification to the licensing authority (DGEG).

The major barrier will appear in the future: according to this regime UPACs will start to pay general system costs according to a given formula. Once UPACs reached more than 1% of the total power installed in Mainland Portugal, the systems will be taxed, penalizing the overall profitability of the systems.

- Stagnating development of medium to large renewables units

The development of large-scale units has been stagnated since the release of the Decree-Law 215-B/2012 of October. As the previous FiT procedure was extinguished FiT and a new tender scheme for utility scale renewable power plants was launched. Under this regulation, new RES-E projects must be integrated in the spot energy market rules either offering directly in the spot energy market

or by PPAs. Nevertheless, the above-mentioned decree-law considers the possibility to launch new capacity auctions but to date no new procedures were opened.

Despite this framework, since 2015, there has been a large quest for PV large scale permits. At this point, it is impossible to predict how much PV will be installed until 2020. **There is no tendering procedure active and it is not foreseen any kind of competitive procedure to stimulate renewables.**

As mentioned, **new projects are only accepted under market conditions**. This means that the new PV installations (as any new renewable power plant) should offer in the day ahead energy market with no other chance of getting revenues. The Portuguese Government has already approved the installation of 968 M W (till June 2018) of PV power plants without any financial support.

Nevertheless, only 50 MW of it has been materialized so far throughout PPAs with retail suppliers. All **developers are struggling to find financing**, since energy gross market price is very volatile and uncertain, giving no security and undermining financing agreements.

Moreover, **Guarantees of Origin have not yet been implemented in Portugal**, there is **no aggregation body or trader dedicated to managing the small power generator market offers** and furthermore there is not any specific regulation for PPAs, it is only possible to make agreement with retail energy suppliers. These facts have been a huge barrier to the development of PV systems in Portugal.

- Long administrative procedures for permits

Permitting process have high timeline periods reaching in average 4 to 5 years. To request the permit promoters must approach individual all official entities, such as, Environmental Agency, Municipalities, regulatory authority for postal communications and so on.
A possible solution could be the implementation of a functional one-stop shop that includes the environmental licensing procedure and improves the integration of RES-E projects in land-use management instruments.

- Grid-connection and capacity issues

A clear barrier for RES deployment relays in the grid connection, driven by to different aspects: **grid connection costs and grid capacity**. Promoters are responsible for the grid connection cost, being a huge burden in the project costs, which impacted the competitiveness and Levelized Cost of Energy of projects. Also, lack of grid capacity in places with resource potential is been an issue. Recently, the government promoted a **lottery mechanism for renewables licensing**, to place the entire order of the projects. This procedure has been created because the quantitate of licensing request exceed the available capacity on distribution and transmission networks in some regions.

- Lack of regulation for Energy Communities

Energy Communities or Cooperatives are a “grey” area in the Portuguese legal Framework. There is not a specific regulation that defines, allows or promotes energy cooperatives. Portuguese legal framework will have to adjust drastically to adapt to CEP and they hope to have a voice in the design of the new frameworks. This project is very important to APREN, to develop their internal knowledge of this subject and show which steps should be taken.

There are although important cases of success in Portugal, that should be take into account and studied. Since the earlier stages of rural electrification, some small villages and parish made cooperatives to promote grid construction and since the 30’s, they are owners and operate as electric cooperatives of their distribution grids. They use the revenues to promote social initiatives to benefit the communities. An example can be found in the Coopernico Cooperative promoting renewable energy projects in Private Institutions of Social Solidarity through a crow-funding mechanism. The cooperative also operates as green energy supplier.

Also, Portuguese Municipalities are owners of the in-site distribution grids but have concession agreements with the Portuguese DSO. Though, most of the concession contracts are reaching their end. And, many Municipalities are thinking in taking into its own hands the management of grids. This could open a large portfolio of opportunities to local communities, special in rural areas with fewer resources and some with serious issues of energy poverty. By promoting exchanges and educational activities around the “how to s” of grid management, local authorities could access the necessary information if they are willing to manage their own grids.

Sweden

Following a series of exchanges with Swedish stakeholders, the consortium identified the main bottlenecks and barriers to the deployment of renewable energy sources at local level.

- Power grids still not adapted to high proportion of renewables

Electricity production is largely fossil free, but the market is not in balance. Sometimes there is a power shortage, even if the production of electricity is enough. One problem can be power shortage in big cities, and cold winter days without wind. The intermittent energy sources (sun and wind) need to be balanced, and bio-power is one alternative that also allows local electricity production.

It is important to modernise power grids and electricity system by increasing the transmission capacity. This would allow to manage a higher proportion of renewable electricity production by. A new marketplace for ancillary services could enable wind power to provide, for example, the synthetic inertia that will be required as nuclear power is phased out. Also, some kind of financial instrument is needed to enable bio-power production.

- Excessive administrative burden

The permit process for RE installation is still long and complicated. This brings legal uncertainty that discourage projects in this field.

Permits should allow more flexibility to respond to technological developments so that e.g. wind as a resource can be utilized as efficiently as possible. A good example is the so called “box permits” which do not lay down the precise placement of each turbine in a wind farm.

- Fossil fuels subsidies

More than 30 billion SEK per year is used to subsidise the use of fossil fuels in Sweden. Tax exceptions for fossil fuels constituted 12,4 billion SEK in the state budget 2017. The largest post was the tax reduction for diesel fuels (8 billion SEK). Deductions for travel expenses led to loss of income of at least 7,3 billion.

Further, free emission rights and excess emission rights, tax exceptions for international aviation fuel, money for operation of national airports are also common practice.

Sweden has internationally promised to phase out all subsidies for fossil fuels before 2020, a deadline that is approaching fast. Therefore, the new government and parliament must take action.

- Conflicting interests

Whenever new installations are proposed, a lot of conflicting interests can emerge, in particular in the field of biodiversity protection, husbandry but also because of military restricted areas – for security issue (with no obligation to provide explanation). This causes delays or sometimes stop the RE project implementation.

Interests of all stakeholders in the territories should be taken into account, but instructions should be provided to the various authorities and agencies involved, to make sure climate issues are always taken into account before final decisions are taken.

A good example of successful cooperation among local stakeholders is provided by the city of Gotland.