

EU and national regulations on geothermal energy

Overview

- Challenges – role of geothermal energy
- EU objectives, regulatory background
- Hungarian regulatory background
 - support schemes
 - system of obligatory take-over
 - green certificates
 - permission procedures
- Requirements in connection with the regulations

Challenges

- the days of cheap and safe energies are over
- climatic change, increasing import dependence, high prices of fossil energies, social and political risks in fossil energies
- volatile prices, blackouts and supply difficulties as warning signs indicating the excessive dependence of both Europe and Hungary
- the import dependence will considerably increase, as – similarly to other member states – Hungary is dependent on a single gas source
- potential solutions: diversification, popularization of energies from renewable resources, the promotion of its spread

I. EU objectives, regulatory background

General objectives of the EU

- The conversion of Europe into an economy with high energy efficiency and low CO2 emission
- Renewable/green energies are beneficial to:
 - *energy efficiency* – alternative sources
 - *environmental targets* – reduction of the emission of greenhouse gases, particularly CO2
 - *economic and social purposes* – safe energy sources (especially geothermal energy), creation of jobs, investments in underdeveloped regions
 - *innovation*

EU's policy and objectives in connection with renewable energies I

- the share of renewable energies should be 20% in 2020 within EU's total energy consumption
- by the end of 2007, a new standard package pertaining to renewable energies should be compiled with the consent of the individual member states (national action plans)
- EU's indicative objective until 2010: the share of electric power generated from renewable sources should be 21% with the total electric power consumption of the Community
- the Commission expects to have a 34% share of electric power generated from renewable resources by 2020 within the total electric power consumption of the Community

EU's policy and objectives in connection with renewable energies II

- The EU aims at the reduction of the emission of greenhouse gases
- Until 2020 a 20% reduction is targeted

EU's regulatory background

- Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC (**"Electricity Directive"**)
- Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market (**"Support Directive"**)

II. Regulations pertaining to renewable energies in Hungary

Renewable energy production in Hungary

- the 2003 indicative target undertaken in the Accession contract: until 2010, 3.6% share of electric power generated from renewable resources within the gross electric power consumption, which is not too ambitious
- Hungary has reached the 2010 target back in 2005 (today, the share of renewable energies is cc. 5.7%)
- a higher target would be desirable

Renewable energies /Regulatory background (electric power generation)

- basis of the current electric power supply system: Act CX of 2001 on electricity („**VET**"), and
- Governmental Decree no. 180/2002 (23/08) on the enforcement thereof („**Vhr**")
- a new electricity act has been adopted on 25 June 2007, Act LXXXVI of 2007 („**new VET**"), which will be fully effective from 01 January 2008; the enforcement decree still has not been accepted, its contents are not known
- Decree no. 56/2002 (28/12) by the Ministry of Economy and Transport (GKM) on the rules of electric power being subject to obligatory take-over and the establishment of prices („**GKM Decree**")

Renewable energies /Regulatory background (other industries)

- Act LIII of 1995 on the general rules of environmental protection;
- Governmental Decree no. 314/2005 (25/12) on the permission procedures of environmental effect analyses and uniform environmental use;
- Act LVII of 1995 on water management;
- Decree no. 18/1996 (13/06) by KHVM on the application and appendices required for water right permission procedures;
- Governmental Decree no. 219/2004 (21/07) on the protection of underground waters;
- Act XLVIII of 1993 on mining in a uniform structure with its enforcement Governmental Decree no. 203/1998 (19/12) ("Btv.");
- Governmental Decree no. 118/2003 (08/08) on the establishment of the specific values of solid minerals and geothermal energy, as well as the rules used for the calculation thereof

Renewable energies /Regulatory background (other industries)

- Act XVIII of 2005 on district heating services ("**Tsz.**");
- Act LXXXVIII of 2003 on energy tax;
- Decree no. 43/1999 (26/12) by KHVM on the calculation of the water reserve contribution.

Renewable energies – regulatory issues

- renewable energy resources
- non-fossil energy sources that depend on weather conditions (sunshine, wind),
- non-fossil energy sources that do not depend on weather conditions (geothermal energy, hydraulic power, biomass, as well as energy sources directly or indirectly produced from biomass)
- gas and biogas originating from landfill sites or wastewater treatment facilities.

Dilemma

- system adjustment/regulation potentials
- problems with regulation potentials
- no potential for quick start-up (e.g. reserve-based hydraulic power plant)
- expensive cross-border deliveries
- frequent bottlenecks in cross-border capacities
- import limitations

Support to renewable energies: obligatory take-over, green certificate

- as electric power generation from renewable resources is more expensive than the use of fossil sources, the application of a support system is justified
- two types of supports are used in Europe:
 - obligatory take-over
 - green certificates
- **obligatory take-over:** obligatory purchase price guaranteed by the government, which is higher than the market rates, and is to be paid by the buyers of electric power to the producers of green electric power
- **green certificate:** transferable instrument on the quantities of electric power from renewable resources and wastes
 - the buyers of electric power have purchase obligations, they are to acquire a certain number of green certificates from the producers of green electric power in proportion of a defined percentage of their electric power consumption / production

Obligatory take-over, take-over price

- public-utility wholesaler (MVM Zrt.) and service provider (ÁSZ) have the obligation to take over electric power generated from renewable energy resources to the extent defined in the permission of the operator of the power plant
- as concerning the tying-up and take-over of the electric power being subject to the take-over obligation, the public-utility wholesaler and the operator of the power plant shall conclude a contract for term that is identical to the term of permission of the power plant
- naturally, the producer may as well sell the power freely, yet in this case it may not benefit from take-over obligations
- the wholesaler and the public-utility service provider being subject to the take-over obligation shall receive compensation from the system controller in an amount corresponding to the difference between the take-over price and the wholesale price; the compensation shall be paid by the consumers in the form of a system-control fee

Obligatory take-over, take-over price

- take-over price:
 - VET: $k \cdot 23 \text{ HUF} + \text{VAT/kWh}$,
 - New VET: $k \cdot 24,71 \text{ HUF} + \text{VAT/kWh}$,
 - increased by the effective inflation rate, modified on the basis of the annual consumer price index

Basis of the green certificate in Hungary

- MEH (a compliance appraisal organization under the new VET) shall certify the quantities of electric power generated by the producers from renewable sources or wastes
- the producers are entitled to release or sell the power
- purchase obligation
- the system of green certificate ensures the market-based support of the electric power from renewable resources or wastes, and the generation of realistic price competition against electric power from other resources without binding the power plants and consumers to any physical turnover
- still not introduced

New VET – 2008

- full liberalization of the energy sector
- the system of public-utility supply will cease to exist
- in the new system, electric power production being subject to the take-over obligation will belong to the scope of the same balance with the take-over system controller acting as the responsible person for the balance
- the new VET has set the foundations of such a system of obligatory take-over that makes a differentiation among the individual technologies
- criteria of differentiation: energy source, production procedure, rated capacity of the power plant, efficiency
- in the case of renewable energies, regulations and prices connected with the new obligatory take-over will be applicable only to the new entrants, whereas producers having had their permissions can act as set forth in the existing permissions

Preference in connecting to the lines

- in the course of operations and connection to the network, the system controller shall prefer producers generating green electric power
- the system controller may reject access to public-service networks, the cross-border import and export of electric power, or may reduce the quantities thereof if such deliveries affects the co-generation of electric power with heat energy or the use of energy generated from wastes unfavourably

III. Permission procedures

Permissions required for the establishment of geothermal power plants

- environmental permission
- water right permission
- permission of the Hungarian Energy Office ("**MEH**")
- building permit
- permission of the Hungarian Trade Licensing Office (via the regional technical safety authority)

Environmental permission

- environmental effect analysis: preliminary supervision and environmental effect analysis
- for the establishment of geothermal power plants: *preliminary supervision* is to be conducted by the competent environmental, nature conservation and water management authority („**Inspectorate**")
- when certain conditions are met: detailed environmental effect analysis and public hearing
- at the end of the procedure, the Inspectorate shall issue the environmental permission for a definite term

Water right permission

- it belongs to the scope of competence of the (water management) Inspectorate
- the Inspectorate shall examine: whether water circulation is performed; whether back-pressing is full or partial; whether back-pressing is made to the same or different water-bearing layer; whether the back-pressed water receives additives; whether there is any other water use in the area (to define the underground are of effect); whether the use of water affects any medicinal water, mineral water, etc.

MEH permissions

- electric power production permission
- permission for the establishment and operation of district heating facilities

Electric power permissions

- different rules of permission are applicable to power plants under and over 50 MW capacities
- small power stations are subject to simplified permission procedures
- MEH issues the complex permission in the context of a single procedure, and it is for a definite term
- if the applicant complies with the statutory conditions, MEH is obliged to issue the permission
- the system controller's declaration shall be obtained

District heating permissions

- If at the given site the total rated capacity of the district-heating generation equipment remains under 50 MW, simplified procedure
- MEH issues the permission for the *establishment and operation* of any district-heating production facility
- *Operating permits for district-heating services:*
 - Applications shall always be submitted to the notary of the competent municipality

MKEH permissions

- for certain types of constructed structures, it exercises the powers of the building authority, and thus issues building permits
- competence in the issuance of network right permissions: both for electric overhead lines and cables, as well mind as underground and above-ground district-heating lines

Mining issues

- the exploration and exploitation of underground waters carrying geothermal energies do not belong to the scope of effect of the Act on mining
- the authority safety engineering supervision of works relying on mining technologies for the exploitation of underground water is attended by the mining supervisory authority, yet it does not cover the operation of water wells
- in water-right permission procedures, the mining supervisory authority acts as a professional authority
- the Act on mining is foreseen to be amended

Costs, fees, contributions

- administration, service fees are to be paid for procedures and permissions at the authorities concerned
- in consideration of any exploited underground water carrying geothermal energy, a quarterly mining contribution shall be paid in an amount corresponding to 2% of the value of the exploited geothermal energy
- water reserve contribution shall be paid if back-pressing is carried out in a closed system, and the entire amount of the exploited underground water is back-pressed, whereas if not the entire amount is back-pressed, water reserve contribution shall be paid for any amount of water representing water losses

Requirements in connection with the regulations

- sustenance of the system of obligatory take-over
- introduction of a competitive support system (green certificates)
- Harmonization, simplification of the rules of permission

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