BEA-APP
BALTIC ENERGY AREAS
A PLANNING PERSPECTIVE

EU STRATEGY FOR THE BALTIC SEA REGION
FLAGSHIP

Interreg
Baltic Sea Region

EUROPEAN
REGIONAL
DEVELOPMENT
FUND
EUROPEAN UNION

Regional stakeholder maps and analyses of decision flows

Ingrida Bremere,

Daina Indriksone,

Baltic Environmental Forum - Latvia

Content

Abbreviations

CHP	Combined heat and power
DH	District heating
EIA	Environmental impact assessment
EU	European Union
NGO	Nongovernmental organisation
PV	Photovoltaic
RE	Renewable energy
RES	Renewable energy sources
SEA	Strategic Environmental assessment

Introduction

The sustainable production and use of renewable energy (RE) involves and affects a broad range of stakeholders. A stakeholder mapping was performed in each of the regions participating in the BEA-APP project. Reflecting on decision making in RE projects was derived from summarizing stakeholder interview results in the partner regions.

This report is prepared within the frame of the BEA-APP project GoA3.1 "Stakeholder mapping and analysis" by BEF Latvia with contributions from the project partners: Ministry of Ministry of Energy, Infrastructure and State Development Mecklenburg Vorpommern, Skåne Association of Local Authorities, Region Blekinge, Energy Agency for Southeast Sweden, Regional Council of Central Finland, Tartu Regional Energy Agency, Zemgale Planning region, Lithuanian Energy Institute, Regional Office for Spatial Planning of Westpomeranian Voivodeship, and Roskilde University.

1. Approach to stakeholder mapping and analyses of decision flows

1.1. Schemes of decision making on renewable energy projects

Mapping of stakeholders involved in the decision making on renewable energy projects was performed in all nine regions participating in the BEA-APP project: Mecklenburg-Vorpommern (Germany), Skåne (Sweden), Blekinge (Sweden), Havdrup (Denmark), Central Finland, West Pomeranian Voivodeship (Poland), Southern Estonia, Kaunas region (Lithuania), Zemgale (Latvia).

A pre-designed template of stakeholder maps complemented with instructions for stakeholder mapping and filling-in the template was prepared (Annex 1). Eight stakeholder groups – "Public authorities", "Energy producers", "Investors", "Experts (consultants)", "Environmental NGOs", "Professional associations", "Citizen/societal groups", and "Others" having a role in the decision making on renewable energy projects were distinguished.

By performing a desk research, partners in the regions, identified stakeholders and analysed their interest and influence in renewable energy (RE) projects. Information was collected from publicly available sources. Stakeholder mapping has been performed for RE projects relevant to the region, for example, for wind, solar, biomass, biogas, geothermal projects as well as for the projects seeking solutions for district heating, applying renewable energy sources along with performing refurbishment of buildings, and for projects on heat recovery. In Zemgale (Latvia) a principal decision-making scheme for planning of RE projects has been reflected.

The results of stakeholder mapping identifying the stakeholder co-operation networks and decision-making schemes in RE projects in the participating regions have been visualized. For visualisation each stakeholder group is highlighted in a different colour:

Public authorities	Energy producers
Investors	Experts (consultants)
Environmental NGOs	Professional associations
Citizen/societal groups	Others

The role of each stakeholder (or a stakeholder group) is highlighted in schemes by a short description or a key word sited above a red arrow. Co-operation interlinkages between various

stakeholders (or stakeholder groups) during the decision-making process (wherever it was possible for partners to identify) are illustrated with green arrows.

1.2. Stakeholder interviews

Stakeholder interviews were carried out to get in-depth view from the person on communication flows with other stakeholders. These interviews were aimed to check and complete the communication routes related to roles and involvement of the stakeholders in decision making path at the RE project(s) and to analyse the interest and influence of these stakeholders on RE projects in the region by elaborating on communication aspects and identifying the needs for improvement.

The interview template was designed with pre-defined questions (Annex 2). The structure covered brief description on the level of involvement in the decision making process, the indication of stakeholders with whom the communication takes place, the reflection on satisfaction (good or difficult) with the communication and suggestions for potential improvements.

BEA-APP project partners have selected the cases reflecting RE project development in Mecklenburg-Vorpommern (Germany), Skåne (Sweden), Blekinge (Sweden), Havdrup (Denmark), Central Finland, West Pomeranian Voivodeship (Poland), Southern Estonia, Kaunas region (Lithuania) and Zemgale (Latvia). The filled interview templates were compiled and analysed to highlight the communication experience on decision making process in RE projects.

2. Wind energy projects

2.1. Decision making on wind energy projects in Mecklenburg-Vorpommern, Germany

The state of Mecklenburg-Vorpommern is one of the leading regions in the wind energy sector in Germany and is going to utilize further the potential of wind energy (both onshore and offshore) in the region[1].

Decision making on wind energy projects in Mecklenburg-Vorpommern, Germany involves public authorities at national (federal) and regional (state) level being responsible mainly for planning and consultancy, while Ministry of Energy, Infrastructure and State Development Mecklenburg-Vorpommern, Department Energy is also financing project implementation (See Figure 1.1.). There are numerous stakeholders e.g., Professional associations, Experts (consultants), Universities and Environmental NGOs providing consultancy on wind energy projects. Professional associations also support networking and information exchange. Financing and implementation of projects lays along with private companies representing Energy producers, Consultants, Professional associations. Involvement of Citizen/societal groups in the decision making on wind energy projects was not identified.

[1] www.wind-energy-network.de/en/wind-farms-north-east-germany-energy-mv.html

Figure 1.1. Decision making scheme on wind energy projects in Mecklenburg-Vorpommern, Germany

The decision-making scheme reflects the main roles and responsibilities of the key stakeholder groups involved in the decision making on wind energy projects in Mecklenburg-Vorpommern, Germany. The communication between different stakeholder groups is reflected on bases of the wind farm project "Windpark Hohen Luckow" (see Table 1.1). During the implementation of the wind farm project "Windpark Hohen Luckow" with a total of 21 wind turbines, Denker & Wulf AG and its project partner, Gut Hohen Luckow, jointly managed the planning-, approval- and construction processes as well as prepared and carried out public events. The 21 wind turbines are also operated by the two project partners, so that they are also available as a contact for the citizens, the municipality, the authorities and the institutions for the entire operating period. Already before the regional planning designation of the area and even before the application was made, various public presentations of the planned project took place in the municipality Satow and the associated districts. As a result, an urban development contract with the municipality of Satow was concluded, which arranged i.e. the number of wind turbines and their height as well as the necessary expansion of concerned public roads and the implementation of compensatory measures. Denker & Wulf AG has arranged that a breakdown of trade tax contract was concluded between the municipality of Satow and the municipality of residence of the company amounting 90%/10% in favour of the Municipality of Satow, which is significantly more favourable than the legal distribution of 70%/30%.

Table 1.1. Involvement and communication between different stakeholders at the wind farm project "Windpark Hohen Luckow", in Mecklenburg-Vorpommern, Germany

Country / Stakeholder	**Germany (Hohen Luckow/ Heiligenhagen)**
Public auth., municipality	**Involvement:** Development of the regional plan for the creation of the planning requirements for the approval of the wind farm Involvement in the approval procedure

Country / Stakeholder	Germany (Hohen Luckow/ Heiligenhagen)
	Communication: With **public authorities** (in particular, nature conservation agency) to agree on location criteria and potential areas during the development of the regional plan; participation procedures prescribed by law With **other stakeholder groups** according to procedures prescribed by law **Findings:** If citizens do not see the transparency in the planning process they assume that a common cause would be made with interested entrepreneurs and the planning would only serve the profit interests of few private beneficiaries.
Municipality	**Involvement:** Little opportunities for participation and decision-making for the municipality (due to provisions in the planning programme) **Communication:** With **public authorities** on examination of the opportunities of influence by **the municipality** With **investors** for consultation with a focus on technical and local opportunities and conditions With **citizen/ societal groups** at meetings (e.g., with the district, investors, at local council) on sharing of information **Findings:** Difficult communication with many inhabitants because of their negative attitude Wish for willingness of investors for participation of citizens in economic results of the wind turbines Wish for possibilities for taking into account also "subjective" opinions of citizens (on top of legal restrictions).
Energy producers	**Involvement:** In the whole process **Communication:** With **public authorities**, **professional associations**, environmental **NGOs** and with **citizen/ societal groups**. **Findings:** Communication with all actors was very open and constructive. For example, issues related to species protection could be resolved in the dialogue between the UNB, the Ministry of the Environment and the responsible body of the project. It was a goal-oriented cooperation at all levels. It is very important that the responsible body of the project informs the inhabitants and the municipality as early as possible and integrates them into the planning process.
Investors	*Covered at a stakeholder "Energy producer"*
Experts (consultants)	*Covered at a stakeholder "Energy producer"*
Professional associations	**Involvement:** In the context of the approval planning **Communication:** With **public authorities** on examination of opportunities of influence by the municipality With **energy producers** and **investors** on coordination of line corridors, compensatory measures With **experts** on compensatory measures **Findings:** In general, good communication with all involved parties
Environmental NGOs	**Involvement:** Participation of recognized nature conservation associations in the EIA procedure (within the approval procedure according to BImSchG) **Communication:** With **public authorities** to request for documents With **experts** (TÜV Nord) to obtain response on the statement regarding critique of the sound impact assessment

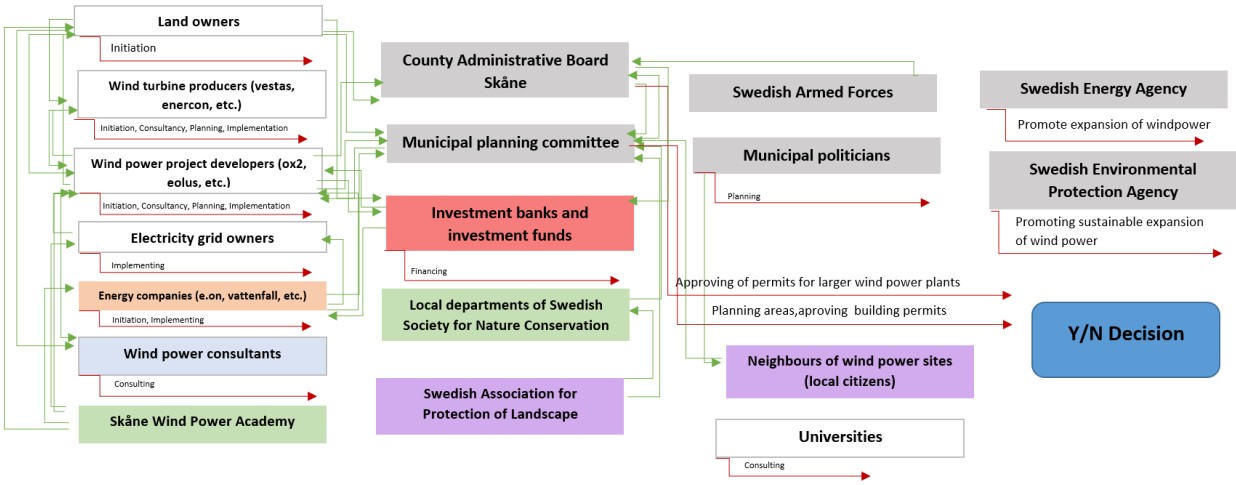
Country / Stakeholder	Germany (Hohen Luckow/ Heiligenhagen)
	Findings: Participation in the EIA procedure, however, no knowledge on outcomes Scoping should not be omitted Evaluation and weighing of the statement Inform about invitations to the project presentation

2.2. Decision making on offshore wind energy projects in Skåne, Sweden

It has been estimated that due to changes in technology and cost development is creating favourable conditions for offshore wind power development having a possibility to become one of the most competitive power production plants soon. Located about 10 km off the coast of southern Sweden, the Lillgrund wind farm is the largest offshore wind farm in Sweden having 48 wind turbines and a capacity of 110 MW[2]. Since recently a great interest in future wind power projects outside the south coast of Skåne has been observed.[3]

The decision making on offshore wind energy projects in Skåne involves stakeholder groups from various levels (see Figure 1.2): public authorities dealing with planning and issuing of permits, project developers, investors, energy producers involved in implementation of wind energy projects and several institutions promoting the use of wind energy. The interests of society (local citizens affected by wind power establishments) are expressed through citizen/societal groups having a communication with public authorities at municipal level. Environmental aspects of wind energy are communicated by Local departments of Swedish Society for Nature Conservation cooperating with public authorities as well as by Swedish Environmental Protection Agency.

Figure 1.2. Decision making scheme on offshore wind energy projects in Skåne, Sweden



The decision-making scheme reflects the main roles and cooperation interlinkages of the stakeholder groups involved in the decision making on wind energy projects in Skåne, Sweden. In more details the communication between different stakeholder groups is reflected on bases of the stakeholder interviews (see Table 1.2). The Investor has described the background of wind energy development -

[2] www.power-technology.com/projects/100mwlillgrund/
[3] www.trelleborgshamn.se/en/seminar-offshore-wind-power-skane/

as there was a political decision that Region Skåne should own wind power to produce 40 % of our electricity use – six windmills. For this decision we had 315 million SEK to make a public procurement. The requirement was 55-60 GWh/year produced energy and that all permission should be in place. Investors own and produce energy themselves. Communication patterns with stakeholders from the public authority, business (energy producers and investors; as well as experts/ consultants and professional associations), and the society (environmental NGOs and society groups) provide the broad perspective of attitude.

Table 1.2. Involvement and communication between different stakeholders on wind energy projects in Skåne, Sweden

Country / Stakeholder	**Sweden (Skane)**
Public auth., municipality	**Involvement:** Advisory in an early phase for companies and other stakeholder groups Decision making where we make an assessment in our court **Communication:** To get the view and professional assessment from **municipalities and other authorities** (e.g., the military, the Environmental Protection Agency, depending on the project). With **experts/ consultants** depending on which expertise needed. With **professional associations** more in general to participate in seminars With **citizens/ societal groups** on exchange of information **Findings:** Communications works fine with all stakeholders in most cases. A lot of people question the development and they are sometimes quite "loud".
Energy producers	**Involvement:** In the whole process **Communication:** With **public authorities** for the permits With **energy producers** and **investors** for exchange of experience With **experts** (both, within and in other companies) to get the best competence in the different parts With **professional associations** for experience exchange (have contacted ornithological association to discuss risks) With **citizen/ societal groups** to get acceptance and understanding of the process **Findings:** Especially good communication with stakeholders where there is a business relation Difficult communication with citizens, local residents, if they are not positive
Investors	**Involvement:** Make a public procurement **Communication:** With **experts – consultant**, who helped to do a professional procurement of the windmills With **professional associations** within a transparent process, where investors were open with their thoughts before the procurement With **citizen/ societal groups** as there were groups against wind power mills and these talked to investors as soon as hearing about the plans **Findings:** Good communication and dialogue to clarify issues within the procurement process
Experts (consultants)	**Involvement:** Drive and develop wind energy projects (technical development, licencing process, the judicial review) **Communication:** With **public authorities**, as requested by law, consultation and judicial review With **investors** at early phase in the projects (often international investment companies and funds) With **experts** (other consultants)

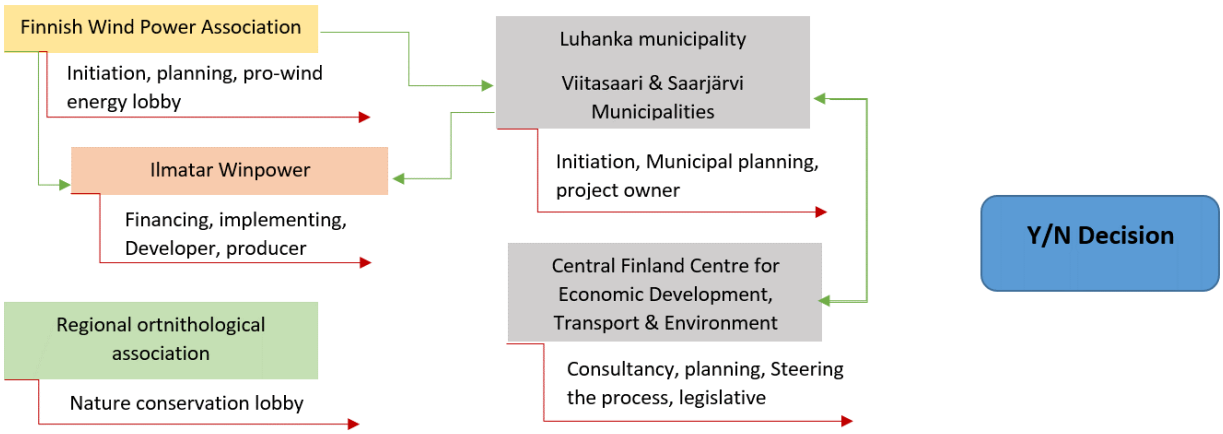
Country / Stakeholder	Sweden (Skane)
	With **professional associations** as they get involved as consultative bodies With **citizen/societal** groups – local residents to get acceptance and understanding **Findings:** Good communication in most cases where there is a business relationship Difficult to communicate with citizens/ local residents
Professional associations	**Involvement:** Suggest changes for authorities in a national context **Communication:** With **public authorities** to show the perspectives With **energy producers**, **investors** and **experts** - members of the own organization With **professional associations** and environmental **NGOs** to discuss and exchange experience With **citizen/ societal** groups to discuss and debate, to make a more positive opinion (in the longer term)
Environmental NGOs	**Involvement:** Give an opinion in referral rounds (regional and local) Make comments on projects (by chance) **Communication:** With **public authorities** if asked for a "statement" or contacted by NGO for expression of the view With **energy producers** (seldom in the decision-making process); sometimes NGO invites them for getting educated With **experts** on occasional basis (either they contact or NGO contact for an inventory) With **citizen/ societal** groups **Findings:** Difficult communication when involvement is very late in the process
Citizen/ society groups	**Involvement:** In all levels, as soon as noticed about the plans Appeal against the plans **Communication:** With **public authorities** to complain on the plans, to make an impact on officials and on courts With **energy producers** to question their marketing and their interests With **investors** to understand the reasons for money investments With **experts** to explain [own] view and argue against the plans With **professional associations** to get better understanding in other cases, debate in the media With **citizen/ societal** groups (neighbours) to discuss the problems, to support the affected citizens **Findings:** The communication with neighbours worked well. We understand each other, and we didn't want the project to be realized as planned. Difficult communication with the municipality and with the ones responsible for the project. We've had different opinions and I don't think they've listened to us. Wish for communication with local residents early in the process

2.3. Decision making on wind energy projects in Central Finland

Although being a relatively new mode of electricity generation in Finland, by the end of 2016 already 552 wind turbines in Finland have been erected with the total capacity of 1533 MW[4]. It is evaluated that the country has a good potential to increase wind power capacity considerably.[5]

Several public authorities, Finnish Wind power association, a wind power developer company "Ilmatar Windpower" as well as Regional ornithological association are institutions involved in the decision-making process on wind energy in Central Finland (Figure 1.3.). Cooperation links are established between public authorities being responsible for municipal planning, project developers and professional associations. Regional ornithological association are representing and lobbying nature conservation interests.

Figure 1.3. Decision making scheme on wind energy projects in Central Finland



2.4. Decision making on wind energy projects in West Pomeranian Voivodeship, Poland

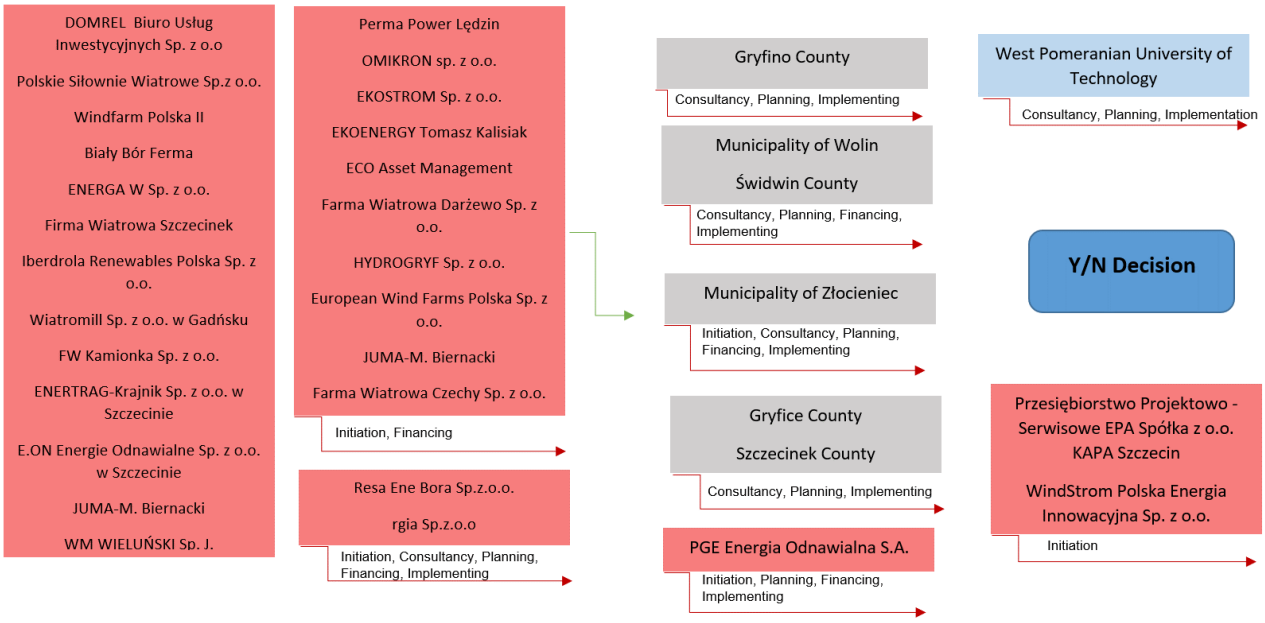
During the previous decade (2005-2016) wind power has been having the most dynamic development among all RES in Poland, with an almost 70-fold increase. By the end of 2016 the total installed capacity in wind farms in Poland has reached 5.8 GW. The largest capacities are installed in West Pomeranian province. Nevertheless, the further development of wind energy in Poland is challenged by various economic and legislative aspects.[6]

Along with several public authorities at the county and municipal level having the main role in the decision making on wind energy projects e.g., by elaborating spatial development plans allowing to locate wind energy farm, there are many investor companies in the region preparing applications for wind energy projects (see Figure 1.4). Investor is consulting project with municipality on stage of adoption of master plan or the decision on land development. The West Pomeranian University of Technology provides consultancy on wind energy projects e.g., on health impacts from wind energy

[4] www.tuulivoimayhdistys.fi/en/wind-power-in-finland/industrial-wind-power-in-finland/industrial-wind-power-in-finland
[5] www.tuulivoimayhdistys.fi/en/wind-power-in-finland/wind-power-in-finland
[6] http://psew.pl/wp-content/uploads/2017/06/Stan-energetyki-wiatrowej-w-Polsce-w-2016-r.pdf

parks and on life cycle assessment of wind power farms. Involvement of other stakeholder groups in the decision-making process has not been identified by the desk research performed.

Figure 1.4. Decision making scheme on wind energy projects in West Pomeranian Voivodeship, Poland



The decision-making scheme reflects the main roles and cooperation interlinkage of the stakeholder groups involved in the decision making on wind energy projects in West Pomeranian Voivodeship, Poland. In more details the communication between different stakeholder groups is reflected on bases of the interviews (See Table 1.3).

Table 1.3. Involvement and communication between different stakeholders on wind energy projects in West Pomeranian Voivodeship, Poland.

Country / Stakeholder	**Poland (West Pomerania)**
Public auth., municipality	**Involvement:** Public consultations Decision making Working groups **Communication:** With public authorities on legal requirements With investors at working groups and due to the interest With experts due to need for the experts' opinion With citizen/ societal groups at consultations (by legal requirements) **Findings:** Good communication with the experts, public authorities, and investors – common goals and interest from other stakeholders Difficult communication with local society – lack of awareness
Investors	**Involvement:** Responsible for the whole development process Control over preparation of the investment Take part in consultations, make decisions **Communication:** With **public authorities** on administrative procedure With **energy producers** for obtaining the connection conditions (legal obligation)

Country / Stakeholder	Poland (West Pomerania)
	With **experts** for supporting the process with corresponding reports With **professional associations** for help and support in maintaining contacts with stakeholders With **citizen/ societal groups** in public consultations (legal obligation) in order to maintain relations with local community (for the benefit of the project); in order to acquire the ground (legal and administrative obligation) **Findings:** Good communication with experts on business relations; with professional associations as there is a common goal for development and popularization of RES; with energy producers on network development; with public authorities due to flexible approach to the problems and open mind for solutions Difficult communication with public administration due to long procedures, lack of knowledge about RES

2.5. Summary on communication between stakeholders

Wind energy in Europe is one of the fastest growing applications in power generating capacity in the EU. The technological development has reached the level of maturity and the onshore wind is assumed as the cheapest form of new power generation. However, wind energy growth pattern is facing a dualism in attitude. On a general level European population is in favour of wind energy and there is a positive reaction by political stakeholders (EU wide, national and regional levels). While on a local level developers are often confronted with criticism and opposition due to negative environmental effects on a local level, threat to well-being or to key economic activities, assets, future development and due to creation of industrialized landscape in rural and natural areas.

The dualism in stakeholder attitude towards wind energy projects was found in the BEA-APP analysis of the interest and the communication pathways in the regions. Evaluation and proposals for communication are summarized below.

Local authorities call to keep communication issues within the competencies given by the legal frame as often the requests from certain stakeholder groups (citizens, societal groups) extends beyond the legal frame (e.g., *by law we don't look at real estate prices in the decision-making*). Local authorities think, that *sometimes societal groups make a stand on things that's more general and they forget about more locally and more important conditions.* In communication the local authorities would wish to improve the content-related transparency.

Energy producers and investors wish to speed up the permitting process and get faster responses from authorities. This would involve, e.g., *shorter and simpler administrative procedures, adapting the procedures to the reality of development and implementation of RES, especially in the area of lowering the risk and uncertainty.* In addition, investors are concerned about some procedures, e.g., for obtaining the connection conditions and then the *investor carries a risk and 4 years of planning outlays, which can abruptly end because there is no possibility of creating a technical connection.* Insecure legal environment can hinder the good communication process as well. For investors the important communication occurs in the phase of tendering: *when all the tenders came in, we arranged a meeting with everyone to discuss, to have a dialogue and to clarify some things. I think it went very well and all involved were satisfied we listened to them.* A professional consultant was hired to make the procurement and handle the process. To foster the communication and transparency, *we had a press conference where we let media to know about the procurement, the process (time schedule and budget) and the winner company. There was a great acceptance for the procurement.*

Experts (consultants) are concerned about the suspicion accompanying the process: if *there were a bigger confidence, and less suspicion, in general for consulting and project managing companies and for the investigations we do. There is no hidden agenda*. Experts request for more open and transparent process.

Professional associations usually are branch organizations working in a broad field and on national context. Thus, the communication occurs on both the national and regional/ local level; however, the affiliation to the locality is predominantly on temporary basis. For efficient communication the professional associations wish for clear municipal strategy plans for localization of new wind power plans: show suitable and current areas for wind power establishments. *…In that process they have consultations, and everyone could say what they think. In that way, in the first round the municipalities could focus on localisation for new wind power, the municipalities could give its advocacy earlier in the process and then it's up to the regional level to approve the plans or not. …Already for the approval, all sub-areas affected by the measure should be planned as far as possible in detail and agreed with the partner. Subsequent postponing of fundamental decisions to a later date (for example execution construction work) always involves finding solutions to cost savings and thus minimizing the goal or the durability / stability of a solution*. From the point of view of professional associations, it is important to avoid long consultation processes: *now the process is long and expensive for the wind power companies and sometimes the consultations create harder conflicts and it scares and affects the municipalities to require complete environmental impact report.*

Environmental NGOs are giving an opinion (regional and more local). However, *we feel quite often that we get involved very late, sometimes too late, in the processes, and quite often we don't get involved at all.* Focus of communication from environmental NGOs is often directed to raise capacity and educate stakeholders, e.g., municipalities, citizens, societal groups. Thus, the environmental NGOs see a need for often meetings and communication among stakeholders, both, with those who are pro and those who are against wind power.

Citizen/ societal groups, especially on local level, are the ones expressing citizens` concerns. This stakeholder has a permanent strong affiliation to the locality of the wind power plant. Stakeholder interviews within BEA-APP have revealed a facet of opposing views from society groups where communication activities are directed against the plans trying to affect politicians, complain against plans, and support involved land-owners: *we write letters and debate posts and to support the citizens who gets affected of the wind power plans, in the courts we appeal against the plans*. This stakeholder group have different opinion with those responsible for the project and there is a lot of frustration about the process. … *The project says there have been consulting and information meetings, but I mean it's wrong. There haven't been arranged any of those meetings. They should talk to local residents early in the process. I think we have a good dialogue with all stakeholders, but of course there's a difference too in between. Authorities have their laws and rules. The ones that want to build wind power want to earn money. So the understanding is a little different depending on their interest. The wind power companies want to make money on the projects so sometimes they keep away from the truth consciously. Authorities show ignorance and lack of knowledge sometimes – there have been a lot of different assessments in courts despite same conditions. The wind power companies who want to build never tell the whole truth – just parts that sound good. But the policy makers should know better – they make up their decisions based on what info they've been sent. There's a lot of example where authorities haven't follow all their rules!* Other stakeholder groups have pointed out the effort to discuss and debate with citizen/ societal groups to make a more positive opinion about the development of wind

energy power plants at the locality. However, limited success has been achieved. Thus, the developers of wind power plants need a good communication strategy to approach local citizens.

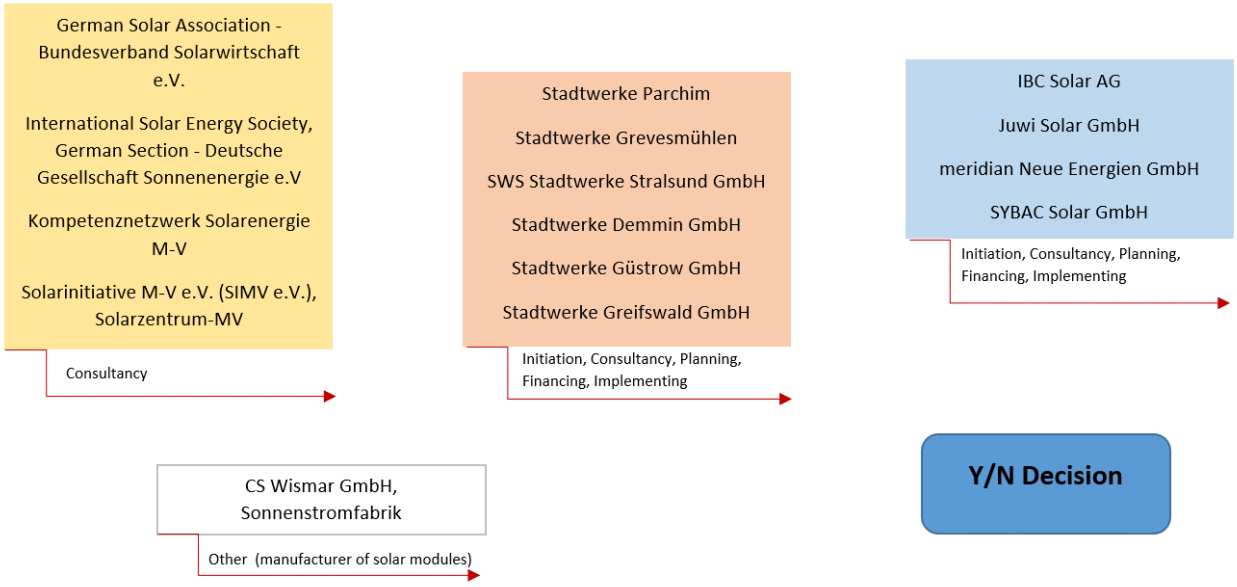
3. Solar energy projects

3.1. Decision making on solar energy projects in Mecklenburg-Vorpommern, Germany

Being one of the leading regions in Germany in the field of wind energy, the Mecklenburg-Vorpommern, utilises also solar energy contributing to the power supply of the region[7]. For example, in 2015, the State increased its net share of renewables in power supply up to 130% by onshore wind, power from biomass, photovoltaic and offshore wind[8].

Energy producing companies and along with professional associations are the key stakeholders involved in implementation of solar energy projects in Mecklenburg-Vorpommern, Germany (see Figure 1.5). Several ground mounded systems, roof installations have been erected in the region by various energy producing companies. Professional associations are involved in networking, consulting, transfer of information and knowledge on solar energy projects. The identified consulting companies provides consultancy and performs the search for suitable location, carries out planning, financing, implementation, and operation management.

Figure 1.5. Decision making scheme on solar energy projects in Mecklenburg-Vorpommern, Germany



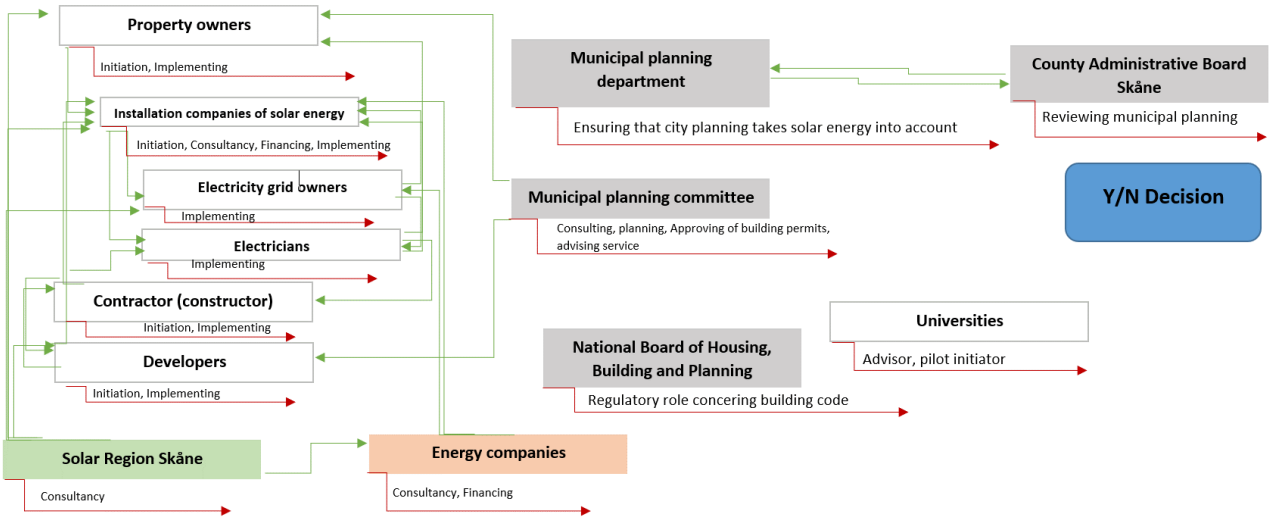
[7] www.ibc-solar.com/corporate/press/article/news/detail/News/ibc-solar-launches-new-solar-park-in-the-german-state-of-mecklenburg-west-pomerania/
[8] http://meetingoftheminds.org/germany-will-use-80-100-percent-renewable-energy-2050-15667

3.2. Decision making on solar energy projects in Skåne, Sweden

It has been evaluated that although the number of installed photovoltaic systems in Sweden is increasing rapidly, solar power still accounts for a marginal share of total energy production[9].

Public authorities on a national, county, and municipal level are responsible for planning, construction requirements and approving of building permits for solar energy projects in Skåne, Sweden (see Figure 1.6). Several other stakeholders e.g., developers, property owners, electricity grid owners, installation companies are involved in initiation and/or implementation of solar energy projects and are having close cooperation between each other. Universities and NGOs are providing consultancy and are promoting solar energy development in the region.

Figure 1.6. Decision making scheme on Solar energy projects in Skåne, Sweden



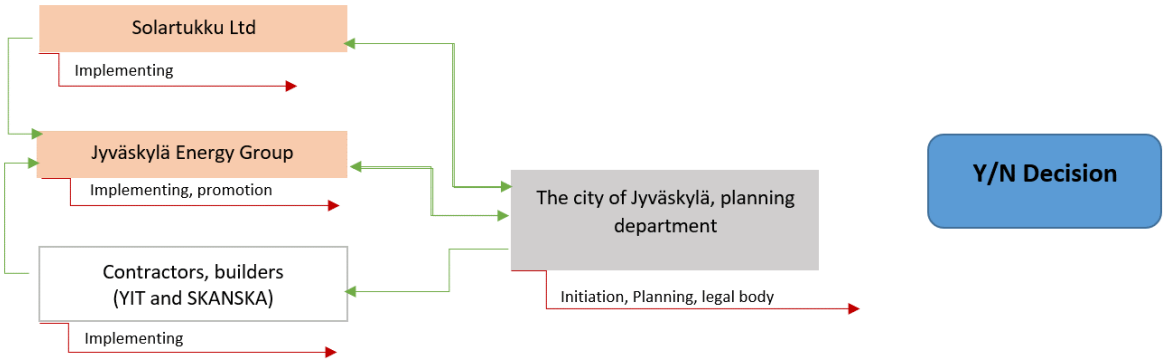
3.3. Decision making on solar energy projects in Central Finland

It has been estimated that since 2014 due to drop in prices for solar panels, under certain conditions, solar energy is profitable in Finland. PV deployment in Finland has increased over the last two years - Finland's total PV capacity rose from 11.2 to 14.7 MW in 2015. The country's biggest solar plant (capacity 420 kW) erected in June 2015 and covering large area of roof top is in Oulu.[10], [11]

Decision making on solar energy projects in Central Finland involves the following stakeholder groups – a public authority responsible for municipal strategic and land use planning, an energy producing company, a supplier of PV and solar thermal solutions, and construction companies are involved in practical implementation of solar energy projects (see Figure 1.7). All stakeholder groups are cooperating between each other in the decision-making process.

[9] www.fedarene.org/featured/skane-the-eu-funded-project-sol-i-syd-17004
[10] https://finland.fi/business-innovation/finland-reaches-for-the-solar-switch/
[11] www.pv-magazine.com/2017/02/07/finland-to-slowly-use-its-solar-potential/

Figure 1.7. Decision making scheme on Solar energy projects in Central Finland



The decision-making scheme reflects the main roles and cooperation interlinkage of the stakeholder groups involved in the decision making on solar energy projects in Central Finland. In more details the communication between different stakeholder groups is reflected on the bases of solar energy project in Kangas area (See Table 1.4). Kangas area has been a place for new ideas, businesses and innovations for a long time. In middle of 1800`s it was filled with water mills and later there were all kinds of businesses wanting to get their share of the river Tourujoki. Kangas paper mill was opened in 1874, and this paper mill was closed in 2010. Thus, the area of 27 ha became the property of the City of Jyväskylä in November 2011. The Kangas project is the main urban development project in Jyväskylä for the next several decades. The City Council has approved the master plan for Kangas at the end of 2013. Residential construction has started in 2016. There are already several companies located in Kangas. Also, some educational institutions have moved to Kangas. First homes to Kangas are ready in the beginning of 2017. In the future Kangas will be a home to 5000 inhabitants and 2101 new jobs. In March 2016 a first building with solar panels (152 panels, total length 65 m) was agreed with installation on the roof of an old conserved building. For Jyväskylä Energy Company it was first power purchase agreement.

Table 1.4. Involvement and communication between different stakeholders on solar energy projects Central Finland

Country/ Stakeholder	**Central Finland (Kangas area)**
Public authority	**Involvement:** City planning (zoning) – allows to install solar panels, determines shape of the roofs and direction of houses Approving the project **Communication:** With **regional public authorities** and the **municipality** on planning process (legal) With **energy producers** as they wanted to have a local pilot case for solar energy production With **citizens and citizen associations** to get their opinion With **architects** during the architecture competition in discussion about the demands for solar energy **Findings:** Very good communication with energy producers as they wanted to have a reference in solar energy production Construction companies were reluctant on making investments in solar energy
Municipality	**Involvement:** Project organization and management of investment

Country/ Stakeholder	Central Finland (Kangas area)
	Communication: With **public authorities**: inspection of construction authorities on legal construction permission, museum of Central Finland due to conserved building; ministries (economic affairs and environment, finance) on taxation of the solar energy production and system boundaries With **energy producers** as they enabled solar panel installation through new business model, the power purchase agreement for solar power production. With **investors** on making the investment decision With **experts** to get reliable and non-biased information With **owner of the building** (city owned company) to convince them With **renters** (customers) of the building With politicians (members of Parliament from Central Finland and politicians from the energy renovation campaign) to allow the investment grant on residential buildings **Findings:** Communication has been easy. All the partners involved in this project saw solar power as a very important and positive issue. Everyone was eager to find the win-win solution. Was not always easy and it took some time to get the concrete investment, also willingness to pay the chosen decision.
Owner of the building	**Involvement:** Has a role in city planning process and a right to comment the construction permission (of conserved buildings) Participated in Kangas area working group and public hearings **Communication:** With **public authorities** – acts as an authorizing body With **professional associations** (organizations of conservation of buildings and cultural environment, consultants and architects, bodies related to building research) on general discussion about the topic **Findings:** Good communication with all the stakeholders; the process was well prepared. Until now the general attitude towards solar panel installations is positive; but, at some point critical discussion in building conservation and cultural environment field might occur.
Energy producers	**Involvement:** Investments, investment model and the scope of contract **Communication:** With **public authorities** to negotiate the model of the contract, price, solar panel provider; with representative of the specific real estate on how the solar panels can be installed on the roof; on investment grant; on official inspection of the installation With **citizen/ societal groups** on providing information (video, articles, interview on radio, presentations at seminars) With **specific stakeholders** on the solar power system, connection to the grid **Findings:** Good communication with all the stakeholders Everyone was committed to the common goal

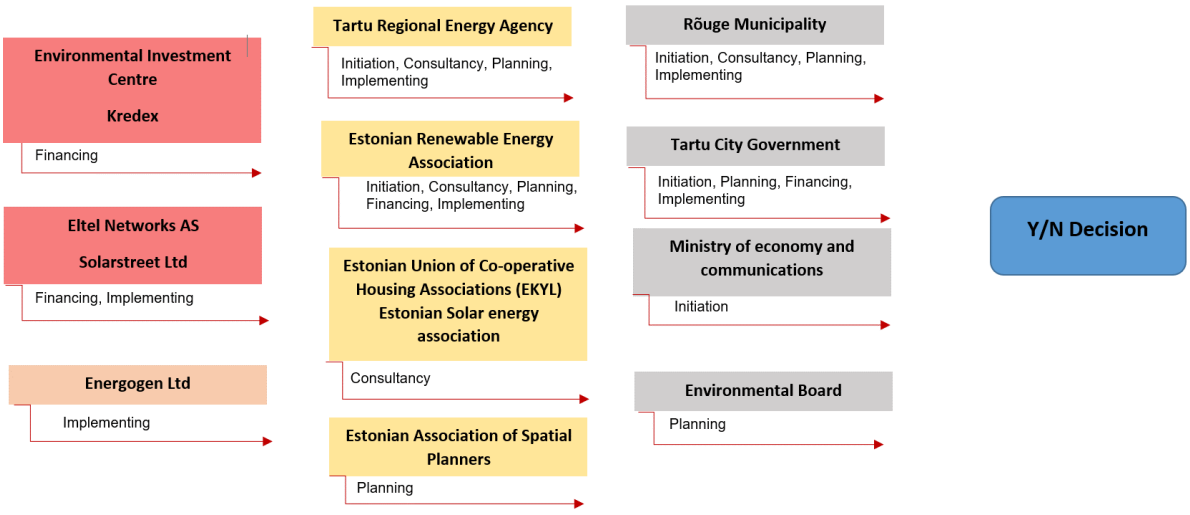
3.4. Decision making on solar energy projects in Southern Estonia

Calculations based on solar resource data show that solar electricity generation is viable in Estonia.[12] Solar plant, e.g., in Võru (southern Estonia) has been developed already in 2012, while the biggest solar power plant in Estonia is the town of Kärdla (Hiiumaa island).[13], [14], [15]

[12] www.energysmart.ee/solar-park-development

Several public authorities on national and municipal level are involved in initiation, planning and decision making on solar energy projects in southern Estonia (see Figure 1.8). Environmental board is also responsible for environmental permitting. Various professional associations are providing consultancy on solar projects as well as are promoting and disseminating information on use of solar energy. Public and private investors are providing finances and in some cases, are also responsible for implementation of solar energy projects in southern Estonia.

Figure 1.8. Decision making scheme on Solar energy projects in Southern Estonia



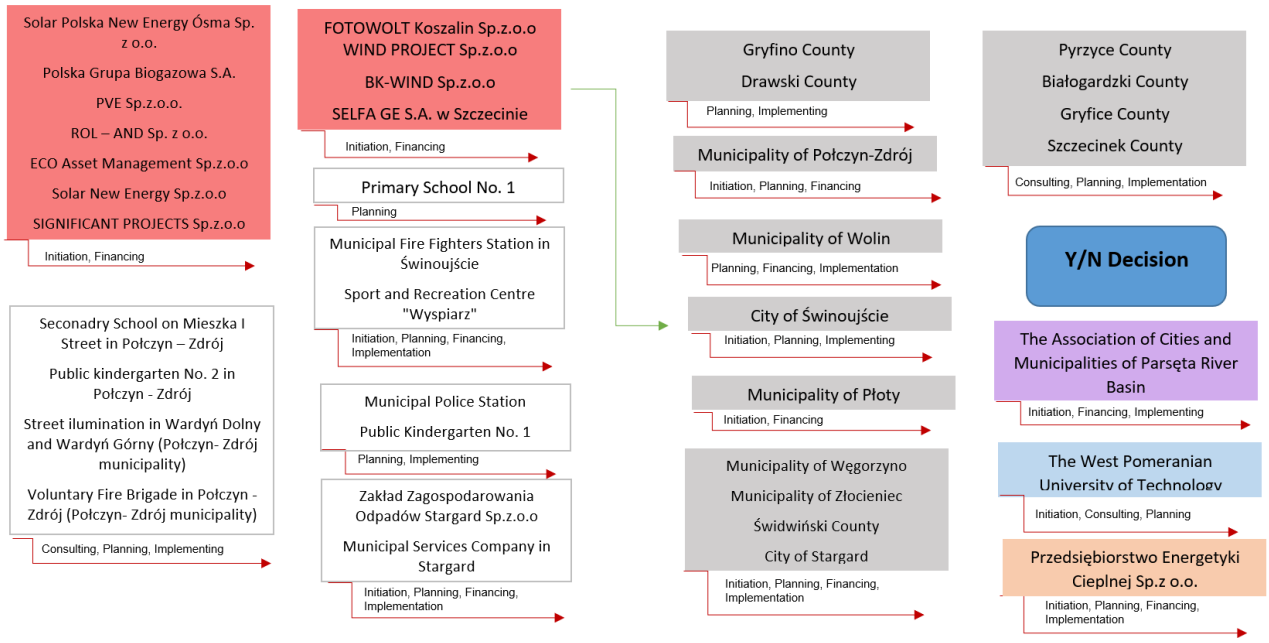
3.5. Decision making on solar energy projects in West Pomeranian Voivodeship, Poland

It has been evaluated that geographically, Poland is suitable for generation of electricity from solar energy throughout the whole year. The use of solar energy in Poland has been rapidly increasing during the recent years with 73 MW of residential and commercial solar added in 2016. Poland supports solar systems up to 40 kW with a net metering scheme under its Renewable Energy Law (2016).[16] It is estimated that solar PV capacity in the country will rise to 15.83 GW by 2050. [17]

More than 30 projects related to solar energy have taken place in West Pomeranian Voivodeship, Poland in recent years. Some of these projects are already implemented, while some are still ongoing. Various stakeholder groups have been involved in the decision making on solar energy projects e.g., public authorities (county and municipal authorities), investors, university experts (consultants), an energy producing company (see Figure 1.9). Municipalities along with an Association of Cities and Municipalities of Parsęta River Basin have been involved in public consultation with the inhabitants. Investors are consulting the project with municipality on stage of adoption of master plan or the decision on land development (stage before issue of the construction permission). Besides these main stakeholder groups there are many institutions e.g., schools, municipal service providing companies being leaders and main initiators of implementation of solar energy projects.

[13] www.pv-magazine.com/2012/09/07/energy-smart-plans-pv-projects-for-estonia_10008381/
[14] www.renewableenergymagazine.com/pv_solar/solar-trackers-employed-at-estoniaa-s-largest-20120830
[15] https://news.postimees.ee/4002549/hiiumaa-to-host-estonia-s-most-powerful-solar-plant
[16] www.decentralized-energy.com/articles/2017/06/on-site-solar-is-booming-in-poland.html
[17] http://renewablemarketwatch.com/news-analysis/192-new-hopes-for-solar-market-in-poland

Figure 1.9. Decision making scheme on Solar energy projects in West Pomeranian Voivodeship, Poland



3.6. Summary on communication between stakeholders

The BEA-APP analysis on the involvement and the communication pathways between stakeholders refers to the urban development project where the old industrial site is converted into an attractive business and living quarter. In general, the interview respondents have expressed their opinion on very good experience from the planning process and related communication. Very clear frame has been set: *the goal of the project has been very clear and the process has been prepared and managed well by the city of Jyväskylä.* Evaluation and proposals for communication from stakeholders are summarized below.

Public authorities have pointed out that it is very important to justify the purpose of the plan and in the case of Kangas project it has happen in a good way: *the opinions of different stakeholders have been taken into account from the very beginning.* Success of the solar energy project was backed up by a positive attitude: *all the partners involved in this project saw solar power as a very important and positive issue. Everyone was eager to find the win-win solution.* However, the precaution has been expressed about the practical implementation: *construction companies were quite interested in solar energy in theory. However, when it comes into practice, none of them were interested in investing on solar panels or even be prepared for future installations.* Some criticism from public authorities was attributed to putting too much weight on investment costs as there are other values and benefits to highlight, e.g., renewable energy production, image. Public authorities were putting high weight on information flow to support communication: *it is important to get reliable information of the solar power production. The information of the solar energy is fragmented and that is why the role of the individual project partners is emphasized. Thus their attitude towards solar energy is very crucial. You need to be aware of the possible risks and make a risk analysis before the investment decision. Solar power providers could be more active towards city planners/architects and to tell them about the solar power production, future development etc. In that way they could take those issues into account when planning new areas.* From the public authorities' perspective, *the most difficult issue is legislation, as*

*there are many barriers, which can prevent good projects. Public actors (e.g. cities) should be more ambitious in measuring their activities. You should find the right indicators and then measure whether or not your strategic goals are achieved. In the future municipalities will have more responsibility to reconcile different land use demands and to make the impact assessment.*The profound role of residents who (will) live at the buildings is on efforts to *try to effect on construction companies to invest in solar power production.*

Municipalities have a crucial role in initiating, facilitating and managing the projects. The real contribution from a city is on planning aspects: *City has prepared the detailed plan of the Kangas area. Detailed plan contains e.g. directions of the buildings and shapes of the roofs to maximize the solar energy production possibilities.* Another important activity is to support communication: *City has been very active in communication and promotion of the solar energy production with different stakeholders. City has also participated in different projects (e.g. Finsolar, http://www.finsolar.net/en_US/) and given speeches in many seminars. Gaia Consulting has prepared a study of optimal solar power production in Kangas area. Working group during this process included participants from e.g. building control of the city and from the city planning/zoning.* However, it was admitted that the role in practical implementation is rather limited: *on higher, strategical level the city is enabling and enhancing solar energy production, but in practise the investors make the decisions.* In the case of Kangas project: *it was good that the owner of the building was city-owned company and it was thus rather easy to convince them, although, at one stage it looked very unclear that the investment would proceed. The investment was difficult from the economic point of view.* The attitude from the renters companies at the building is crucial as they can support or hinder the application of solar energy. In case of Kangas project, the supporting attitude was in place: *the renters were very positive towards solar energy; another renter has also ethical values and interested in solar energy. Many global companies are rather located in the building/area in which there is renewable energy as they can use it in their marketing and it´s according to their values. The model was planned together with the project partners as it had to be economically viable for all of the partners. Co-operation was very good as well as their competence and broad-mindedness.* Some criticism from municipalities, however, was directed towards ministries: *different ministries see the issue from their own point of view and the overall picture is not always taken into account. There are structural challenges/obstacles which prevent investments in solar energy (e.g. taxation and energy transfer fee).*

Owner of the building (museum) in the case of Kangas project was an outstanding stakeholder, because the solar panels were installed on the roof of an old conserved building. The owner of the building has *a role in city planning process, has a right to comment the construction permission of conserved buildings.* The owner of the building has admitted that: *the communication was good during the whole process* and they *could benefit if they got independent information of new technology, such as solar panels.*

Energy producer made the decision to invest in solar panels, and the investment model and the scope of the contract was fixed together with the customer. The customer decided to buy the chosen product (power purchase agreement: the customer pays fixed price monthly, so it is not directly related to amount of energy produced), although, the final investment decision was made by the energy producer. The investment aid from the state, 30 % of the investment was crucial for the decision. Without the investment aid the investment would have been smaller. The energy producer is hoping for further development: *when these installations become more common the process will be even smoother as the partners have better knowhow of the project steps. Hopefully the solar energy goal of the Kangas area will be kept in mind during the next stages of zoning and construction of the area.*

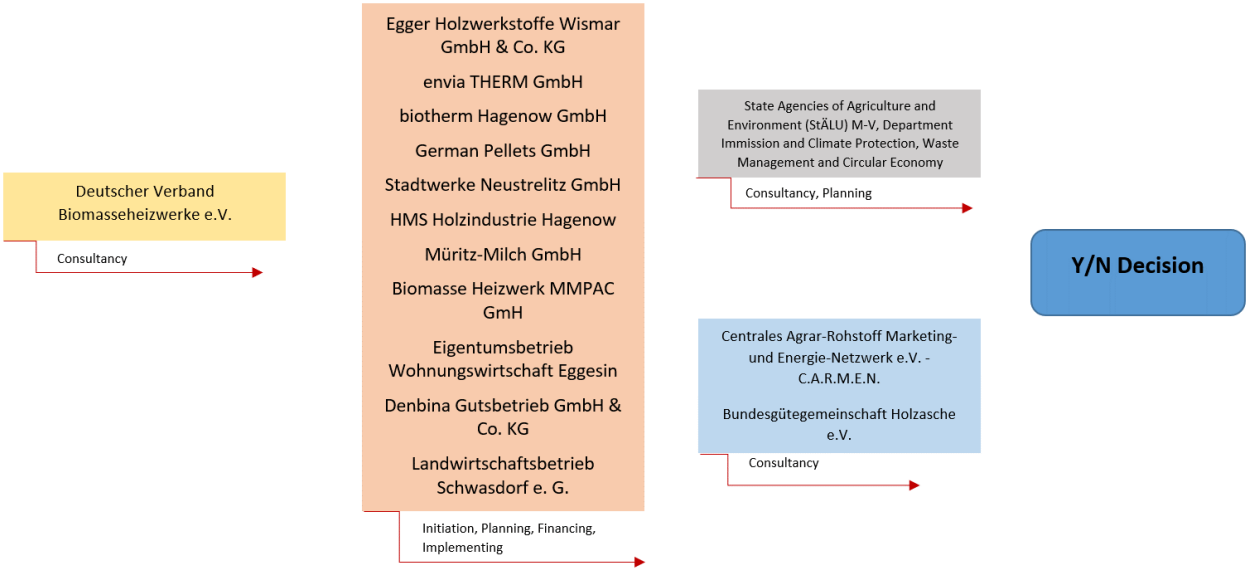
4. Biomass projects

4.1. Decision making on biomass projects in Mecklenburg-Vorpommern, Germany

During the past decade the focus Mecklenburg-Vorpommern has significantly changed towards renewable energy. Bio-energy is the second most common energy source in the region after wind energy. There are currently about 263 biogas and biomass facilities in operation in the region.[18]

The State Agencies of Agriculture and Environment are the main public authorities responsible for consultancy, planning and approval of biomass projects in Mecklenburg-Vorpommern, Germany. There are several energy-producing companies: operators of biomass CHP plants and straw heating systems in the region responsible for initiation, planning, financing, and implementation of biomass projects (see Figure 1.10). A professional association is providing consultancy on legislation, environmental standards; appropriate utilisation of ashes, security of supply of solid fuels and other issues. There are experts/consultants making market and potential studies; screening, quality analysis and quality management of wood-fired heating plant and experts/consultants responsible for certification of natural wood ashes. They ensure the dialogue between politicians, public authorities, institutions, associations, NGOs and companies. Nevertheless, particular involvement of environmental NGOs, citizen/societal groups have not been distinguished during the stakeholder mapping performed.

Figure 1.10. Decision making scheme on biomass energy projects in Mecklenburg-Vorpommern, Germany



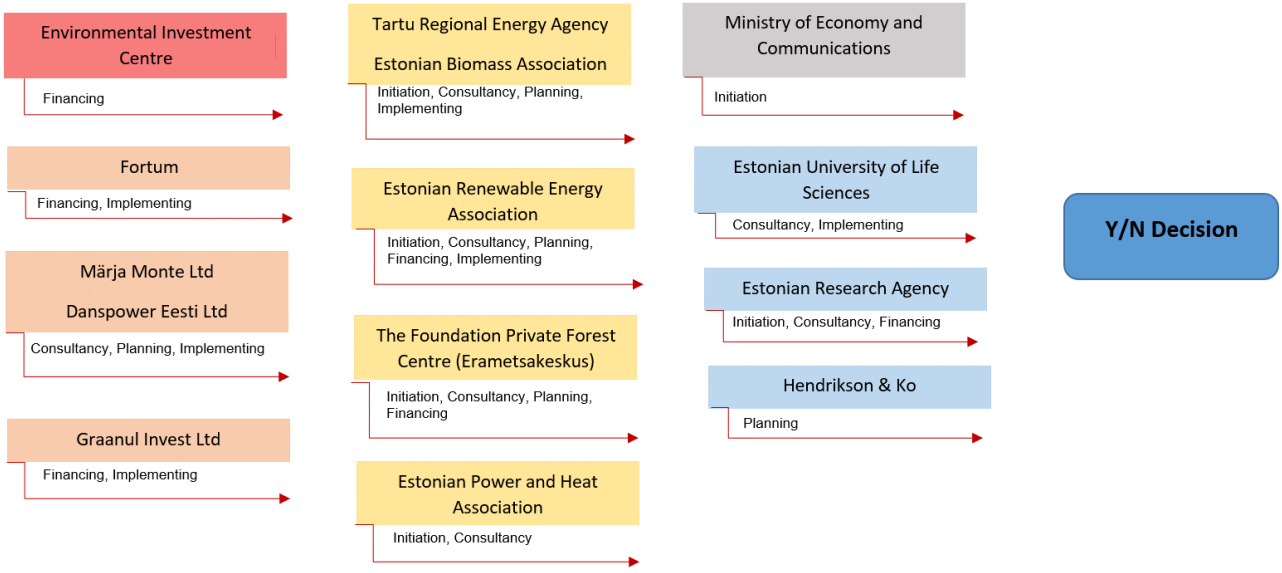
[18] www.invest-in-mv.de/en/industries/renewable-industry/

4.2. Decision making on biomass projects in Southern Estonia

Wood based biomass has been playing a major role in the energy balance of Southern Estonia, nevertheless as the structure of the biomass-demand is changing (demand for high quality wood-based fuels and for timber is growing), it can be estimated that other biomass sources will become more important in the region.[19]

Several stakeholder groups have been involved in implementation of projects related to utilisation of biomass in Southern Estonia (see Figure 1.11). Such projects are e.g., "BIO-EN-AREA – Improve regional policies for bioenergy and territorial development", "SECURECHAIN - Sustainable biomass energy". Professional associations and Experts/consultants have been the main initiators of these projects. Professional associations are also taking part in consultancy, planning and implementation of projects. Estonian Environmental investment centre, along with energy producers and some professional associations and consultancy agencies have been financing the project implementation. Professional associations have been involved in dissemination of project results and promotion of biomass projects in the region.

Figure 1.11. Decision making scheme on biomass projects in Southern Estonia



The decision-making scheme reflects the main roles and responsibilities of the stakeholder groups involved in the decision making on biomass energy projects in Southern Estonia. In more details the communication between different stakeholder groups is reflected on the bases of stakeholder interviews (See Table 1.5).

Table 1.5. Involvement and communication between different stakeholders on biomass energy projects in Southern Estonia.

Country / Stakeholder	**Southern Estonia**
Public authority	**Involvement:** Drafting regulations Setting national agenda, roadmaps and action plans Elaboration of implementation models

[19] www.trea.ee/pagas/Biomass%20Action%20Plan%20of%20Southern-Estonia_summary.pdf

	Communication: With **other ministries** on cross-cutting topics With **municipalities** by consulting on national policies and implementation With **energy and policy consultant** on inputs and evidence With **large public** on the policy dissemination **Findings:** Communication difficult due to far too many stakeholders, interest varies
Municipality	**Involvement:** RES project development Permitting Public hearing **Communication:** With **national authorities** and **environmental agencies** on permitting With **engineering and construction company** on tenders, contracting, construction With **investors** (EstLatRus programme) on contracting and reporting With **experts - planners and designers** on respective issues With **residents** within public hearings and on awareness **Findings:** Good communication within the project –based flow, but difficult communication with societal groups due to low interest by the public
Energy Producers/ Investors	**Involvement:** Obtaining permits Development of infrastructure **Communication:** With **ministries** on national support to biogas projects, inputs and comments on national agenda and regulations With **local authorities** on planning permits, public hearings, land allocations With Environmental Investment Centre, commercial banks on credits and loans **Findings:** Wish for straightforward decision-making, stable support schemes, sustainable communication flow and channels.
Experts (consultants)	**Involvement:** Consulting on biogas and RES in transport Development of plants (biogas, bio-methane) EIA, SEA, environmental permitting and consultancy **Communication:** With **ministries and agencies** by commenting on regulative proposals, drafting , negotiating and issuing permits, EIA and SEA reports With **municipalities** on terms of reference, getting permits, public hearings With **heating plants** on data and advising With **Environmental Investment Centre** on co-financing, reporting With **village societies** at public hearings **Findings:** Difficult communication with officers in environmental agency and investors keeping legal and formal approach; possible reasons may be hidden agendas, institutional PR code, personal communication skills Wish to consider long-term relationships and developing partnerships; evidence based risk assessment on innovative projects. Wish for face-to-face meetings. Need to filter emotions and feelings.
Professional associations	**Involvement:** Consulting and commenting legal and strategic documents Representing heating plants in national initiatives Advising on issues **Communication:** With **ministries and agencies** on regulative incentives, commenting in public hearings With **municipalities** on drafting agendas, plans and designing, presentations and support at events With **energy and environmental consultants** on sharing know-how

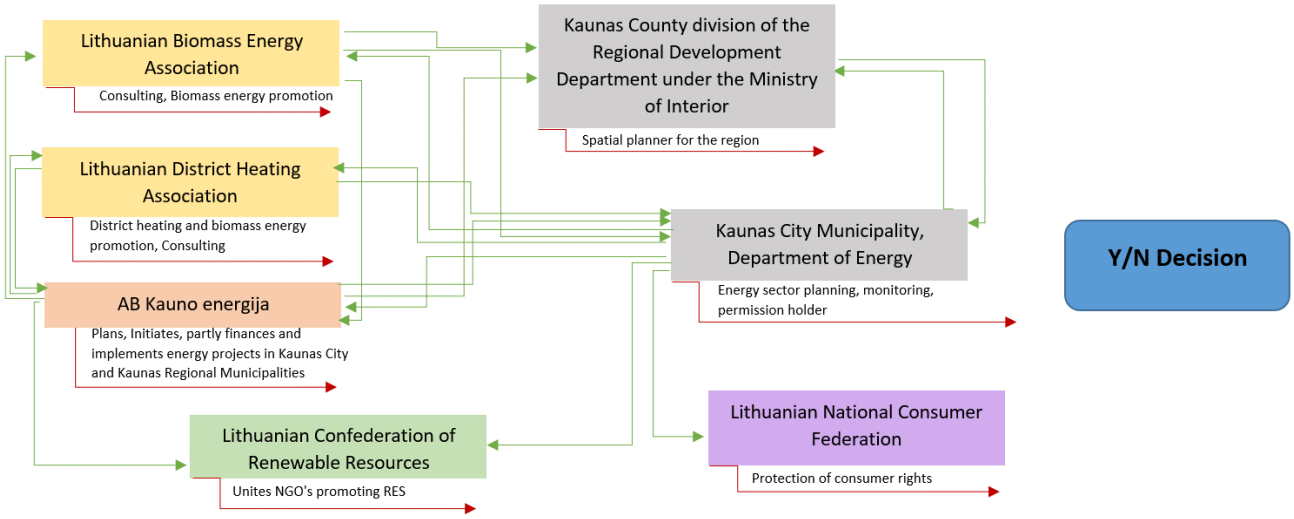
	Findings: Open professional communication with all public authorities, thus no need for improvements or extra measures Difficult communication with investors, public investment bodies Wish for more positive publicity

4.3. Decision making on biomass projects in Kaunas region, Lithuania

Biomass is widely used in district heating in Lithuania - 64% of heat energy is produced from biomass in 2016 and it is predicted to reach 80% in the year 2020.[20]

Decision making on biomass projects in Kaunas region involves municipal authorities of Kaunas County and City. These institutions are responsible for the development (spatial, economy, energy) planning, permitting and collaborate with all other stakeholder groups involved. Professional associations promote the use of biomass energy in district heating sector and industry and are cooperating with consultants/ experts, energy producers and public authorities. The district heating company present in the region plans, initiates, partly finances and implements energy projects in Kaunas City and Kaunas Regional Municipalities. The Lithuanian Confederation of Renewable Resources unites all RES promoting associations and NGOs while Lithuanian National Consumer Federation protects consumer rights, economical, ecological and social interests and communicates with consumers, government and media.

Figure 1.12. Decision making scheme on Biomass projects in Kaunas Region, Lithuania



The decision-making scheme reflects the main roles and responsibilities of the stakeholder groups involved in the decision making on biomass energy projects in Kaunas County. In more details the communication between different stakeholder groups is reflected on the bases of stakeholder interviews (See Table 1.6). Kaunas City Renewable Energy Sources Development Action Plan was elaborated and adopted by municipal Council in 2015. The aim of the plan to define planned RES use, energy saving and consumers educating and public awareness indicators for the municipality till year 2020 as well as actions, required for implementation of above indicators.

[20] https://ge.mfa.lt/uploads/ge/documents/Litbioma.pdf

Table 1.6. Involvement and communication between different stakeholders on biomass energy projects in Kaunas County.

Country / Stakeholder	Kaunas County, Lithuania
Public authority	**Involvement:** In decision making concerning biomass projects implementation and funding (using EU funds) **Communication:** With 8 **municipalities** of Kaunas County by discussing projects and adopting at the Board. Close communication with municipality administrations With **investors** on biomass boiler-house **Findings:** Wish that Regional Development Councils are included into regional spatial planning process, as they need wider, i.e., regional strategy and assessment of projects on regional scale. Wish to communicate on attracting of investment from countries, which have experience in the field
Energy Producers/ Investors	**Involvement:** Pursue a policy of biofuel use for heat production Participate in activities of the institutions concerned Organize meetings Make proposals for legislative changes **Communication:** With **public authorities** on identified problems and offered solutions, providing comments and proposals for drafts on legislative changes With independent **heat producers** of Kaunas City and Kaunas region on solving common issues and performing concerted activities in supplying heat to consumers With **investors** on co-funding for targeted projects With **experts** (researchers from largest universities and institutes, consulting companies) on strategic and technical issues With **professional associations** on sharing knowledge and information, consultation on important issues **Findings:** Productive cooperation with all the mentioned groups to achieve common goals, based on common or similar point of view Wish to increase efficiency of public authorities and to create working groups from different organizations concerned
Experts (consultants)	**Involvement:** Participate in work groups Elaborate suggestions for drafts of decision-making documents Prepare own proposals (projects) **Communication:** With **public authorities** as these are decision makers having impact on decisions With **energy producers** to collect information and identify challenges and with investors on providing information on investment opportunities for investors With **experts** for collecting of information and identification of challenges and with professional associations for coordination of actions With **environmental NGOs** for avoidance of possible opposition **Findings:** Good communication with stakeholder groups showing interest and having a similar approach and objectives. Complicated communication with the stakeholders (ministry of energy) having different aims regarding use of RES projects.
Professional associations	**Involvement:** Collection and assessment of information on the use of biomass in district heating Dissemination of information for the members of the association and public Collaboration with various scientific and applied research organizations on biomass energy development in Lithuania

Country / Stakeholder	Kaunas County, Lithuania
	Communication: With **public authorities** (e.g., ministries, energy inspectorate) on representation of the association members, on solutions and changes in the law With **energy producers** on representation of the association members; collaborating on solving common problems and implementing projects With **experts**) and with **professional association** on working groups and joint project development With environmental NGO (institute of Green Policy) on sharing ideas and information **Findings:** Difficult communication with ministries (Energy, Environment), National Commission for Energy Control and Prices, State Energy Inspectorate and independent energy producers due to different aims towards RES projects and different approach to the role of renewable energy in Lithuania. Wish for creation of the working groups by involving a number of different organizations concerned. For improvement of the communication it is important to set common goals between the different stakeholder groups
Other	**Consumers rights organization** **Involvement:** submit series of proposals to state institutions for integration of RES into the energy systems of buildings, and for attracting private capital for these purposes **Communication:** With public authorities **Findings:** Good communication with Seimas, however, bad communication with Ministry of Environment Wish for such governmental bodies, which would wish to work for the sake of people, not just for salary.

4.4. Summary on communication between stakeholders

Biomass is being used for decades as a renewable energy source. Thus, the application is widespread and therefore quite often reflected in planning documents (national, regional, local). A decision to the respective renewable energy promotion project by using biomass can be rather pre-defined already by the planning documents. However, the communication is important to ensure smooth implementation. Evaluation and proposals for communication are summarized below.

Public authorities rather participate in decision making regarding the biomass projects and allocation of funding. In order to ensure smooth process, they *wish for realistic techniques and communication flow, avoiding spins and administrative noise.*

Energy producers and investors focus on business case development. For smooth decision making process they *wish to increase efficiency of public authorities and to create working groups from different organizations concerned.*

Experts and professional associations point out that the communication is good with stakeholder groups showing interest and having a similar approach and objectives to the development of biomass energy. These organizations wish for *a common state position on the development of renewable energy (Energy Strategy).*

Non-governmental sector, e.g., consumers rights organization are actively advocating *for integration of RES into energy systems of buildings and for attracting of private capital for these purposes.* From the current BEA-APP assessment the information is limited to judge on the

substantiation of these requests and the level of involvement of the stakeholder in the communication. However, efficient communication for decision making would require active involvement of wide range of stakeholders for the purpose of levelled decisions.

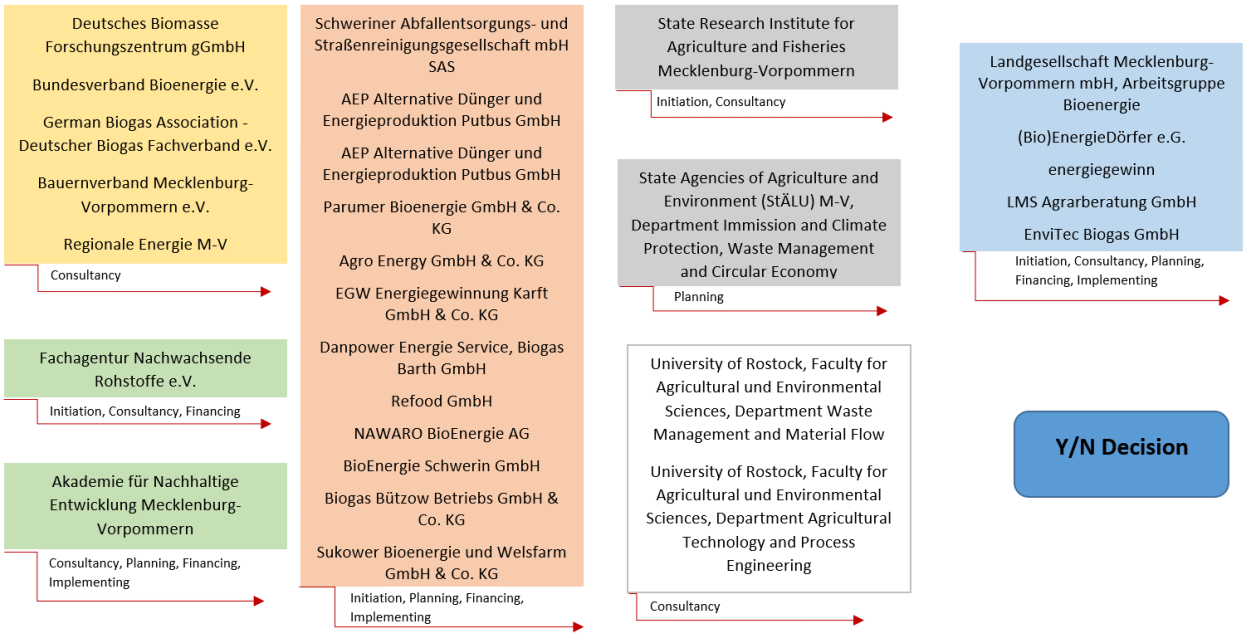
5. Biogas projects

5.1. Decision making on biogas projects in Mecklenburg-Vorpommern, Germany

As mentioned already earlier, bioenergy is the second most common energy source in the region after wind energy. In 2014, biogas plants with an installed electrical capacity of 300 MW were in operation in Mecklenburg-Vorpommern.[21]

The public authorities involved in the decision making on biogas projects in in Mecklenburg-Vorpommern, Germany are responsible for approval of biogas plants as well as for carrying out practice-oriented research e.g. in field of biogas, solid and liquid fuels. Consultancy on biogas production is provided by several professional associations active in the region (see Figure 1.13).

Figure 1.13. Decision making scheme on biogas projects in Mecklenburg-Vorpommern, Germany



These associations are active in networking, coordination of activities in the field and promoting utilisation of RES. The research in the field of biogas is performed by university experts e.g., on utilisation of organic waste and residues, processing and utilisation of solid bioenergy sources, optimization of production and utilisation of biogas, process chain biomass supply and fermentation, process and plant concepts, biogas treatment. Consultancy on profitability calculation; feasibility studies and climate protection concepts; planning and construction management of biogas plants, etc. are provided by several consulting companies. More than ten energy operators are running biogas plants in the region using various types of bio-waste. There are also non-governmental organisations providing consultancy and being involved in government subsidy programs as well as

[21] www.regierung-mv.de/Landesregierung/em/Energie/Biomasse/

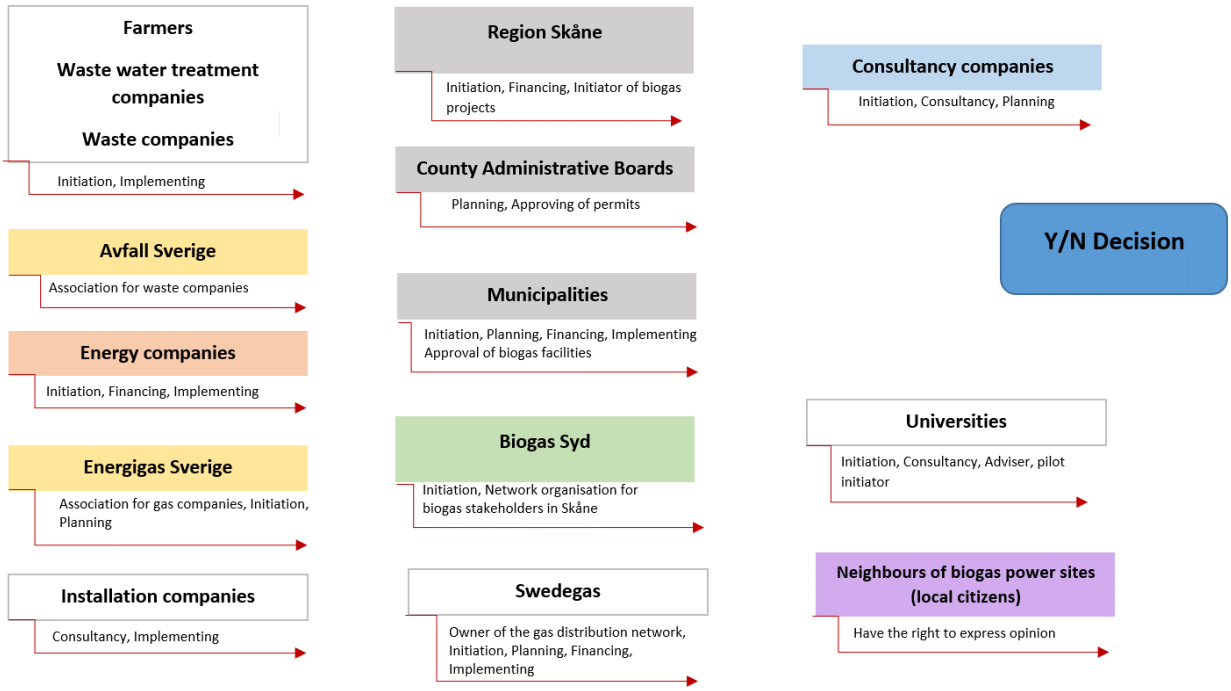
preparing targeted information materials. Involvement of citizen/societal groups in the decision making on biogas projects have not been identified.

5.2. Decision making on biogas projects in Skåne, Sweden

It has been assessed that the county of Skåne in the south of Sweden has the largest biogas potential in the country. Relatively high population density, significant agricultural sector and several large-scale food industries, presence of a natural gas grid, which might also be used for biogas distribution creates favourable conditions for further development of biogas projects in the county.[22]

Various stakeholder groups have been involved in the decision making on two biogas projects (household waste and sewage sludge) in Skåne, Sweden (see Figure 1.14) – public authorities, energy companies, professional associations, experts (consultants), a non-governmental organisation, a citizen/societal group and others. Public authorities on different levels are involved in creation of the political framework for expansion of biogas, in planning and approval of biogas production, initiation of biogas projects, etc. Energy companies are biogas traders, owns production units, and are marketing and selling biogas. Professional associations unite gas and waste companies in Sweden. Environmental and societal responsibility is taken care by a nongovernmental organisation networking of biogas stakeholders in Skåne. Local citizen unions - neighbours of biogas power sites represent citizen interests. Expert knowledge on biogas is provided by consultancy companies and universities. Several other stakeholder groups – installation companies, an owner of gas distribution network, waste companies, wastewater treatment companies and farmers being key actors for circulation of bio fertiliser are involved in biogas production projects in Skåne.

Figure 1.14. Decision making scheme on biogas projects in Skåne, Sweden

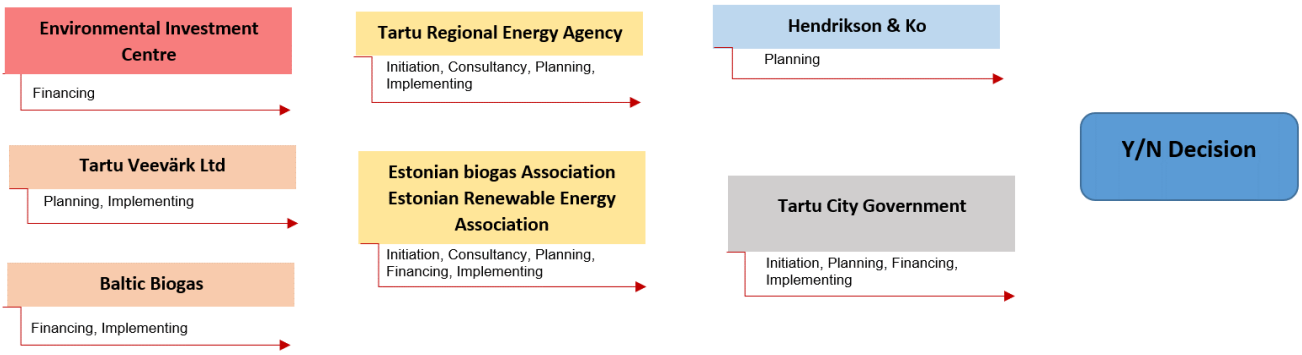


[22] http://www.biogasxpose.eu/upload/Best_practise.pdf

5.3. Decision making on biogas projects in Southern Estonia

Three biogas related projects have been implemented in Southern Estonia (Baltic Biogas Bus, BaN - Biogas and Networks, SPIN - Sustainable Production through Innovation in SMEs) involving several groups of stakeholders (see Figure 1.15). Tartu Regional Energy agency being responsible for initiation, consultancy, planning and implementation of such projects, has taken a coordination and knowledge transfer role. Two other professional associations have been involved in promotion and dissemination activities. Tartu City government has been involved in implementation of the projects as well as in dissemination activities. Two energy production companies have taken part in project implementation. A consulting company has participated in the planning process, performing environmental impact assessment.

Figure 1.15. Decision making scheme on Biogas projects in Southern Estonia



The decision-making scheme reflects the main roles and responsibilities of the stakeholder groups involved in the decision making on biogas energy projects in Southern Estonia. In more details the communication between different stakeholder groups is reflected on the bases of stakeholder interviews (See Table 1.7).

Table 1.7. Involvement and communication between different stakeholders on biogas energy projects in Southern Estonia.

Country / Stakeholder	**Southern Estonia**
Public authority	**Involvement:** Drafting regulations Setting national agenda, roadmaps and action plans Elaboration of implementation models **Communication:** With **other ministries** on cross-cutting topics With **municipalities** by consulting on national policies and implementation With **energy and policy consultant** on inputs and evidence With **large public** on the policy dissemination **Findings:** Communication difficult due to far too many stakeholders, interest varies
Municipality	**Involvement:** RES project development Permitting Public hearing **Communication:** With **national authorities** and **environmental agencies** on permitting

	With **engineering and construction company** on tenders, contracting, construction With **investors** (EstLatRus programme) on contracting and reporting With **experts - planners and designers** on respective issues With **residents** within public hearings and on awareness **Findings:** Good communication within the project –based flow, but difficult communication with societal groups due to low interest by the public
Energy Producers/ Investors	**Involvement:** Obtaining permits Development of infrastructure **Communication:** With **ministries** on national support to biogas projects, inputs and comments on national agenda and regulations With **local authorities** on planning permits, public hearings, land allocations With Environmental Investment Centre, commercial banks on credits and loans **Findings:** Wish for straightforward decision-making, stable support schemes, sustainable communication flow and channels.
Experts (consultants)	**Involvement:** Consulting on biogas and RES in transport Development of plants (biogas, bio-methane) EIA, SEA, environmental permitting and consultancy **Communication:** With **ministries and agencies** by commenting on regulative proposals, drafting , negotiating and issuing permits, EIA and SEA reports With **municipalities** on terms of reference, getting permits, public hearings With **heating plants** on data and advising With **Environmental Investment Centre** on co-financing, reporting With **village societies** at public hearings **Findings:** Difficult communication with officers in environmental agency and investors keeping legal and formal approach; possible reasons may be hidden agendas, institutional PR code, personal communication skills Wish to consider long-term relationships and developing partnerships; evidence based risk assessment on innovative projects. Wish for face-to-face meetings. Need to filter emotions and feelings.
Professional associations	**Involvement:** Consulting and commenting legal and strategic documents Representing heating plants in national initiatives Advising on issues **Communication:** With **ministries and agencies** on regulative incentives, commenting in public hearings With **municipalities** on drafting agendas, plans and designing, presentations and support at events With **energy and environmental consultants** on sharing know-how **Findings:** Open professional communication with all public authorities, thus no need for improvements or extra measures Difficult communication with investors, public investment bodies Wish for more positive publicity

5.4. Decision making on biogas projects in West Pomeranian Voivodeship, Poland

More than ten biogas projects have been implemented in West Pomeranian Voivodeship during the recent years. Besides public authorities, investors, energy producers, a university and a water management company have been involved (seer Figure 1.16). Investors are consulting the project with municipality on stage of adoption of master plan or the decision on land development (stage

before issue of the construction permission). In some cases, investors are carrying out the construction of equipment and facilities. Public authorities are responsible for preparation of spatial development plans allowing location of biogas power plants. They also uptake coordination of legal procedures, organise meetings with citizens. Experts, consultants from the West Pomeranian University of Technology has been leading a project on construction of low-power devices for use as a mini power plant for households, using biomass as an energy source.

Figure 1.16. Decision making scheme on Biogas projects in West Pomeranian Voivodeship, Poland

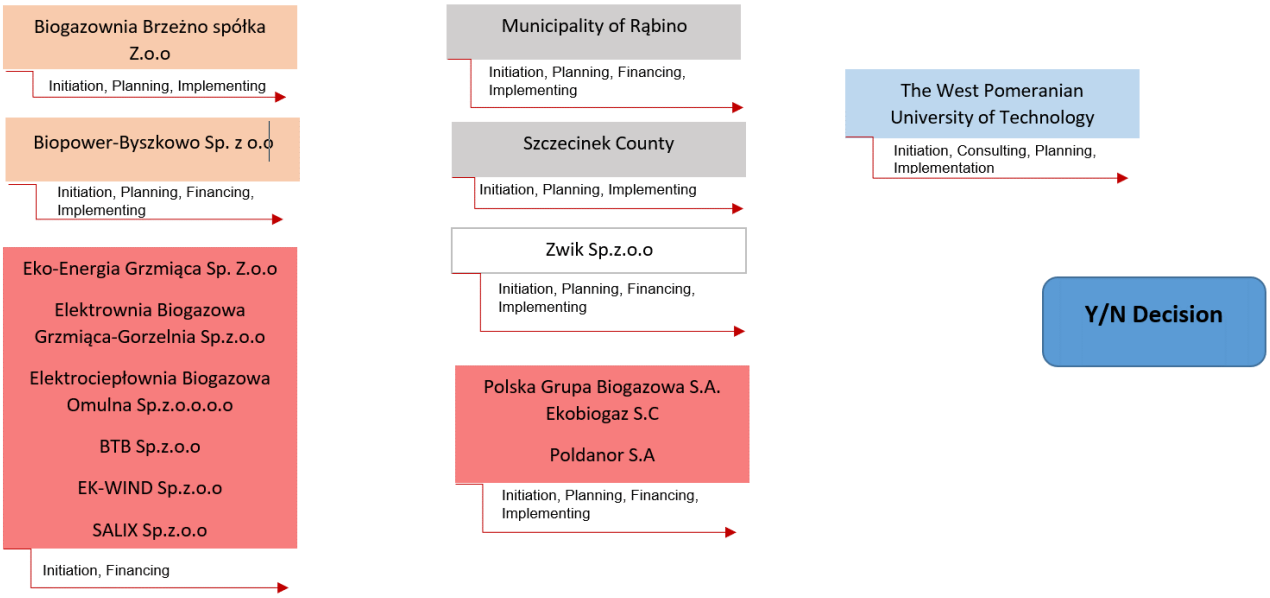


Table 1.8. Involvement and communication between different stakeholders on biogas energy projects in in West Pomeranian Voivodeship.

Country / Stakeholder	**Westpomerania, Poland**
Public authorities	**Involvement:** Public consultations Decision making and working groups Issuing opinions and agreements **Communication:** With **public authorities** on legal requirements, issuing opinions and agreements With **investors** at working groups and showing interest With **experts** due to the need for experts' opinion With **citizen/ societal groups** on legal requirements **Findings:** Good communication with the experts, public authorities and investors due to common goals and interest from other stakeholders Difficult communication with local society due to lack of awareness
Water supply company	**Involvement:** In contracting the construction company for building of biogas power plants as a part of sewage treatment plant **Communication:** With **investors** on supervising the investment **Findings:** Good cooperation with the construction company There were no problems with the communication as the local citizens were content that such investment was taking place in their city

5.5. Summary on communication between stakeholders

The biogas heat and power stations are considered as a suitable option in many applications. Due to diversity of raw material (feeding source) there are many possibilities for technologic variations and solutions to utilize. Communication between stakeholders concerned is rather focussed on planning and designs of the biogas station, as well as on the attraction of investments for the erection of the plant.

Public authorities are concerned about legal requirements; they participate in working groups and are the decision makers. However, opinion from other stakeholder groups involved reflects the potential traps in communication: *public officials in governmental agencies can be replaced too often; continuity is needed. The decision chain is unclear and fuzzy.*

Energy producers and investors focus on business case development. However, stakeholders admit that sometimes communication is difficult with investors due to their *legal and formal approach.*

Experts and professional associations point out that the communication is good with stakeholder groups *seeking the balanced decision and making compromises.* Experts and representatives from professional associations are more often open to new solutions and therefore these stakeholders are calling to *progressing solutions jointly, increasing creativity and attracting interest, as well as considering long-term relationships and developing partnerships.* Looking for innovative projects there is a need for *evidence-based risk assessment.* For good cooperation experts would prefer *face-to-face meetings* and sees the *need to filter emotions and feelings.*

Citizen/ society groups seem to be quite content and there is no strong opposition to the development of biogas projects. Although, the procedure for obtaining of environmental permit foresees the public participation (consultations, meetings), *sometimes the public interest is very low or missing.*

6. Geo(thermal) energy projects

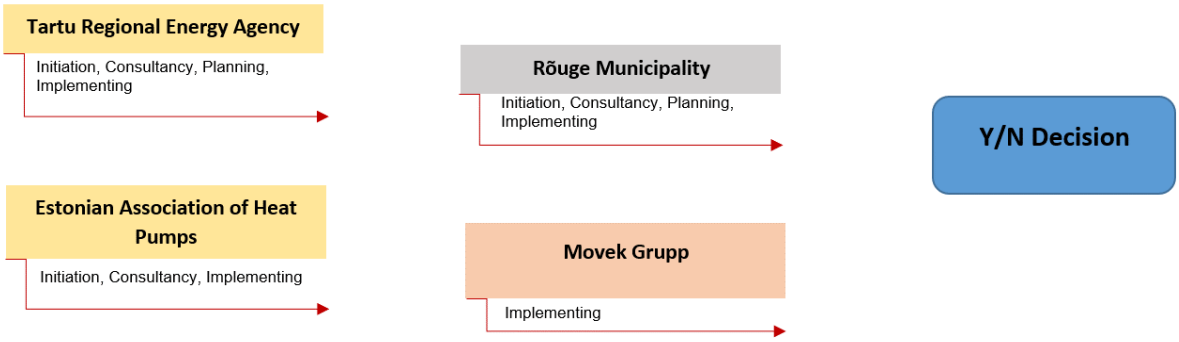
6.1. Decision making on geo(thermal) energy projects in Southern Estonia

It is acknowledged that up to now there is limited information and research done on low and high temperature geothermal energy potential in Estonia. Mapping of availability and analyses of efficiency is currently ongoing in the country.[23]

Three stakeholder groups – public authorities, professional associations and energy producers are involved in the decision making on geothermal projects in Southern Estonia (see Figure 1.17). The Rõuge Municipality is promoting the use of renewable energy sources and has been undertaking the installation of heat pumps in public buildings (e.g. schools). The professional associations are coordinating implementation of projects and are transferring the knowledge on technologies. Practical implementation - engineering and development of projects has been undertaken by an energy production company.

[23] http://geothermal.org.ee/eng/

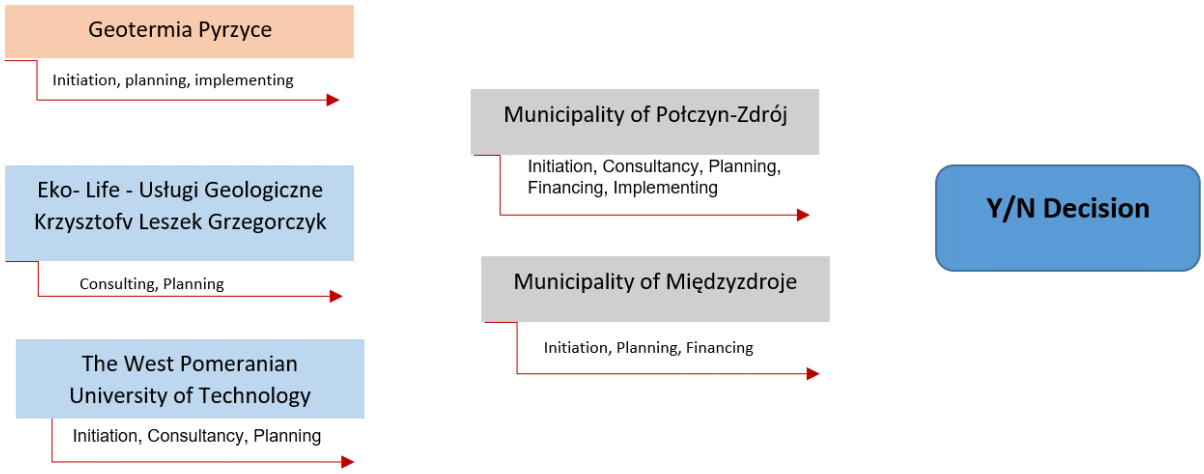
Figure 1.17. Decision making scheme on Geo(thermal) energy projects in Southern Estonia



6.2. Decision making on geo(thermal) energy projects in West Pomeranian Voivodeship, Poland

Several projects for use of geo(thermal) energy and installation of heat pumps have been implemented in West Pomeranian Voivodeship. The most recent one is related to analysis of potential of geothermal water in economy and tourism of Municipality of Międzyzdroje. Public authorities, experts (consultants) from private consultancy company and university as well as energy producing company have been involved in the geothermal energy projects (see Figure 1.18).

Figure 1.18. Decision making scheme on Geo(thermal) energy projects in West Pomeranian Voivodeship, Poland



6.3. Summary on communication between stakeholders

Application of Geo(thermal) energy projects is in developing stage. Cases covered in BEA-APP indicate that potential analysis and selection of suitable sites is currently on-going. At this stage of geo(thermal) project development in the regions the communication flows are not identified to be assessed further.

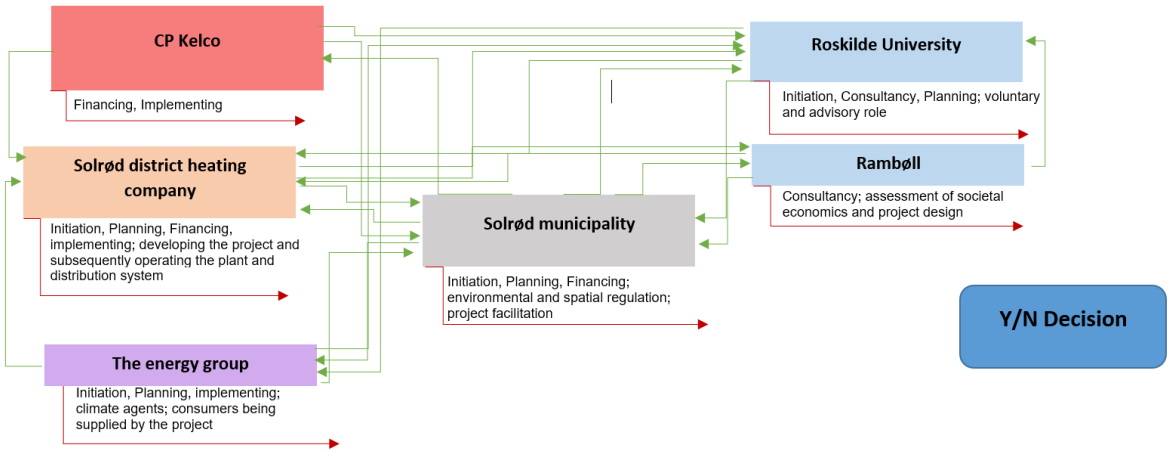
7. Solutions for intelligent district heating

7.1. Decision making on intelligent district heating projects in Havdrup, Denmark

Industrial processes often produce large amounts of unused waste heat, which most often is directly exhausted. The efficient utilisation of waste heat reduces the CO_2 emissions by substitution of fossil fuels and moreover, valuable energy can be generated.[24] The aim of the pilot project implemented under the BEA-APP project is to develop an energy-efficient heating system, which will ensure a sufficiently effective and inexpensive district heating supply. It shall be done by utilising waste heat from a large industrial plant (CP Kelco, Municipality Køge) supplying district heating to the cities of Havdrup and Kirke Skensved in the neighbouring municipality Solrød.[25]

Several stakeholder groups – a public authority, energy producer, investor, experts/consultants and citizen/societal group participate in the decision making to develop intelligent district heating in Havdrup, Denmark (see Figure 1.19). The Solrød municipality is responsible for territorial planning, local zoning, approving of projects and is closely cooperating with all stakeholder groups involved. The energy producing company will own the district heating system and will subsequently operate the plant and distribution system. The Investor – industrial company supplying the waste heat will co-finance the project and implement certain activities within the project. Roskilde University and a private consultancy company have an advisory role on implementation e.g., socio-economic impact assessment of the project. Citizen interests are expressed through the 'Energy group" - group of very active citizens living in Solrød municipality having participated in a course to be a 'climate agent' at Roskilde University. All stakeholder groups are cooperating with each other in the decision-making process.

Figure 1.19. Decision making scheme on intelligent district heating in Havdrup, Denmark



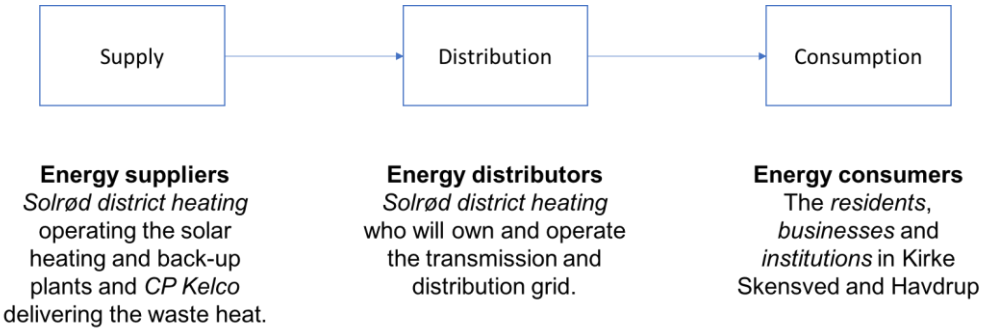
The decision-making scheme reflects the main roles and cooperation interlinkages of the stakeholder groups involved in the decision making on intelligent district heating projects in Havdrup, Denmark. In more details the communication between different stakeholder groups is reflected on bases of the stakeholder interviews (see Table 1.9). The city of Havdrup is engaged in the project on advancing an intelligent district heating system based on waste heat – a project on utilising waste heat from a large industrial plant (CP Kelco, Køge) in supplying district heating to the cities of Havdrup and Kirke

[24] www.bios-bioenergy.at/en/waste-heat-utilisation.html
[25] www.balticenergyareas.eu/regional-pilot-projects/zealand

Skensved in the neighbouring municipality. The premise is that it is necessary to develop an energy-efficient heating system, which will ensure a sufficiently effective and inexpensive district heating supply. The project can be subdivided into a number of phases:

(1) First establishing a solar heating plant near Havdrup that will supply the existing district heating (DH) grid in the city (covering approximately 11% of the city's heat consumption). This is currently being built and when completed should have an area of 2000 m^2 and be able to supply 981 MWh of a total DH demand of 3.610 MWh (27%).
(2) Then establishing a district heating supply line from the industrial plant delivering waste heat (CP Kelco) through Kirke Skensved to Havdrup (approximately 5 km), a distribution grid in Kirke Skensved and a connection of the existing district heating in Havdrup to the new heat supply from CP Kelco's waste heat.
(3) Then experimenting with attaining heat savings through intelligent heat supply and in subsequent phases expanding both the solar heating plant capacity and the district heating grid while creating energy savings through intelligent supply systems.

Such a project will naturally involve a range of different stakeholders. The key stakeholders can be identified by reviewing the different stages of the energy chain. This has been done in the figure below.



As can be seen the key stakeholders are the energy suppliers (Solrød district heating company and CP Kelco), the distributor (Solrød district heating) and the consumers in Kirke Skensved and Havdrup. In addition, the municipality is a key stakeholder in running several institutions in Havdrup who will be supplied with district heating and being the key facilitator of the project. Finally, there are a number of advisors and consultants related to the project. Firstly, Roskilde University who has been a key player in advancing the initiative, and secondly the consultancy firm Rambøll who are doing many of the project development calculations and reporting.

Table 1.9. Involvement and communication between different stakeholders on intelligent district heating in Havdrup.

Country/ Stakeholder	**Denmark (Heating system in Havdrup: solar + industrial surplus heat)**
Municipality	**Involvement:** The initiator, facilitator and authority to get the project Responsibility for regulatory approval of the project **Communication:** With **public authorities** (Køge municipality) for coordinating the regulatory approval in two municipalities With **energy producers** for discussion on technical possibilities (extracting the surplus heat) and on financing the project With **investors** (district heating company) as partners in the project and to submit the

Country/ Stakeholder	Denmark (Heating system in Havdrup: solar + industrial surplus heat)
	project to the board to ensure continued support With **experts** on feasibility studies, economic analysis, assessment of technical potential With **professional associations** (district heating association) on interpretation of tax regulations With **citizen/ societal groups** within the established energy group **Findings:** Good communication with the different parties involved in the project. Parties have an interest in promoting green solutions and work to reduce the use of fossil fuels.
Energy producers	**Involvement:** From the very start of the project, one of the idea developers **Communication:** With **public authorities** by ongoing contact on practical measures, legality and approval With **energy producers** on the project technical aspects and financing With **investors** by regular briefings to the board With **experts** on the consultancy aspects and technicalities With **citizen/ societal groups** at the meetings **Findings:** Difficult communication with societal groups, need for supporting information to highlight on steps and processes implemented Wish for supporting material (e.g., manual) for the process and roles of involved parties
Investors	**Involvement:** Part of the project **Communication:** With **public authorities** on approval, project development With **experts** on the project development With **citizen/ societal groups** through the energy group at the meetings **Findings:** Mostly good communication Difficult, that the citizen groups are very “fired up” and have a hard time understanding that things take time
Experts (consultants)	**Involvement:** Mediation and advice on the project **Communication:** With **public authorities** on connection to the project With **energy producers** on alignment of the project With **investors** on the project development With **experts** at the meetings and on the project development With **professional associations** on getting advice (e.g., on tax law) With **citizen/societal groups** at the meetings, on the course of the energy group **Findings:** Good relationship and communication with different stakeholders Avoid specific promises to end-users based on approximate data Wish for an increased transparency on decision making process
Citizen/ society groups	**Involvement:** Take part in the project, part of the energy group Engage with citizens at the municipality: collecting accurate heating data and persuading people to take part in the project **Communication:** With **public authorities** to take part in the meetings throughout the work on the project With **energy producers** and **experts** at the meetings With **citizen/ societal groups** on forming part of the group and engage in it **Findings:** Good communication so far, however, difficult stages can occur at implementation Wish for timely deliverables and preparation to the meetings

7.2. Summary on communication between stakeholders

The project on heating system where the surplus heat is utilized in Havdrup (Denmark) was used as a case to reflect on the involvement and the communication pathways between stakeholders. Being the site-specific, the project on heating system is rather initiated by stakeholders having an experience from cooperation in other projects. Thus, *the communication throughout project development has benefitted greatly from the long-standing relationship between several of the key players.* Evaluation and proposals for communication from stakeholders are summarized below.

Municipality has the role to act as *the initiator, facilitator, and authority to get this project. The project stems from the municipality's Climate Action Plan 2020-2025 and the municipality has there taken the initiatives to set up a project team with representatives from the municipality, citizens, business, district heating plant, experts from the university and a consultancy. As coordinator, the municipality ensures the progress of the project and see to that project proposals are drawn up according to the Heat Supply Act and an EIA screening of the main supply line. The municipality has the responsibility for regulatory approval of the project and EIA screening as well, which includes many hearings with interested parties and subsequent processing in the city council.* The project setting, and communication rely on common interests and goals: *all parties have an interest in promoting green solutions and work to reduce the use of fossil fuels.*

Energy producers have been involved from the very start of the project and had a very close and good relationship and communication with experts from the university and the consultancy, and the municipality: *as these groups know each other well it has been easy to communicate with everyone.* The energy producers, however, see potential difficulties in communication with societal groups as they: *do not yet have an appreciation for how projects may take a long time and that we have to move at a certain pace and go through particular steps to comply with current legislation and so on.* There is a proposal for improvement of communication: *by a manual – or manuals – for the process and different meetings, to clarify for all parties involved what steps we are to go through, who should do what and so on.*

Investors are concerned that sufficient time needs to be allocated to develop and initiate the project implementation; however, the citizen groups *are very "fired up"* and would request rapid results. Proposal from investors for improvement of communication, however, suggests to selectively approaching the stakeholders*: by subdividing the meetings into some meeting that the citizen group is not attending in which the practical/technical aspects can be discussed. In that way, it would not seem as though there are countless meetings without enough progress.*

Experts and consultants are involved at various stages of the project preparation process. Communication errors potentially can *occur with several consultants involved in the project along the way, meaning that promises have been made that are difficult to honour.* Especially this can escalate when delays happen during the preparation phase: *while an early dialogue with end users is a good thing, it should be done without making very specific promises to them based on approximate data, as this may become a challenge if the final project design doesn't fit.* Experts and consultants are obliged to communicate with wide range of stakeholders. Potential *conflicts in the project could be addressed by increased transparency. If the phases of the decision-making process were clear for all participants from the beginning it could greatly improve the communication.*

Citizen/ societal groups do not appreciate any uncertainty or delayed decision for the project implementation. This stakeholder group is rather demanding for being included in the communication loop: *the district heating company could be better at including end users and enter into*

a dialogue with them. Participants of some organized group (e.g., Energy Group) can be very helpful mediators in the communication with citizens: *they have worked with engaging the citizens in the city, collecting accurate heating data and persuading people to take part in the project. Some were very positive to begin with, others very negative, but they convinced everyone to at least supply heating data.* However, citizens request to present clear information in the project development and implementation.

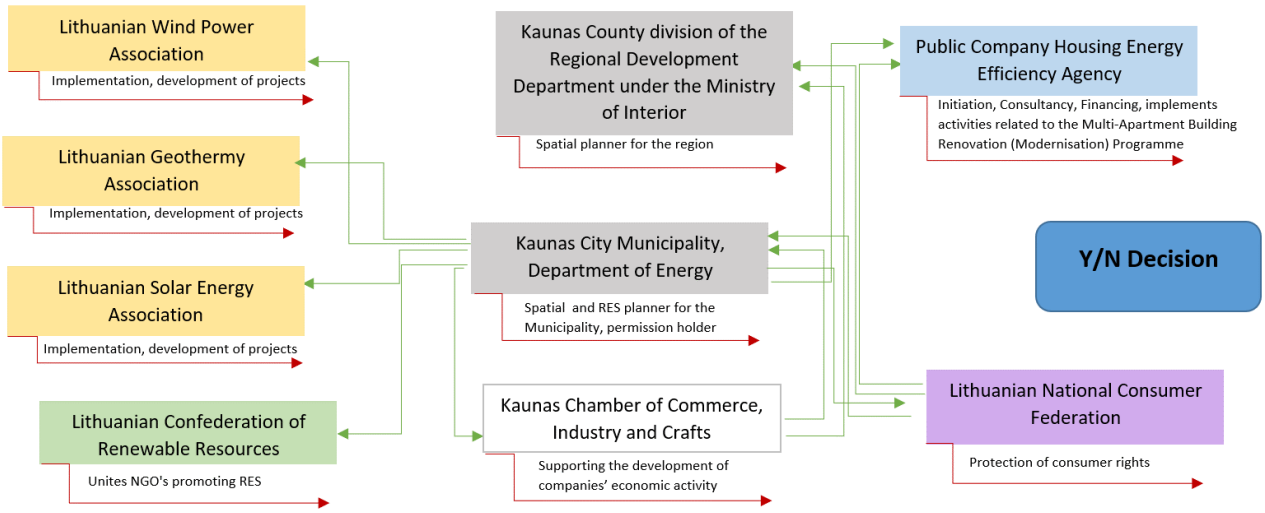
8. RES topping-up refurbishment of buildings

8.1. Decision making on applying RES along with refurbishment of buildings in Kaunas district, Lithuania

According to the Sustainable Energy Action Plan of Kaunas district municipality, reduction of energy consumption in buildings and promoting renewable energy sources are among the key actions identified to reduce CO_2 emissions. Biomass, wind, solar and geothermal plants and installations for electricity and heat generation are envisaged.[26] Besides, there are also projects realised on application of renewable energy sources e.g., installation of PVC on the roof of renovated building of gymnasium in Kaunas district, developed.[27]

Public authorities on a county and city municipality level, professional associations, experts (consultants), representatives from non-governmental organisation and citizen/societal group are the key stakeholders involved in the decision making on applying RES along with refurbishment of buildings in Kaunas region (see Figure 1.20).

Figure 1.20. Decision making scheme on refurbishment projects (including the use of RES) in Kaunas Region, Lithuania



Public authorities being responsible for spatial and energy planning, are responsible also for permit issuing and are cooperating with all stakeholder groups. Experts/consultants from Public Company Housing Energy Efficiency Agency implements activities related to the "Multi-apartment Building Renovation (Modernisation) Programme". The programme aims at increasing energy performance of

[26] http://mycovenant.eumayors.eu/docs/seap/19479_1416822774.pdf
[27] www.interregeurope.eu/zeroco2/events/event/275/stakeholders-meeting-in-kaunas-district-municipality/

multi-apartment buildings with the lowest level of heat energy consumption and house maintenance costs. Seeking for most favourable solutions for utilisation of solar, wind and geothermal energy three professional associations are active in the field and are involved in project development and implementation. The Lithuanian Confederation of Renewable Resources unites all Lithuanian NGOs working on development of utilisation of RES. The development of economic activities is promoted also by Kaunas Chamber of Commerce, Industry, and Crafts while the consumer rights, economical, ecological and social interests are protected by Lithuanian National Consumer Federation.

The decision-making scheme reflects the main roles and cooperation interlinkages of the stakeholder groups involved in the decision making on refurbishment projects applying RES. In more details the communication between different stakeholder groups is reflected on bases of the stakeholder interviews (see Table 1.10).

Table 1.10. Involvement and communication between different stakeholders on refurbishment projects (including the use of RES) in Kaunas Region.

Country / Stakeholder	**Kaunas County, Lithuania**
Public authority	**Involvement:** Participate in the meetings of housing associations of multi-apartment residential buildings Make suggestions on implementation of RES **Communication:** With **citizen/ societal groups** on use of integrated RES, getting respective compensations according to the order defined in the legislation **Findings:** Good communication with interested stakeholder groups; Difficult to communicate due to rather small interest of population (due to media created negative attitude on renovation of multi-apartment residential houses) Wish for raising public awareness on good practice in renovation to promote positive decisions on the side of residents on integration of RES in renovation of multi-apartment buildings
Developers	**Involvement:** Unite developers operating in geothermic sector Advertise use of geothermal heating in housing **Communication:** With **investors** on collecting information With **experts** on investigating development possibilities in housing sector **Findings:** Wish for more information on use of geothermal heat in buildings.
Professional associations	**Involvement:** Participate in work groups Elaborate suggestions for draft decision-making document Prepare own proposals (projects) **Communication:** With **public authorities** (ministries, committees) as they are decision makers or are having impact on decisions, as well as representing members of the Association With **experts** on collecting of information, identification of challenges, as well as representing interests of the Association members With other **professional associations** on coordination of common actions With **owners of residential houses** for identification of information on demand and challenges With heat **consumers** by representing interests of the Association members **Findings:** Good communication with professional associations, some public authorities, owners of residential houses – interest from these groups, common vision and aims

Country / Stakeholder	Kaunas County, Lithuania
	Complicated communication with ministry of energy – different aims regarding use of RES projects.
Consumer rights	**Involvement:** Elaborate suggestions for the ministries of environment and energy on improvement of heating and hot water preparing systems in buildings, including integration of RES. **Communication:** With ministries of environment and energy, however, there was no productive communication. **Findings:** Difficult communication due to lack of interest in dealing with the suggestions because of extremely bureaucratic and passive attitude to these problems.

8.2. Summary on communication between stakeholders

Integrated use of RES in buildings in most cases must be looked in combination with renovation of (multi-apartment) buildings, especially in the Baltic States where the current building stock is of insufficient quality and low energy efficiency. Here the decision on renovation largely depends on flat owner's decision. Evaluation and proposals for communication are summarized below.

Public authority in this communication is rather having a mediator's role by spreading around the information on possibilities for use of integrated RES and applying for the financial support.

Developers are having rather business oriented interests in the communication.

Professional associations and **consumer rights** organizations are actively promoting the use of integrated RES in buildings and thus would be interested to receive more active support from public authorities, i.e., respective ministries. By accusing them on having different aims regarding the use of RES projects, however, the current BEA-APP assessment is limited to judge on the substantiation of these claims to the ministries. However, efficient communication for decision making would require active participation of wide range of stakeholders for levelled decisions.

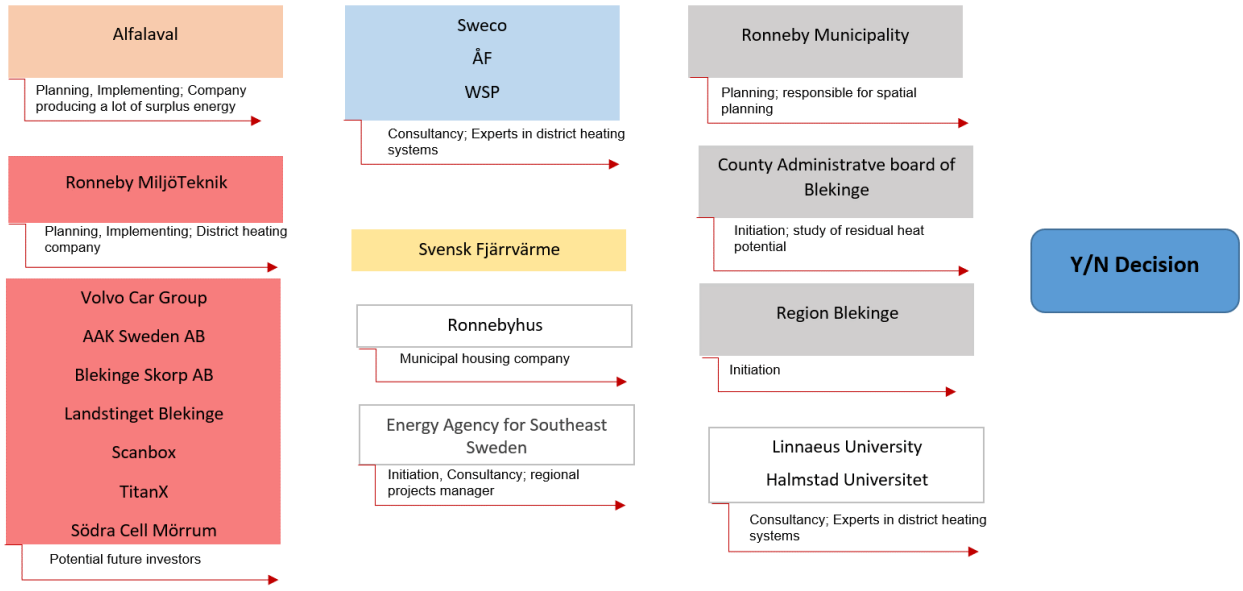
9. Heat recovery projects

9.1. Decision making on heat recovery project in Blekinge, Sweden

The feasibility study for utilisation of surplus heat from industrial processes in the district heating system is carried out within the pilot case study of Blekinge region.[28] Various stakeholder groups are involved in the decision making on heat recovery project in Blekinge (See Figure 1.21). Public authorities together with Energy Agency for Southeast Sweden have been the main initiators of the project. Consultancy on district heating systems has been provided by experts from universities and several consultancy companies. The energy company producing a surplus heat has been involved in planning and further implementation of the project. Several potential investors for financing the future project have been identified.

[28] www.balticenergyareas.eu/regional-pilot-projects/blekinge

Figure 1.21. Decision making scheme on projects for heat recovery from industrial process in Blekinge, Sweden



9.2. Summary on communication between stakeholders

Communication flows between the customer (municipal housing company) and public authorities, energy producers and investors have identified. The customer has evaluated this communication as good while requesting quick feedback from meetings to improve the communication flow.

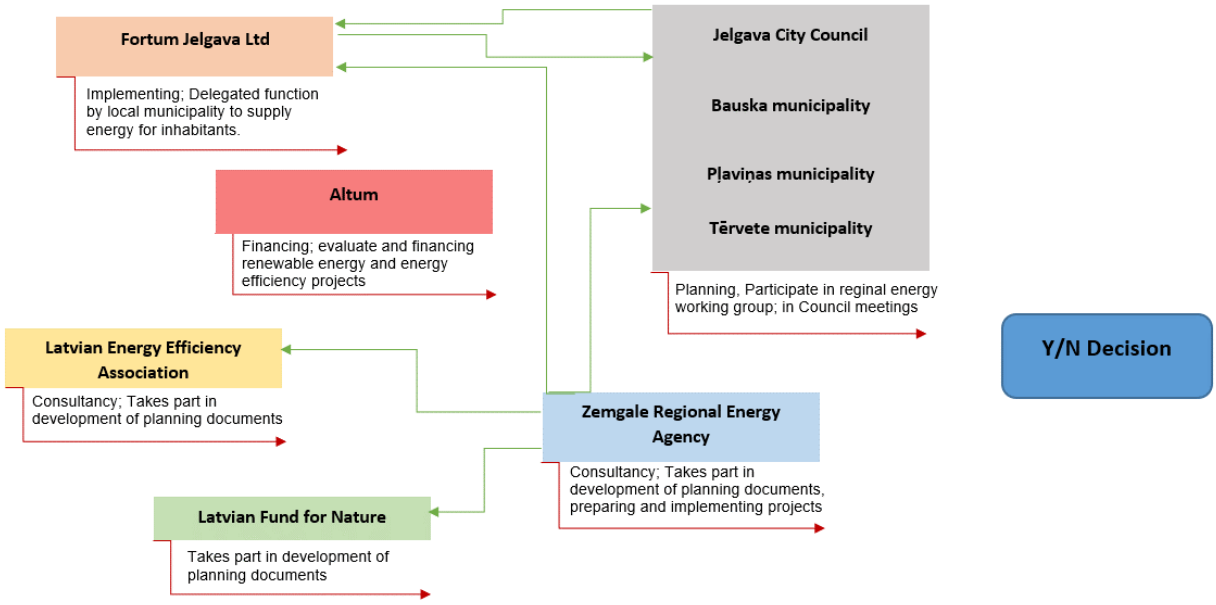
10. Complex solutions on regional energy planning

10.1. Decision making on regional energy planning in Zemgale, Latvia

Zemgale regional energy action plan 2012-2020 provides a roadmap for regional development regarding increasing energy efficiency and promoting the use of renewable energy sources.[29] Currently a new regional energy action plan is under preparation. Several institutions are involved in regional energy planning and decision-making process. Public authorities (municipalities) in Zemgale are participating in reginal energy working groups and council meetings. A professional association and environmental NGO are acting as consultants in development of planning documents. Zemgale Regional Energy Agency facilitates the improvement of energy efficiency in public and private sectors, as well as ensures the information availability on these issues for residents. The Agency is closely cooperating with other stakeholders involved. The largest energy production company being responsible for heat supply to local inhabitants is also participating in the decision-making process on energy development and is closely cooperating with public authorities in the region. Financing of energy projects is possible through a state-owned development finance institution offering a state aid for implementation of sustainable energy related projects in the country.

[29] www.zrea.lv/upload/attach/103_Zemgales_energetikas_plans_oktobris_2012.pdf

Figure 1.22. Decision making scheme on renewable energy in regional energy planning in Zemgale planning region, Latvia



The decision-making scheme reflects the main roles and cooperation interlinkages of the stakeholder groups involved in the decision making on renewable energy in regional energy planning in Zemgale planning region. In more details the communication between different stakeholder groups is reflected on bases of the stakeholder interviews (see Table 1.11).

Table 1.11. Involvement and communication between different stakeholders on renewable energy in regional energy planning in Zemgale planning region.

Country / Stakeholder	Zemgale Planning Region
Municipality	**Involvement:** Developers of the plan Representation of all local governments (in the region) by a delegated representative in the working group Prepare comments to the draft documents **Communication:** Through a delegated representative in a working group With **experts (consultants), professional associations** for obtaining of professional opinion With **citizen/ societal groups** who defends their rights, opposes in environmental aspects **Findings:** Within the development of the plan it is advisable to organize a small working group with participation of representatives from ministries (Environment, Economy)
Energy producers	**Involvement:** Get involved in the planning **Communication:** With **public authorities, energy producers, professional associations** **Findings:** Difficult communication in case of rivalry (within the sector)
Investors	**Involvement:** Not involved in regional planning processes See themselves as implementers

Country / Stakeholder	Zemgale Planning Region
	Communication: With **money providers (banks)** to explain the need for financing With **public authorities, experts and professional associations** to listen to suggestions With **citizen/ societal groups** listens to suggestions and provides seminars
Experts (consultants)	**Involvement:** Participate in the planning process **Communication:** With **public authorities, energy producers, investors, professional associations, environmental NGOs, citizen/societal groups** **Findings:** Wish for a more constructive communication with representatives from ministries (involvement at early phase)
Professional associations	**Involvement:** Provides expertise Participates in a working group **Communication:** With other members in the **professional association** **Findings:** Involvement was insufficient within the development of regional planning documents Addressed by a phone (due to shortage of resources) Advisable to involve in the working groups
Citizen/ society groups	**Involvement:** By expressing high interest on energy issues **Findings:** Communication, in principle, occurs Communication rather complicated and often on negative aspects

10.2. Summary on communication between stakeholders

Focus of stakeholder interviews was on reflection of communication with different stakeholders and involvement in the process of development chapters on renewable energy resources and energy efficiency included in the document "Zemgale regional energy plan 2012-2020". Thus, the reflection on communication between different stakeholder groups contains also thinking on concept and procedure within the regional plan development.

Public authorities in this context are rather seen on a national level, i.e., the respective ministries concerned about the regional planning. Neglecting of views and suggestions from regional and local levels is pointed out by stakeholders in the respective communication: *compilation of ideas from municipalities were submitted to a respective ministry, however, no reaction has followed. The compilation of ideas will be needed also for new planning documents and it would be devastating if such ideas are hidden in ministry drawers. Suggestions from stakeholders and practitioners are also provided for state support programmes, however, these are often omitted from the final documents and reasons for that are not explained. There is a guess of prevailing interests from particular stakeholder groups.* It is thus suggested that for enhancing of communication on vertical axis within the development of the regional plan *it is advisable to organize a small working group with participation of representatives from ministries.*

Remarks on planning priorities: Often there is a situation when disagreement appears on the priorities by a ministry and those by municipalities and stakeholders. This leads to a challenge on selection of activities in the planning documents. Activities not on agenda of the ministry will not receive state support. Planning, in principle, lacks the reflection on EU development vision (not

addressing future priorities). Support programmes includes options on application RES (e.g., solar collectors) in the housing energy efficiency projects. However, practical projects are not planned so far. It would be advisable for national and regional planning purposes to select progressive RES technology for implementation.

Municipalities in the regional context are represented by all local governments in this region. Thus, the engagement of these municipalities is essential. Municipality experts take part in the energy working group that provides a good ground for information and opinion exchange (e.g., with the ministry experts). The case in Zemgale regional energy planning has shown a good example: *good cooperation with all municipalities within Zemgale, all municipalities have provided the necessary information, highlighted problems and provided suggestions for further work, as well as ideas on projects to be realized.* However, there are important aspects to account for efficient organization of work: *due to high work-load at a municipality, the nominated expert's participation often is fragmented, without proper preparation and information analysis. Although, also documents are used to be circulated at the last moment thus leaving limited time for preparation.*

Energy producers, **experts** and **professional associations** see their involvement mainly for participation at the working groups and providing expertise.

Citizen/ society groups can have high interest to the planning topic or opposing views to any development aspects. In fact, it is important to provide timely and comprehensive information to the stakeholder group.

Conclusions

Analysis of regional stakeholder maps and decision flows in BEA-APP project partner regions has highlighted common aspects in communication and decision making in RE projects to consider.

- **Public authorities** most often are the key stakeholder group playing an important role in the decision making on renewable energy projects in all participating regions. Their role in the decision making has been identified in almost all cases analysed. Being responsible for regional/local development planning these institutions are actively cooperating with other stakeholders, often taking the role of initiators and developers of projects.

- **Energy producers** are the stakeholder group also mentioned in almost all cases. They frequently are mentioned as initiators of the projects, and being involved in planning, implementation and/or financing the projects. Less frequently energy producers are involved as consultants. Most often co-operations links between energy producers and public authorities, experts (consultants), professional associations, more rarely with NGOs have been identified. Communication is often driven by the business interests from these stakeholders.

- Stakeholder mapping carried out shows that **experts (consultants)** from private consulting companies, universities, research agencies are often present in the decision-making process on renewable energy projects. Besides providing a consultancy on e.g., technologies, they have been project initiators, taken part in planning process e.g., developing of planning documents, more rarely being investors of the project. Cooperation links with public authorities and with other stakeholder groups have been identified. Experts (consultants) are often taking part in working groups established for promotion of particular projects.

- **Professional associations** are most often playing the role of consultants, although have been involved in initiation, planning and development, implementation and rarely also in financing of renewable energy projects. They most often are unifying e.g., solar, wind, biomass, biogas, geothermal energy producers, lobbying their interests and promoting the use of renewable energy sources. Other type of professional associations unifies e.g., spatial planners, waste and waste water treatment companies, electricity and heat producing companies, producers of energy efficient materials. Cooperation links between professional associations, energy producers and public authorities have been identified.

- The role of **investors** in decision making process on renewable energy projects has been identified in about half of the cases analysed. Besides financing the renewable energy projects, investors sometimes have initiated the project and have been involved in planning and project implementation. Cooperation links with energy companies, public authorities and sometimes with experts/consultants have been identified.

- **Environmental (and other) NGOs** are not involved frequently in the decision-making processes. Most often they do networking with other NGOs, lobby nature conservation interests, provide consultancy, and in some cases, have initiated projects and taken part in development of planning documents. Cooperation links mainly with public authorities and in a few cases with other stakeholder groups have been identified.

- Participation of **citizen/societal groups** in the decision-making process has been identified only in some cases in relation to e.g., wind energy, biomass, biogas, district heating projects and in projects applying RES along with refurbishment of buildings. Cooperation links with public authorities, consultants, NGOs and energy producers (district heating company) have been identified. Citizen/ societal groups can have a very strong opinion pro or against the RE technology and project to be implemented in their vicinity. Participants of some organized group (e.g., Energy Group) can be very helpful mediators in the communication with local inhabitants.

Annex 1. Template for stakeholder mapping

Mapping of stakeholders that are involved/affected by renewable energy (RE) projects in all participating regions

GUIDE for stakeholder mapping

1. The stakeholder mapping is carried in BEA-APP project countries and in the partner regions (please indicate the relevant ones in the Excel sheets). This is the first step of stakeholder mapping by desk research - collecting information from publicly available sources (second step will be targeted interviews with representatives of stakeholder groups; template for these interviews will be developed later).

2. Please choose the RES topic that is actual for the stakeholder mapping in your region and relevant for case study in WP4. For your convenience we have indicated RES topics in the selection list. In case your topic is not there, please select "Other". Please select only one topic per Excel sheet. There are multiple sheets prepared to cover several RES topics.

3. Please relate the selected RES topic to relevant RE and spatial planning projects in the region. There could be one or more relevant projects selected.

4. Select from the predefined list the current status of project. We have agreed to utilise also experience of rejected projects, thus please do not hesitate to reflect on this as well.

5. The stakeholder groups are predefined. Please select from the list the relevant stakeholder group.

6. Please indicate institution/department/organisation/company representing the selected stakeholder group. Please also note their Internet homepage. We do not want to limit the number of institutions/departments/organisations/companies at this stage of task implementation. Please feel free to indicate all which are relevant for your region.

7. Please indicate by marking with (x) the role(s) of the institution/department/organisation/company with respect to RE projects and/or spatial planning.

8. Describe briefly the role(s).

9. Please indicate by marking with (x) on what bases the institution is undertaking their role(s).

10. Describe briefly the responsibilities.

11. Please indicate and describe cooperation of the institution with stakeholder group(s) e.g., public authorities, energy producers, investors, experts (consultants), professional associations, environmental NGOs, citizen/societal groups, others.

12. Please indicate details of a contact person of the relevant institution/department/organisation/company who could be further contacted and interviewed on RE project and spatial planning.

Template (Excel sheet) for stakeholder mapping

Country	Region	RES topic	Relevant project(s) in the region	Status of the project
			1.	
			2.	
			3.	
			4.	
			5.	

Stakeholder group	Institution/ Department/ Organisation/ Company & website	Role of institution						Description of the role	Responsibilities				Description of responsibilities	Cooperation with other stakeholder groups	Contact person (name, surname, tel, e-mail)
		Initiation	Consultancy	Planning	Financing	Implementing	Other		Voluntary	Compulsory	Advisory	Other			

Annex 2. Template for stakeholder interviews

INTERVIEW TEMPLATE FOR THE STAKEHOLDER MAPPING AND ANALYSIS

The sustainable production and use of renewable energy (RE) involves and affects a broad range of stakeholders in different sectors: public authorities, energy producers, investors, experts (consultants), professional associations, environmental NGOs, citizen/ societal groups, and possibly others. Mapping of stakeholders (filled-in Excel tables) has been performed by the respective partner in each of the regions participating in BEA-APP. The outcomes were summarized and graphical representation of communication routes was developed by BEF-Latvia.

This structured interview is aimed to:

- Check and complete the communication routes related to roles and involvement of the stakeholders in decision making path at the RE project(s)
- Analyse the interest and influence of these stakeholders on RE projects in the region by elaborating on communication aspects and identifying the needs for improvement

Brief procedure:

1. Please, select the RE project of interest in the region (e.g., solar systems, wind energy, biomass, etc.). We advise primarily to consider the pilot project (WP4) related activity and select the similar project (if completed).
2. Please, choose at least one relevant representative to be approached from **each stakeholder group**: public authorities, energy producers, investors, experts (consultants), professional associations, environmental NGOs, citizen/ societal groups, and possibly others by this interview (minimum – 7 respondents per RE topic).
3. Please, contact and agree with the person on time slot for the interview.
4. The interview is planned for ca.20 min; face-to-face or by telephone or Skype. Indirect approaches by using written answers to the questions are also possible (but in this case, please reserve also an option to contact the person afterwards for clarifications).
5. The interview template is made in English, but you are invited to translate it in national language for carrying out interviews.
6. **Please use a separate interview template for each respondent.**
7. Please translate the interview results and fill in the provided template in English for each respondent.
8. Please send to BEF-Latvia the interview results by **25 November 2016.**

Interview template

Region, country:

RES project/topic *(please, identify the relevant RES topic/project):*

Biogas	
Biomass	
Geothermal energy	
Solar energy	
Wind energy	
Other, *please identify:*	

Respondent *(please, mark the relevant):*

Public authorities		Professional associations	
Energy producers		Environmental NGOs	
Investors		Citizen/ societal groups	
Experts (consultants)		Other	

Interview questions:

1. **How do you describe the level of involvement of your organization/institution in the decision-making process to the respective RE project?** *Please, indicate the involvement, e.g., in the public hearing, working groups, commenting on drafts, actual decision making, etc.*

2. **With whom of the other stakeholder groups did you communicate during the decision making on this RE project?** *Please, indicate the organizations and the possible reasoning for this, e.g., required by a legislation of procedure, your interest, need for expertise, direct invitation from the other stakeholder?*

Stakeholder group	**Communication partner (If, yes, please name it /No)**	**Reasons for communication (or not communication)**
Public authorities		
Energy producers		
Investors		
Experts (consultants)		
Professional associations		
Environmental NGOs		
Citizen/ societal groups		
Other		

3. **With whom of the stakeholders the communication was good?** *Please, indicate the strong points, e.g., common vision and aims, interest from the other stakeholder, etc.*

4. **With whom of the stakeholders the communication was difficult or deficient?** *Please, indicate the possible reasons, e.g., low interest, contradicting aims to the RE project, etc.*

5. **From your experience, what would be needs for improvement of the communication to a comprehensive decision-making process?** *Please, indicate the possible approach.*
