

Spatial planning in Poland and Estonia for promoting energy efficiency and renewable energy sources – Theoretical Background

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1. SYNOPSIS

A research was started concentrating on how energy efficiency and use of renewable energies can be promoted by spatial planning in Poland and Estonia.

2. ABSTRACT

Poland and Estonia belong to the Central and East European countries that will first join the European Union within the next years. Thus they have to implement the aims of the EU policy which in the energy sector includes the striving for more efficiency and renewable energy utilisation.

To reach this goal, not only technical and economical systems are needed, but also suitable spatial planning systems. Therefore a research study was started concentrating on the analyses of the structure and legal basis of the planning systems in Poland and Estonia. The aim is to identify how energy efficiency and a wider use of renewable energies are promoted by spatial planning and what future potentials exist in this field. As a precondition, spatial planning systems of other countries, e.g. Denmark and Germany, have been looked at for decisive factors that make them successful in supporting energy efficiency and renewables. In the ongoing project it will be examined if and how these factors could be transferred to the planning systems in Poland and Estonia.

Furthermore, the spatial planning policy of the European Union will be examined with focus on how the EU influences and supports the restructuring of the transition economies' planning systems, and what could possibly be improved on the side of the EU, e.g. by developing European wide planning guidelines.

At the current status of the project the theoretical background has been worked out; an in-depth analysis of the spatial planning systems in Poland and Estonia will have to follow.

3. INTRODUCTION

As an inheritance from the former centrally regulated economy without prices reflecting the market situation, energy efficiency and the utilisation of renewable energies have been nearly non-existent in the Central and East European countries (CEEC) until the 1990s. Already in the beginning of the accession process the European Commission came to the conclusion that there is still a lot of work and investments necessary to improve energy efficiency and to reduce environmental damages caused by energy production and utilisation in the CEEC. Although the European Commission declared that both Poland and Estonia will be able to adjust their energy policy to that of the EU in the short term, i. e. to prepare a legal basis for the energy sector according to the regulations made by the EU, the Commission still points at problems regarding energy efficiency and energy-related environmental problems in those countries. For example, the Estonian energy sector is two to four times less efficient than the average of all EU member states, and the Polish energy sector is two to three times less efficient. Together with the utilisation of oil shale in Estonia and coal and oil in Poland this leads to massive environmental problems.¹

To solve these problems and to reach the energy efficiency and environmental goals of the European Union, not only "conventional" activities like investments in the energy supply system, financial support for restructuring the energy sector and the creation of a respective legal basis are important measures. Also spatial planning can be a suitable instrument for increasing energy efficiency and for supporting the use of renewable energy sources.² In many countries of the EU it is already common to integrate energy-related issues into the planning process or to work out own energy plans or concepts.³

The aim of the research project which is still going on is to examine how the spatial planning systems of Poland and Estonia –representing the Central and East European association countries – are currently organised at national, regional and local level. With the help of success factors that will be identified by analysing spatial

planning systems of other European countries (for example Denmark and Germany) it will be examined how the planning systems of Poland and Estonia should be developed to contribute to an increase of energy efficiency and a wider use of renewable energies. Furthermore it shall be examined how the European Union within its spatial planning policy can influence and support the restructuring of the transition economies' planning systems, and what could possibly be improved on the side of the EU, e. g. by developing European-wide planning guidelines.

However, since the project is still going on and a lot of analytical work has still to be done, not all results (especially the very important empirical part) are already yet available. Thus the paper concentrates in the first line on the more theoretical background of the research, including the following aspects:

- Identifying the theoretical possibilities of how spatial planning can promote energy efficiency and the utilisation of renewable energy sources;
- Defining success factors for energy planning by looking at different European countries;
- Examining whether the European Union integrates the relation between energy efficiency, renewable energy sources and spatial planning into its (accession) policy;
- Analysing the current situation of energy efficiency and utilisation of renewable energy sources in Poland and Estonia;
- Providing preliminary results regarding the current situation of spatial and energy planning in Poland and Estonia.

An in-depth analysis of the Polish and Estonian spatial and energy planning systems, of the occurring problems in their development and of possibilities of implementing the identified success factors into the planning systems will be done during the further process of the research project and can therefore not yet be presented in the paper. But surely already the theoretical work might provide some interesting points of discussion that will be laid down in the end of the paper.

4. RESEARCH QUESTIONS

To guarantee a systematic proceeding of the project several research questions have been formulated that are to be answered in the end of the project (some of them will be already dealt with in this paper).

1. How can issues of energy efficiency and the use of renewable energies be influenced by spatial planning? What instruments of spatial planning are suitable for this influence? These questions are the basis of the research.
2. How are these possibilities of influence integrated in the European Union spatial planning and energy policy? Are they given any importance in reaching the European goals of more energy efficiency and an increasing share of renewables?
3. Are there already currently any prepositions within the spatial planning systems of Poland and Estonia for a contribution to an efficient and renewable energy use? How have these systems to be developed to realise the European goals regarding energy efficiency and renewable energies? Is it possible to transfer successful planning methods of other countries to association countries in a modified way?
4. Does the European Union with its current spatial planning policy support the development of spatial planning systems in East and Middle European countries in a way that subjects of energy efficiency and the use of renewable will be widely integrated in the planning processes? Would it be possible to guarantee this integration by designating European-wide planning standards?
5. What importance will spatial planning generally get in the future while the energy market is getting restructured and liberalised? Will the importance of planning rather decrease or increase?

5. PRELIMINARY RESULTS

What has spatial planning to do with matters of energy efficiency?

What influence has planning on subjects of energy efficiency and renewable energies?

The development of energy supply systems and the use of energy is not only linked with aspects like economic interests and economic development, although these would be the main factors, but also with aspects of spatial planning. Energy use and spatial planning influence each other to a great extent. On the one hand, a properly working energy supply system is a precondition for planning and developing cities and regions. On the other hand, there are many ways of how spatial planning can influence the kind of energy sources and technology used

and the amount of energy consumption. The aim is to reduce the utilisation of fossil primary energy sources, to reduce the final energy consumption, and to increase the relative and absolute share of renewable energies within the energy balance.

Regarding the support of energy efficiency and the use of renewables, spatial planning has an influence at two stages of the energy circle: the energy exploitation and distribution and the energy consumption. In the following, possibilities of influencing both aspects are shortly described.

a) Designating special areas for renewable energy exploitation and conversion

Renewable energy sources can in the first line be promoted by their integration into spatial plans. Relevant for regional planning are energy sources that can only be exploited in determined areas: wind energy, geo-thermal energy, hydropower and large-scale solar energy. Because of the limited possibilities for the application of respecting exploitation technologies and because of potential conflicts with other spatial utilisation caused by the floor space required, necessary areas for the exploitation of these energy sources must be made available already at regional level. Theoretically, there are several possibilities for doing so:

- Designation of priority areas: these areas are designated for installations of specific energy production facilities, other competing utilisation is excluded;
- Designation of reservation areas: the use of specific energy production technologies in these areas gets special weight if there is a conflict with other utilisation;
- Designation of suitable areas: the installation of special energy production facilities in these areas are possible but then it is not allowed to build plants in other areas of this planning area.⁴

At local level the regional plans with their areas designated for energy exploitation have then to be concretised. For the promotion of renewable energies by spatial planning the designation of priority and reservation areas are especially suitable whereas the designation of suitable areas has only a rather weak effect. For example in Germany and Denmark it is already quite common to use these possibilities for promoting the utilisation of wind energy.

The utilisation of biomass, however, does not have such restricted requirements at the location of its conversion. It is a more “mobile” renewable energy source. It only should be paid attention to a minimisation of transport distances for environmental reasons, but also for the economical feasibility of its utilisation.

b) Developing energy-efficient settlement structures

Besides the exploitation of renewable energy sources, spatial planning also has big influence on energy consumption which is mainly relevant for the development of new settlements. In this way spatial planning should have two main objectives: to conserve heat (as little heat as possible shall get lost through buildings) and to utilise heat (the building shall harvest as much heat as possible from outside, mainly by solar energy). Thus in the comprehensive municipal and the detailed local plans special attention has to be paid to:

- the location settlements (relevant are microclimatic aspects that are characterised by the topography of an area as well as by the existence of vegetation and water bodies);
- the structure of settlements (density: relevant for minimisation of heat losses; orientation and distance of buildings: relevant for realising potentials of passive solar energy).

The development of high-density settlement structures is also a precondition for the use of energy-efficient technologies such as DH (district heating) and CHP (combined heat and power). This reduces the costs for the installation of the energy grid and therefore supports an economical feasible operation.

c) Establishing energy plans

Besides the integration of energy aspects into every-day spatial planning processes, it is also possible to establish separate energy plans which concern the overall development of energy exploitation and consumption at national, regional or local level. The plans may contain an analysis the current situation (primary energy use, energy consumption, potentials of using local energy sources etc.) and a description of potential measures for increasing energy efficiency and the wider use of renewable energies. such plans have already been established in several European countries, such as Denmark (heat plans) and Germany, although with different success.

How is energy planning working in different European countries?

a) Heat planning in Denmark

How issues of energy efficiency and use of renewable energy sources are included into spatial planning activities is quite different in several countries. Comparing European countries, Denmark seems to be the one with the best or the most detailed organised energy planning system. It was developed after the oil crises of the 1970ies to

reduce Denmark's dependence on energy imports and includes the local as well as the regional planning level. As an important part of the energy policy after the oil crises the Heat Supply Act was adopted in 1979 that regulated the development of strategies for the establishment and alteration of collective energy supply systems and for the use of indigenous energy sources. On this basis heat supply plans were worked out at local level and summarised at regional level to regional heat supply plans that included evaluations of and guidelines for:

- the establishment of collective supply systems across the municipal boundaries, e. g. the supply of natural gas, surplus heat, waste incineration and geothermal energy;
- regional allocation of straw or straw surplus and surplus wood;
- the long-term utilisation of biomass, wind and solar energy.

The first part of the heat planning process in Denmark was finished in 1989, and a new Heat Supply Act came into force in 1990. It gives all responsibility to municipalities that shall estimate heat planning projects and decide upon their implementation.⁵

There have been several factors why the heat planning process in Denmark was that successful:

- The planning authorities have been provided with working instructions developed by the national energy authority and some regions. The instructions contained all necessary information about the planning objects and about the single steps of the planning process.
- Another important assisting document was the so called supply catalogue. It included necessary organisational advice as well as technical and economical declarations of heating plants. Additionally, there have been organised courses about how to use the catalogue.
- The Ministry of Energy was obliged to co-operate with energy suppliers. This led to the establishment of different working groups at national, regional and local level that concentrated on co-ordination as well information distribution.
- The heat planning process has been supported by the existence of extensive data material, i. e. of building registers and inhabitant registers.
- Additional instruments such as energy taxes and the co-operation with utilities promoted the implementation of the heat planning results to a big extent.
- There has been a legislative foundation and obligation for the development of heat plans, and the plans themselves have had a binding character for local and regional authorities.⁶

b) Energy concepts in Germany

In Germany there is no legislation for separate, legally binding energy planning with comprehensive targets and strategies for the further development of energy production and consumption. Nevertheless, some local and regional authorities have worked out energy concepts (plans) for their planning area (or sometimes only for a part on a municipality) on a voluntary basis.

Energy concepts in Germany have been developed mainly in the 1980ies and 1990ies. They concentrated on the extension of district heating, on energy saving in local buildings and on the utilisation of CHP (combined heat and power). Working out energy concepts has been supported by financing programmes of the Federal Government and of several Federal State Governments. The problem with these programmes was that only the development of energy concepts has been supported, but not its implementation into praxis. Thus there are a lot of deficits in this field that are cumulated by the fact that energy concepts are not legally binding. As reasons for the insufficient implementation can the following aspects be counted⁷:

- The measures proposed in the concepts have not been economical, due to very low energy prices and missing financing programmes.
- There has not been enough money for investments.
- There was a lack of free working capacities (in many cases the jobs created for the concept development have been deleted after finalising the work so that in the end there was nobody available and responsible for the concept implementation).
- Necessary organisational and technical know-how was missing.

Since the implementation of energy concepts has been rather insufficient, the results have been quite modest, too: in nearly no municipality that worked out an energy concept a reduction of the absolute energy consumption could be reached, nor was this expected in the near future.⁸ Another study even came to the conclusion that energy concepts hardly contributed to the development of CHP projects and to a wider use of renewable energy sources. Projects have been set up independently from energy concepts, respectively municipalities without such a concept established energy efficiency projects, too.⁹

But these results do not mean that energy concepts are not a suitable instrument for promoting energy efficiency and utilisation of renewable energy sources at all. Rather better preconditions must be provided, or energy concepts should be seen more as a database for information about the situation of energy production and

consumption, local energy sources and possible strategies for a more environmentally friendly energy supply to be integrated into every-day regional or municipal planning processes.

c) Energy planning in other countries

In Sweden the Municipal Energy Planning Act of 1977 regulates that all municipalities are responsible for energy planning. They are obliged to promote the efficient use of energy within their plans and to co-operate with important actors of the energy sector, e. g. with utilities. Since an amendment of the act in 1985 all municipalities have to set up energy plans, but those are not legally binding against authorities and private persons. Since the Municipal Energy Planning Act was established in consequence of the oil crises, the first generation of energy plans contributed very much to a decrease of oil consumption. But since the late 1980ies not all municipalities are ambitiously active in energy planning any longer.¹⁰

In the Netherlands energy planning is also carried out at national level. In addition to more generally oriented policy documents, government policy on spatial planning can also be laid down in so called National Structure Plans for certain policy sectors.¹¹ Such a structure plans has been set up also for the electricity sector. It provides the basis for electricity supply plans worked out by the Co-operation of Electricity Supply Companies every two years. Regarding the Electricity Act of 1989 decisions have to be met concerning:

- Possible locations of power plants with a capacity of more than 500 MW_{el},
- The utilisation of certain fuels at these locations,
- The maximum production capacity for each kind of fuel and
- Transmission routes.¹²

What conclusions can be drawn regarding energy planning?

As can be seen from the explanations given at the beginning of chapter 5, spatial planning can contribute to an increase of energy efficiency and utilisation of renewable energy sources in many ways and at different planning levels, the regional and local level being the most concrete ones. Taking into account that the absolute amount of energy consumption and also the use of certain energy conversion technologies depend very much on the location and structure of settlements, energy planning at local level seems to be the most effective way of contributing to an environmentally friendly energy use (this might be especially relevant for the CEEC since they become very active in developing new settlements within the next years). At regional level spatial planning can in the first line create the preconditions for the exploitation of renewable energy sources, and at national level respective policy guidelines can be set up.

To guarantee a successful development and also implementation of separate energy plans and/or the inclusion of aspects on energy efficiency and renewable energy use into local and regional planning processes, the following aspects must be paid attention to (success factors):

- Basic knowledge must be provided for local and regional authorities and planners regarding organisational and technical requirements (working instructions, guidelines, training programmes). Additionally, new working capacities must be created within the planning authorities with responsibility for energy planning.
- During the planning process the co-operation with relevant actors (energy suppliers, architects, also inhabitants) is of great importance for information dissemination and the practical implementation of the planning subjects later on.
- Relevant data material must be made available, such as information about local energy sources, the age of buildings and scenarios about the future population development. This might be a real problem in the Central and East European countries where there is still a lack of a suitable data basis.
- The implementation of set up strategies for energy efficiency and renewable energy use must be guaranteed. On the one hand this includes a kind of implementation control, on the other hand preconditions have to be created for making energy efficiency measures economical and for making investments possible. This could be done by additional instruments like financing programmes and/or energy taxes.
- It seems to be suitable if a legislative obligation for energy planning exists as in the case of Denmark. Additionally, planning subjects regarding the promotion of energy efficiency and a wider use of renewable energy sources should be made legally binding, preferably by including them into regional, local comprehensive or detailed spatial plans (this also guarantees the equalising of different planning interests).

While looking at planning activities in European countries it can be noticed that energy planning is quite common, not only regarding the integration of energy-related issues into every-day planning (regional, comprehensive and detailed planning), but also regarding the establishment of separate energy plans. It also seems that energy planning is mostly effective and contributes to energy efficiency and use of renewables if there is a necessary political background for this, *i. e.* as long as there are political objectives and political pressure as it was for example during the oil crises.

Also in the CEEC there is an extreme need for improving energy efficiency and the share of renewables, because both aspects are currently underdeveloped (see the following section “What is the current status of energy efficiency and the utilisation of renewable energy sources in Poland and Estonia ?”, chapter 5). But currently the political pressure does not seem to be big enough for pushing the development forward, and there is still a lack of money for investments. But nevertheless, the CEEC will face an increase of new settlements and the number of households as it could also be observed in East Germany. To avoid long-term negative effects on energy consumption, aspects of energy efficiency and use of renewable energy sources should be integrated into spatial and energy planning from the very beginning.

How does the European Union integrate the link between energy efficiency and planning into its policy?

For the promotion of renewable energies the Commission worked out a respective Whitebook in 1997. In this Whitebook the Commission set the target to increase the share of renewables on the overall energy demand up to 12 % until the year 2010. This is twice as much as the share was in 1997. To reach this target and to minimise the obstacles against renewables the Commission proposed several strategies, two of them with regard to the spatial planning sector:

1. Regulations in the building sector are to be improved with effect on local and regional planning. Since the total energy consumption of the EU in this sector could be reduced by 50 %, issues of active and passive solar energy use of buildings get special significance.
2. Within its regional policy the European Union will support regional and local projects and planning methods with relevance for renewable energy utilisation.¹³

But the objectives and strategies proposed in the Whitebook are only a guideline and therefore not binding neither for the institutions of the European Union themselves nor for the member states. Regarding the promotion of energy efficiency and renewable energy sources by spatial planning no binding targets and guidelines in any document have been set by the European Union, regarding both energy policy and spatial development policy documents. Nor are there any requirements in this field for the accession process of the CEEC.

In 1999 the European Spatial Development Perspective (ESDP) was amended by the Ministers responsible for spatial development which lays down strategies of realising the objective of a sustainable development in Europe. In the ESDP the significance of spatial planning for influencing energy aspects are made clear although this is not the main part. In this way the relevance of rural areas for the exploitation of renewable energy sources and of energy-saving settlement structures are pointed out as well as the importance of renewables for the development of rural areas.¹⁴ But here no guidelines for planning in the member states are set either.

In one of the documents of the Baltic 21 series¹⁵, however, guidelines for spatial planning in the Baltic Sea Region have been set up. They include planning principles also regarding the energy sector, namely the use of small-scale energy production in small and rural settlements and the use of collective energy supply systems (DH). These guidelines are of course not legally binding either but provide a basis for the harmonisation of the European spatial development.

What is the current status of energy efficiency and the utilisation of renewable energy sources in Poland and Estonia?

All former socialist countries had have a very energy intensive economical structure. Due to the political and economical development since 1990 including the liquidation of energy intensive industrial sectors the energy intensity per GDP has considerably decreased since 1990, also in Poland and Estonia. But still energy production, distribution and consumption are far less efficient than in Western European countries which leads to massive environmental problems. The following sections give a short overview about the situation of energy efficiency and use of renewables as well as current strategies of its improvement in Poland and Estonia.

Poland

Poland's energy sector depends very much on the exploitation and utilisation of hard coal and lignite coal. Although their use decreased slightly in the last 20 years, they have still a share of about 70 % of the total primary energy use (1996). Next comes fuel oil (17 %) and natural gas (9 %), both with increasing tendency.¹⁶ The share of renewable energy sources is less than 2 % of the total primary energy use¹⁷, but it is raising as well. Especially the utilisation of wood for space heating increased relatively high from the beginning of the 1990s.¹⁸ However, it must also be noticed that none of the renewable energy sources has a very large potential in Poland, but the regional potential can be quite high. Most important in this point of view is hydropower.

The big amount of coal utilisation caused massive environmental problems. Although there are about 25 % of all apartments in Poland are connected to district heating, there are also some 17 million small boilers or stoves in

individual houses or apartments. Most of them are firing coal with low efficiency. Here are very effective possibilities for improving energy efficiency by converting the stoves to burn biomass, e. g. wood wastes.¹⁹

Very big potentials for energy saving lie in the residential sector, since the level of space heating intensity of dwellings in Poland (and also in the Baltic States) was about twice as high as in other Nordic countries in the end of the 1980s and beginning of 1990s.²⁰ About 40 % of the total primary energy resources in Poland are used for space heating and water heating. And due to increasing floor areas in residential buildings the heat consumption will further increase.²¹ In this sector the task for the future is to promote efficient energy installations, e. g. small CHP plants on the basis of renewables or natural gas, and to decrease the relative and absolute energy consumption of buildings, i. e. by thermal insulation as well as by developing energy efficient settlement structures.

Estonia²²

The Estonian energy production is mainly based on fossil fuels, oil shale having a share of 58 % of the total primary energy use. Looking only at indigenous primary energy sources, oil shale makes up to 82 %, leaving the rest to wood and peat. It is characterised by a very low efficiency of 0.27-0.30. As alternative to electricity production from oil shale mainly CHP plants on the basis of natural gas are developed.

The share of renewable energy sources at the total primary energy use is rather insignificant. There are only one wind turbine with a capacity of 150 kW and seven small hydropower stations with a total installed capacity of 0.8 MW in operation. The most important renewable energy source in Estonia is biomass, i. e. wood. It is already currently used to some extent (about 12 % of the total heat production), but its potentials are much higher, because about 48 % of the territory of Estonia is covered with woods. Additional to biomass, also wind energy has some technical potentials which is estimated being about 100 MW. Wind turbines can be primarily installed at the coastline and some islands.

After regaining independence, the energy consumption per household decreased. But like in Poland, also in Estonia the amount of households is raising, thus compensating energy savings. But the aim of the Estonian government is that in the period from 2000 to 2005 the growth of the total primary energy demand per capita may increase at least twice slower than the GDP growth.

The problems regarding the lack of energy efficiency and the insignificant share of renewable energy sources that are also relevant for the other CEEC, will not be eliminated exclusively by spatial and energy planning measures. Rather, there are measures of more political, economical and legislative character necessary to solve the enormous task of restructuring the energy sector. However, spatial and energy planning support this process by creating preconditions for the substitution of fossil fuels by renewable energy sources, for a decentralised energy supply or for decreasing the energy demand.

How is spatial and energy planning organised in Poland and Estonia?

In the frame of the study it is planned to have a closer look at how spatial and energy planning is carried out in Poland and Estonia, including an analysis of the relevant legislation and the practice of energy planning as well as already finished and still ongoing energy planning projects. At the moment, however, this more practical and empirical research is not yet done. Therefore only more theoretical and abstract explanations regarding spatial and energy planning in Poland and Estonia can be given that are to be verified within the next research steps.²³

Poland

a) Organisation of the spatial planning system

Spatial planning in Poland takes place at national, regional and local level whereas most of the planning activities are performed at local and regional level. The basic regulation for the planning sector is provided by the Spatial Development Act of 1994 which came into force on January 1st 1995. The law has substituted previous regulations of 1961 and 1984.

At national level the Housing and Urban Development Office is responsible for the general co-ordination and standardisation of spatial planning, but the responsibility for the national spatial (or physical) development policy lies within the Government Centre for Strategic Studies. The Centre produced the strategic and open document Poland 2000 Plus reflecting the country's spatial development policy. The document is a regulatory tool for structural changes in the country and keeps local governments as well as different interest groups informed about them. Therefore it is not really a plan of physical structure but rather a kind of open and strategic planning process. During this process a document called Spatial Development Policy is set up and regularly

amended which has, however, no binding character. Rather the Council of Ministers can decide to which extend it is taken into account while working out national programmes for fulfilling governmental tasks.

At regional level which consists of 16 regions (Voivodships) the authorities responsible for spatial planning are the respective Departments of Strategy and Development. Regional spatial planning in Poland is organised by two different processes and documents. First, the Strategy for Regional Development (Regional Strategy) has to be worked out and adopted in each region. It is of very comprehensive nature and focuses mainly on social and economic subjects. Based of these strategies Regional Programmes have to be set up and have to be co-ordinated with the Plans of Spatial Development (Regional Plans) which are the second planning document of each region. A Regional Plan formulates the spatial policy of the region in more detail (e. g. the settlement system organisation and the location of public infrastructure).

The substantial responsibilities of spatial planning are organised in the municipalities (Gminas) at local level. Every municipality is obliged to work out and to approve a comprehensive plan which is made for the whole territory and includes e. g. principles of sustainable development, functional zoning and location of technical infrastructure. Additionally, development plans are prepared for single parts of a municipality, but only if necessary. A development plan contains detailed regulations concerning the division of an area into building plots, establishing building conditions etc. Until now the majority of municipalities worked out spatial plans and socio-economic strategies, either integrated or in a parallel way.

b) Energy planning

In Poland the instrument of energy planning was introduced with the new Energy Law published on June 4th 1997. As an important element the law makes local energy planning compulsory for municipalities including the responsibility for supply with heat, electricity and gaseous fuels. Every municipality has to develop an energy supply plan consisting of:

- An evaluation of the present situation and forecasts for the energy and fuel demand;
- Promoting rationalised energy consumption by end users;
- Checking possibilities for using existing energy surpluses, local and renewable energy sources and CHP.

Currently, however, the Polish municipalities have not yet implemented energy planning in accordance with and required by the Energy Law. Due to inadequate secondary legislation and lack of experiences within their organisations the responsible authorities are reluctant and not able to initiate energy planning processes. Therefore an Energy Planning Secretariat was created within the Polish National Energy Conservation Agency (KAPE) that aims to promote the idea of energy planning and to provide necessary know-how in co-operation with the Danish Energy Agency.

Estonia

a) Organisation of the spatial planning system

Spatial planning in Estonia is regulated by the Planning and Building Act that came into force on July 22nd 1995. Currently the first supplement to the act is developed.

Land use planning is a prerogative of the Estonian municipalities where local development and building is guided by comprehensive and detailed plans, the latter being the basis for short-term building activities. Until 1999 one third of all local governments have prepared up-to-date comprehensive plans.

The responsibility for spatial planning at national level lies within the Ministry of Environment. Its task is the regulation, co-ordination and supervision of planning and building and the preparation of national planning guidelines. The Ministry has set up the national planning policy statement "Estonia 2010" which has the role of the national planning document. It formulates the strategy and concepts for the physical development of the whole country, determines conditions for land use and the location of technical network routes such as roads and other constructions of national significance etc. Since it became obvious that the document is too detailed for the national level it will be revised during the current amendment of the Planning and Building Act.

For the co-ordination of national and local interest county plans are prepared by the county governments. County plans are set up either for the whole territory of a county or a part thereof. They can also be prepared for several counties or as thematic plans. They influence human settlement patterns, include issues of infrastructure, determine the conditions for the use of natural resources and etc. Since there is no second level of self-government in Estonia, the county governments are state institutions. The regional development policy is organised by the Ministry of Internal Affairs and is guided by the Regional development Strategies of 1999.

b) Energy planning

In Estonia, there is no general energy planning system organised. Under the EU PHARE Programme, however, energy development plans for several municipalities have been elaborated, mainly by foreign partners or

consulting firms. Currently, the second phase of establishing energy development plans is going on. During the first phase 27 projects were worked out, and during the current phase it will be eight to ten projects. Generally, these plans are not legally binding except if their subjects are included into a detailed plan being affirmed. (In the further process of the study the projects will be examined more closely, also regarding the experiences of them.)

The most general objectives regarding the development of energy supply at local level are stated in the Long-term National Development Plan for the Fuel and Energy Sector. Besides others it includes the objective for promoting the wider use of renewable energies and the principles of distributed electricity production as well as combined heat and power production. But local authorities have no sufficient rights and responsibilities for energy planning. This is rather dealt with under the general municipal development.

6. POINTS OF DISCUSSION

Although the more theoretical part of the study is mainly finished there are still some open questions that are relevant for the ongoing research and that might be worth of discussion.

1. The relation between spatial planning and subjects of energy efficiency and utilisation of renewable energy sources plays only a minor role in the European Union policy which concentrates in the first line on the development of the internal market. This is also reflected in the EU accession process. Is it actually possible to contribute to the development and effectiveness of energy planning measures in transition economies as well as in the member states (which have problems with energy planning as well) from the level of the European Union, e. g. by establishing planning guidelines/directives?
2. Would the CEEC profit by European planning guidelines at all? Or would it be more suitable to concentrate on bilateral energy planning projects as it is already done in some cases? How can be best guaranteed that the success factors of energy planning described in the section entitled "What conclusions can be drawn regarding energy planning" (chapter 5) will be integrated in spatial planning legislation in the CEEC?
3. While the energy market becomes more and more liberalised, is it still possible to restructure the energy sector by planning measurements that extensively as it has been done by the heat planning process in Denmark in the 1980s? Will the development of the energy sector become regulated only by market forces, or will public regulation such as energy planning be still of importance? Or will energy planning, on the other hand, become more relevant now because of the necessity to equalise interests of the numerous actors in the energy sector?

7. END NOTES

¹ cf. Europaeische Kommission (European Commission, ed.): Stellungnahme der Kommission zum Antrag Polens auf Beitritt zur Europaeischen Union. Bulletin der Europaeischen Union, Beilage 7/97 and: Stellungnahme der Kommission zum Antrag Estlands auf Beitritt zur Euroaeischen Union. Bulletin der Europaeischen Union, Beilage 11/97 (Comments of the European Kommission regarding the applications of Poland and Estonia for joining the EU)

² This is also pointed out in the European Spatial Development Concept (ESDP) which was established in 1999. cf. European Commission (ed.): ESDC – European Spatial Development Concept. 1999

³ This integration of energy issues into spatial planning processes or the establishment of energy plans is in this paper called "energy planning".

⁴ These three cases are corresponding to the possibilities of designating areas for wind energy utilisation laid down in the German Spatial Planning Act (§ 7 (4) ROG). But theoretically these regulations could be used for other energy supply technologies as well.

⁵ Spatial and Energy Planning in the Baltic Sea Region. Report of the INTERREG IIC project Baltic CHAIN. unpublished

⁶ cf. Krawinkel, Holger: Für eine neue Energiepolitik (Towards a new energy policy). Frankfurt/Main 1991

⁷ cf. Damm, Winfried: Energiekonzepte in Westdeutschland (Energy concepts in Western Germany). Leipzig 1996

⁸ cf. Damm (see above)

⁹ cf. Schlusche, Kai Hendrik: Energiekonzepte und Erfolgskontrolle (Energy concepts and success control). Dortmund 1991

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- ¹¹ cf. Ministry of Housing, Spatial Planning and the Environment of the Netherlands (ed.): Spatial Planning in the Netherlands – Bodies and Instruments. The Hague (without year of publication).
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- ¹⁵ cf. Committee for Spatial Development in the Baltic Sea Region (CDS/BSR): Spatial planning for sustainable development in the Baltic Sea Region, Baltic 21 Series No 9/98
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- ¹⁸ cf. Krawczynski, F. / Michna, G. (see above)
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