

AUDIT AS INDISPENSABLE TOOL OF REGIONAL ENERGY CONCEPT'S DEVELOPMENT

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Spatial structures of many forms are components of life of majority of people, often even without their consciousness. These structures preserve for a long time (countries, villages) or are subject of modifications (districts, counties, regions). The last legislative adjustments emphasized as a basic structure the self-governing region. Region in this case is defined by the Act n° 302/2001 Z.z. on self-government of superior regional entities (VÚC).

The notion of region is in general representing an area, proportionally economically and culturally self-sufficient, capable for some autonomy. In the real situation, one can understand a region as conjunction of villages, districts or regions respecting some selected categories.

One of the main tasks of the VÚC is elaboration of conceptual analysis that is presented in form of National Plan of Regional Development (NPRD) containing six global issues expressed as "assignment of sustainable economic development".

Sustainability of continuous development is a difficult objective. One of the main factors influencing this objective is the economy of energy.

The energy supply should assist in general development of respective region and in minimizing the negative impacts on environment. Majority of negative impacts have for source the regional imbalance, induced by competitive and conflict requirements for existing spatial potential. It is to say, that development of energy systems must be programmed and systematically planned.

Regional energy concepts are not any innovation. Their elaboration in recent history was during the work on the "National Study on Energy Efficiency" labelled as "little efficient and high-costly". The mentioned assessment is, at least, to discuss. One cannot elaborate a document without necessary knowledge and information, the

document that will concord possibilities of development of commercial activities with possibilities of preferential use of local energy sources and respective environmental measures. The groundwork for an open model of system of supplying a region with energy can be provided by an **energy audit** that contains analysis of departure status and projection of future needs, with view of complex development's objectives, current energy policy and current legislature.

Regional energy audit is in comparison with, for example, energy audit of an industrial company different in some aspects. The basic structure is as follows:

- Description of current status in the region,
- Objectives and aims of regional development,
- Means and tools for achievement of objectives and aims,
- Conclusions and measures.

Description of current status in the region consists of a general part and of part called "energy economy". In the general part, there is a need to focus on demographic development, employment, social structure, residential structure, number of apartments and houses, facilities, economy and environment in scope necessary for further development. It is advisable to use approved or semi-finished regional plan of VUC.

Existing evolution and status of energy economy in the region, as well as the share of the region on the final fuel and energy consumption is needed to analyse precisely in connection with:

- Fuel and energy supply for every sector of industry and economy,
- Technical conditions of generating basis of energy sector,
- Assessment of deficiency / surplus of generating or distributing capacities,
- Assessment of efficiency of generating facilities,
- Assessment of suitable type of fuel (solid, liquid, gas, ...),
- Assessment of efficiency and usefulness of current supply with fuels, heat and electricity,
- Sufficiency of strategic supplies of fuels,

- Usefulness and efficiency of use of waste (drossy) heat.

The characteristics of economy of energy will be purpose-built in the following structure:

- a) According to department of energy sector (electro-energy, heat supply, gas supply, liquid fuels, solid fuels, renewable energy sources and secondary energy resources, efficiency of generation, distribution and consumption of energy, energy efficiency, influence of energy sector on environment)

The database of greatest consumers of fuels and energy in the regions will be elaborated, the greatest polluters of environment will be defined, the influence of energy systems and fuel supplies on environment will be found out, the reason of high energy intensity and low efficiency of producing processes will be analysed (e.g. by analysis of made energy audits in individual industrial companies).

- b) According to number of individual generating devices (electricity plants, heating plants, engine sheds, CHP, distribution of electricity, heat, gas, electricity stations, delivery stations of heat, compressor and regulating natural gas stations, plants and filling stations of calor gas, measuring and regulating devices, monitoring of the environment ...).

Objectives and aims of the region contain:

- a) Analysis of evolvement of demand for fuel and energy, in connection with:
 - Number of inhabitants, residential structure, geographic and climatic data,
 - Consumer's systems in the following structure: residential sector, civil facilities, commercial sector and quantification of their energy intensity.
- b) Analysis of potential sources oriented to accessibility of fuels and energy,
- c) Evaluation of utility of renewable energy sources oriented to reduction of environmental charges in region and abroad and possibilities for use of prospective secondary energy resources,
- d) Evaluation of economically exploitable savings in individual consumer's systems and production and distribution energy systems, with quantification of potential amount of energy, which is possible to save after realisation of savings.

According to objectives and aims of regional development, **available means and instruments** will be determined, such as establishment of energy commission, programs of state aid, investment methods for energy sector (funding from savings, supply of energy according to contract on energy supply, ...), foreign support programs, education, consulting, exhibitions' and conferences' organisation, supervision of legal acts' adherence.

Finally, crucial problems will be defined, the priorities will be determined and an "action plan" will be proposed. The most important part of the energy audit is a **proposal of measures**. The measures at the regional level are proposed in following fields:

- Investment (focused mainly on increase of energy efficiency and higher use of renewable energy sources),
- Environment protection,
- Economy,
- Promotion and consulting.

In accordance with proposed measures in the energy audit of the region, it is then possible to define recommendations in institutional and organisational field, as well as in legislative field.