



**BEA APP - Concept on
spatial planning via
introduction of planning
criteria and value added for
regional RE sector on the
example of Kaunas City
Municipality (Executive
Summary)**

Lithuanian Energy Institute, PP9



Executive summary

Implementation of National Energy Strategy, as well as other EU and country strategic documents, development of energy objects used for energy generation from renewable energy sources, is fast fostered in Lithuania. Selection of proper geographic locations for implementation of above objects, such as wind parks, bioenergy plants of solar PV plants, etc., is of key importance. The task for spatial planners is to make possibilities to install energy objects in specific and proper locations. At the same time it is important to find balance between the use of certain areas for energy and other competing purposes, such as farming, tourism, cultural landscape, environmental protection, etc.

Finding such balance is a huge challenge in itself. Municipal spatial planners, using existing planning requirements (regulated by legal acts) not always have experience and skills, as well as proper tools for solving such tasks. Besides, they often meet with resistance of local population, when locations are selected for energy generation using renewable.

Planning of energy objects in Lithuania is performed on the basis of existing legislation, however Renewable Energy (RE) projects are usually initiated by business interests and actual plans in this case just “follow” by including projects under implementation.

Existing legislation defined obligatory planning (general, special, district heating development, RES actions plans) are often not adjusted among themselves and are not compatible with general programs, have no general vision if the planned region. Municipalities can actually plan just the activities of municipal utilities, or investments into buildings, owned by municipalities. On the other hand, support schemes promote business investment not just in locations, where these should be used to meet public interests in the most efficient way. There is also lack of constructive public discussions (e.g. on actual pollution for residents living in the vicinity of biomass boiler-houses due to increased transportation and solid particles from generating sources, though most often no environment impact assessment (EIA) is performed; on impact of wind farms to local population, etc.). The most appropriate technologies for urban and rural areas are neglected.

With regard to at least partial solution of emerging problems one needs to improve existing planning system for energy objects, extend definition of planning criteria, evaluate new innovative project funding possibilities (funding schemes), impact to regional economics and apply new dialogue methods between project developers and publicity.

Problems related to negative consequences of existing planning process are similar in all BSR states. Thus the aim of this concept is preparing the Concept on development spatial planning of renewable energy in Kaunas City Municipality by the year 2027 on the basis of the results obtained during implementation of Interreg BSR Programme Project

„Baltic Energy Areas – A Planning Perspective (BEA-APP)“ for Kaunas City Municipality, which is the largest energy producer and consumer in Kaunas Region. The concept provides the main ideas for development existing planning methods, the use of new, innovative projects financing schemes, expected added value and general planning criteria, appropriate for the specific area, potential technologies, climate conditions, maximal demand, etc. The concept provides recommendations for policy makers, municipal planners and other stakeholders, involved in the planning of renewable energy projects.

One of the challenges for improvement of planning perspectives for renewable energy is growing with the expansion of renewable energies. Spatial planning must further develop its methods, planning criteria and data basis for planning, participation and conflict management. With the increasing number of renewable energy plants and the expansion of energy networks, also demands on planning as well as conflict potential will increase.

Assessing the experience of spatial planners in Lithuania, including Kaunas Region, and other countries of Baltic Sea Region, the following recommendations for RES planning are presented:

1. To evaluate three main elements for creating space for renewables for the large-scale implementation of the renewable energy:
 - **The renewable energy sources**, which include their location, accessibility and size of the resource. The utilization of resource depends on the availability and the economy of the technology, and the possibilities of locating the energy plant on a relevant site.
 - **Technologies**, evaluating a wide variety of technologies that can exploit water, wind, solar or biomass. It is typical that a number of technologies are being scaled-up, i.e. the standard renewable energy plant is getting bigger and bigger which can provide better resource utilization but sharper the difficulty of finding suitable sites.
 - **Space**, which is defined by nature possibility of finding a location for a given renewable energy plant, where location opportunities often compete with a variety of other purposes and considerations.
2. And two more elements important for implementation of renewable energy:
 - **The regulatory regime**, which is financial support for renewable energy. The resource-poorer location of the facility, the greater will be the subsidy requirement to achieve the target.
 - **Socio-economic benefits**, which is the unconditional prerequisite to contribute to the realization of a number of multilateral benefits, like local development (employment and revenue, basis for local investment, scaling the local environment and resources).
3. To pay special attention on the selection of planning criteria. The definition of criteria should include the following issues:
 - 3.1. **Designated areas for renewable energies:** Areas intended for renewable energy installations. This involves:
 - a. Clearly defined standard planning procedures;

- b. Special areas assigned for development of RES objects;
 - c. RES development in categories (type of renewable) is possible in any case/ is possible after individual assessment/is not possible.
- 3.2. **Standard planning processes:** Standardized planning processes in force for specific sizes and types of renewable energy installations and define, e.g. the need for public participation, the legislative framework and authorities in charge.
- 3.3. **Models for participation in spatial planning:** The purpose of public participation or at least stakeholder involvement is to ensure that stakeholder and public voices are heard. In this respect numerous participation models are in force and have to be considered for the spatial planning for renewable energies.
- 3.4. **Economic participation models:** Economic participation is a strong tool to avoid conflicts and paves the way for a higher regional added value, that's why economic participation was selected as general aspect to improve the framework conditions for the spatial planning for renewable energies. Economic participation can be achieved in the context of participation in regional energy cooperatives, community wind farms and solar parks and other formats. The goal is to increase local benefits for affected people from the added value of energy production.
- 3.5. **Natural renewable energy resources:** The natural renewable energy resources can be evaluated by the use of renewable energy resource data sets providing information on e.g. feedstocks for bio-energy, the characteristics of solar energy or wind energy for a particular region.
- 3.6. **Grid capacity regarded in spatial planning:** Renewable energy production from wind and solar are subject to natural variability. This variability creates distinct challenges to integrate the generated power into larger power systems and grids. Therefore power generation has a significant impact on the capacities of high voltage grids that is likely to increase over time. Integration of renewable energy is a multilayer-challenge involving multiple decision-makers like energy storage resources, grid operators, energy market operators and transmission planning bodies.
- 3.7. **Capacity and height of installations regarded in spatial planning:** Especially for the spatial planning for wind energy, the capacity for power generation and height of the turbines is a central aspect. Capacity for power generation also plays an important role for the spatial planning for biogas- and biomass plants and solar power plants.

Other technical aspects.

- 3.8. **Conflict potential:** Conflicts related to renewable energy installations occur in all participating regions around the Baltic Sea. Some conflicts are related to different renewable energy sources, other conflicts are specific to renewable energy sources depending from the way of energy generation. For wind energy such conflicts comprise e.g. environmental conflicts, landscape conflicts, or conflicts caused by noise, blinking and shadowing. Biogas plants can stand in contradiction to air quality and noise protection. Biomass burning connected to district heating, often face the problem of the capacity for heat supply, local pollution, etc. Therefore, the conflict potential represents a general aspect for spatial planning for renewable energies.

Other aspects:

- a. Impact on landscape assessment in spatial planning;

- b. Pollution assessment (emissions, visual, noise pollution, smells, etc.)
 - c. Logistics aspects regarded.
4. To increase involvement of stakeholders for planning of RES projects in municipal areas. It is a very important issue enabling to avoid conflicts among stakeholders in future. Thus it is important to initial constant dialogue with local communities, including project developers, NGOs, local population and other interested groups, such as maintaining constructive dialogue between developers of various RES projects. In case RES projects are socially sensitive (e.g. wind farm, biogas plant, biomass or waste burning plant in the vicinity of residential houses), local population could be interested in financial participating, i.e. possibility to gain several shares and part of profit. Some conflicts may be mitigated via improvement of the living surroundings, solving some household problems for residents, thus promoting public support for RES projects.