Proceedings World Geothermal Congress 2015
Melbourne, Australia, 19-25 April 2015

Promoting the Use of Geothermal Energy in Latvia at the Legislative and Regulatory Levels

Inara Skapare[1], Andris Kreslins[1], Aivars Cers[2]

Institute of Heat, Gas and Water Technology, RTU[1]; Latvenergo AS[2]; P.O.Box 526, Riga, LV-1010, Latvia

inara312@inbox.lv, andris.kreslins@rtu.lv

Keywords: legislative, geothermal, state subsidies, Latvia

ABSTRACT

Latvia currently is self-sufficient in energy resources up to approximately 35%. Annual fossil energy prices rise and risks of security of energy supply promote the development legislation in the matter of renewable resources. One of the recently Latvian Ministry's of Economy products is a new draft law "Renewable Energy Law", which has been created due to one of the European Union and Latvian national energy policy objectives: to increase the share of renewable up to 40% by 2020. Currently, geothermal energy potential is assessed at 1 x 10^{13} kWh, nevertheless, geothermal energy is difficult to compete with other renewable energy resources in Latvian energy market. A great job is done in recent years at the legislative level to choose the right methods for supporting use of renewable energy resources. This paper aims is analysis of current situation and assessment of Latvian legislation possibilities to promote the use of geothermal energy.

1. INTRODUCTION

Considering the increasing economical growth, the need for energy will increase as well in coming years, therefore, development and use of renewable energy sources and particularly geothermal energy, is vitally necessary.

Basic resources in Latvia are: hydro energy (cascade of river Daugava), natural gas (thermo-electro stations, including cogeneration type), oil products (mainly for transport), peat and renewable energy resources (wind; sun; biogas; wood; geothermal energy).

At the time, in Latvian circumstances, geothermal energy is insufficiently competitive, comparing to such types of renewable energy like hydro energy and biomass. As technology is developing, however, this resource has a future, considering the ground potential and stability of the resource.

The biggest problem is that it takes big investments to grasp the supplies of geothermal energy, it has long and difficult payoff time and it is related to different technical risks.

For now, it is planned that the political basics in area of energetics will be focused on the increase of national energy supply's safety and stability. It means:

- increase the amount of total consumption of local energy resources;
- effectively use energy resources, support the development of energy systems, implementation of energy effective technology and energy saving;
- continuously reduce the damage to environment, reduce the amount of harmful emissions.

2. CURRENT SITUATION AND PROBLEMS

Considering that in European Union there is no united geothermal energy, no other renewable resources consumption promoting policies, support strategies are not harmonized among the member states, because the situation of member states and the potential of economically used resources are different, each country has its own policy to support renewable resources, which is not always simply considered as similar or different, if we compare to previously mentioned other member state situation and also due to different levels of state welfare.

In Latvia, by the special regulations in control over renewable energy area is considered the Energy Law, Electric Energy Market Law and according to it, The Cabinet Regulations No 262 "Regulations of electric energy production by using renewable energy resources, and determination of pricing order", as well as the law "Of the regulators of public services" and its related regulations issued by The Cabinet.

Although, the base of legislative regulation is developed, which has created preconditions for the use of geothermal energy, it is necessary to develop and constantly evaluate the effectiveness of the national renewable resources policy and support mechanism that is included in it, emphasizing the importance of geothermal energy in development of national energetic policy, necessity to increase self-sufficiency of the capacity of energy and reduce the amount of imported energy resources, reducing Latvian energy dependence and promoting effective use of energy resources.

The Latvian economic development potential and competitiveness is also determined by the situation of energy supply system, its operational efficiency and security of supply. In 2014 Latvian national electric energy consumption gross, in comparison to 2000, is increased by approximately 35%.

Economical crisis has affected whole Latvian economics altogether, including energetics field, therefore, there is a significant change in the prognosis in energy resources consumption, that has to be taken in consideration when evaluating the average time for documentation of policy planning and updating with newest prognosis of economical development.

It can be concluded that policy of renewable energy, which is determined by Latvian average time for planning documents, regulations in that area and the regulations of The Cabinet on support of energy production from RER, considering the trends of economical growth, is insufficiently flexible to reach the goals for next years.

Also evaluating the directive of European Parliament and Council 2009/28/EK on promoting the use of renewable energy resources, there is a reason to argue that the goals set for 2020 are ambitious enough.

To reach the goals set in 2009/28/EK Directive, there is still need for constant support mechanisms from the state, which promotes the use of energy obtained from renewable resources, keeping investors trust.

In their development it has to be taken in consideration BEMIP - Baltic Energy Market Interconnection Plan, which is signed by the heads of Baltic regional governments, including the heads of governments of the Baltic states, and which is approved by The European Commission. BEMIP aims to deliver the united regulations for all participants of electric energy market of three Baltic states to reach the BEMIP goal - Baltic energetics market integration into mutual European Union's energetics market.

According to Directive 2009/28/EK I annex, Latvian goal is to increase the use of renewable resources from 32.6% in 2005 to 40% in 2020 of gross of final energy consumption. Pigens (2011).

Provisional interim optional results (23.04.2013.) are not satisfactory for the goal, comparing to other European countries (Table 1).

> 2% above interim target; < 1 % from or <2% above interim target; > 1% below interim target

Member State	2005 RES share, %	2010 RES share, %	1st interim target, %	2020 RES target, %
Austria	23.3	30.1	25.4	34
Germany	5.8	11.0	8.2	18
Estonia	18	24.3	19.4	25
Lithuania	15	19.7	16.6	23
Latvia	32.6	32.6	34.0	40
Sweden	39.8	49.1	41.6	49
UK	1.3	3.3	4.0	15
EU	8.5	12.7	10.7	20

Table 1: Implementation of the Renewable Energy Directive, (EU 20% target for renewable energy share (RES) for gross final energy consumption), Directive 2009/28/EC of 23 April 2009, Optional overview of progress towards the 1st interim target* (according to progress report of 27 March 2013)

It would be one of the main reasons why Latvian Ministry of Economy would be required in the coming years: implement a mutual project of the Member States of the European Union that provides for the creation of a renewable energy plant, which has been put into service or increased capacity of energy set in renewable energy plant after 2009 January 25. A businessman may participate within this project.

Unfortunately, during last years, there were no significant investments in geothermal energy, except shallow geothermal energy utilization (heat pumps). Therefore, society and potential investors are uncertain that in Latvian circumstances such kind of projects could be feasible and profitable. The main idea would be to realize Pilot deep geothermal Project under supervision of Latvian ministry of economy with following analysis of results, and if they are mostly positive – with wide propaganda in mass media.

Figure 1 shows Operating algorithm to run such a Project.

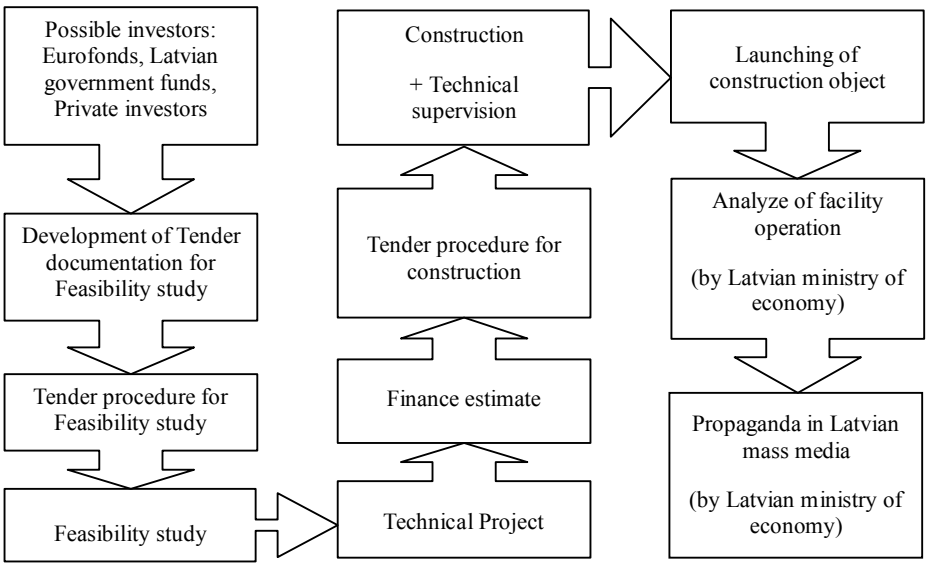

Figure 1: Operating algorithm for deep geothermal Pilot project.

One of the main parts of this algorithm would be Feasibility study, because it should show what kind of projects would be most feasible for Latvian economical, political, geological and social conditions.

3. STATE DEPARTMENTS RIGHTS, OBLIGATIONS AND MAIN OBJECTIVES

Latvian Ministry of Economy and regional governments have one of the main roles in promoting the use of geothermal energy. Renewable energy draft law provides the following national regulation:

3.1. Ministry of Economy functions

To reach the goal set for 2020, Ministry of Economy:

- creates and supervises renewable, including geothermal, energy summary system which goal is to assure the control of states goal consummation and performance that includes:
    1. national action plan preparation in the field of geothermal energy;
    2. national action plan clarification in the field of geothermal energy, if national goal is not reached.
- collects all the information in its possession about the events, that have been implemented to promote the use of renewable energy and based on that, analyze national action plan, in renewable energy field, execution in the process of reaching the national goals.
- provides public with European Unions and international institutions information on geothermal energy production and usage promoting event realization in Latvia, summarize and update it on regular basis at least once in 6 months.
- develop action plan, in the field of geothermal energy, sample for regional governments and post it on their homepage.

3.2. Regional governments objectives in the field of geothermal energy

Local regional governments within their competence, determined by regulations of regional governments regulatory performance, in territorial and detailed plan (if it is mandatory according to regulations), include planned amount and location of geothermal energy plants.

According to regional governments action plan in the field of renewable energy, developed by Ministry of Economy, the sample local regional government develops regional governments action plan in the field of renewable energy or includes planned actions in the field of renewable energy for regional governments development program, and submits to Ministry of Economy. Regional government submits to Ministry of Economy information on the use of renewable energy and execution of action plan in the territory of regional government.

If the regional government according to mentioned action plan in the field of renewable energy is planning to provide support for renewable energy production, including local and individual heat supply, its self-consumption, in household sector, to physical and legal persons, regional government issuing mandatory regulations and creates support receivers duty to account the amount of produced and used energy.

Regional government, in case if its necessity is determined by regulations in the field of business support control, coordinates corresponding support providing with Ministry of Economy. Regional government informs the Ministry of Economy on providing support. Neimane (2011)

4. MOST IMPORTANT ARTICLES OF RENEWABLE ENERGY DRAFT LAW.

At the end of 2010, Ministry of Economy submitted to Latvian Parliament a draft law for a review. At the first Parliament meeting the draft law was supported, although later it was concluded that it has to be significantly improved. Unfortunately it seems like the work on this is stopped, because the law is still not accepted. Even though renewable energy usage promoting events offered by the draft law would be urgent for national energetics.

4.1. Renewable energy usage promoting events

4.1.1. Provided financial tools for renewable energy usage promotion.

For promoting the usage of renewable energy there can be created national or regional government, as well as legal or physical persons financial tools (funds, subsidies, tax discounts, mortgages, funding provided by a third person, energy purchase agreement and other tools), as well as direct strategies for price support, and other events that are determined according to tax laws, laws of public purchase, regulations of rates, crediting, state warranty and other fields, promoting the consummation of national goals determined by this law.

Provided tools for promoting renewable energy usage are as follows:

1) diversion of state given financing to renewable electric energy production and consumption, including energy production equipment, in which fossil energy resources are used, transformation to equipment, in which renewable energy resources are used, except such energy production equipment change, in which fossil energy resources are used that were created, installed and their performance was supported in any way until the day when this law becomes effective.
2) additional payment, which includes power components, *greenhouse gas* components and agriculture components, for electric energy, produced from renewable resources, sale;
3) a public dealers duty is to purchase renewable electric energy from renewable energy plant located the Republic of Latvia territory, which has electric energy set less than two megawatts or its connected companies all plants in their possession or use, electric power is set less than two megawatts;
4) support for renewable energy plant, which set power is less than 5 megawatts, connection to electric energy network;
5) support for research, development and innovation programs in the field of renewable electric energy;
6) interstate co-operation events;
7) renewable electric energy usage promoting events, set by other regulations, oriented on reducing costs of renewable energy.

Renewable heat energy and cooling usage promoting financing tools are planned as follows:

1) state provided financing diversion to purchase and consumption of renewable heat energy, including energy production equipment, in which fossil energy resources are used, transformation to equipment, in which renewable energy resources are used, except such energy production equipment change, in which fossil energy resources are used that were created, installed and their performance was supported in any way until the day when this law becomes effective.
2) support for research, development and innovation programs in the field of renewable heat energy;
3) renewable heat energy usage promoting events, set by other regulations, oriented on reducing costs of renewable energy.

4.1.2. Additional payment for electric energy

The right for additional payment has renewable energy producer, which produces electric energy in the Republic of Latvia territory, in the Republic of Latvia territorial sea, in the Republic of Latvia exclusive economic zone and continental shelf, for produced and sold renewable electric energy in electric energy market. If in renewable energy plant, which produces electric energy in effective cogenerated process, uses other fuel types, which is less than 10% of plants used fuel, then it is considered that all of plants produced electric energy is obtained from renewable energy resources. Neimane (2011)

5. CONCLUSIONS

Unfortunately, because of economic situation, Latvia cannot afford to provide sufficient financial support (subsidies) to geothermal energy use. However, considering fast growing energy prices, perhaps, it is worth to put certain financing in development of renewable resources, including geothermal energy in the scale of the state.

To promote the use of geothermal energy in Latvia at legislative and regulatory levels, first, it would be necessary to include in new "RES low" that during planning of Latvian annual budget, there should be included certain financial support for RES, with detailed distribution for each type of renewable energy source.

Based on other European countries experience, it is necessary to make emphasis that geothermal projects (first year) will receive comparatively significant subsidies, but annual amount of subsidies will be reduced, so in that way, use of geothermal energy will be maximally accelerated during first few years.

Geothermal energy usage types without subsidies also would be effective, such as, to integrate a request in legislation, that building new architectures or energy supply systems of existing buildings, it would be necessary to foresee, that a certain percent of energy used for the needs of the building, will be from renewable energy resources, including geothermal source. However, in this case, it has to be taken in consideration, that it could create a price rise of new building construction and existing building reconstruction, which in turn could reduce the amount of construction.

Existing support mechanism for renewable resources usage, basically is planned for electric energy production, which in turn cannot help in heat energy and geothermal water balneology characteristic usage cases, which in turn in Latvian circumstances today looks the most perspective. Skapare (2010).

To increase the interest of investors to deep geothermal energy projects, their profitability, it would be necessary to financially support and execute the deep geothermal energy Pilot Project. If it will not be considered in Latvian budget, perhaps, Eurofunds could help.

REFERENCES

Pigens, K., Kampars, A.: Likumprojekta „Atjaunojamas energijas likums" ("RES low") sakotnejas ietekmes novertejuma zinojums (anotacija), Latvian Ministry of Economy, http://www.mk.gov.lv/lv/mk/tap/?pid=40190380, (2011)

Neimane, B., Stepanovs, K., Kampars, A.: „ Atjaunojamas energijas likums", Projekts, ("RES low", Project), Latvian Ministry of Economy, http://www.mk.gov.lv/lv/mk/tap/?pid=40190380, (2011)

Latvijas ilgtermina ekonomiska strategija, http://likumi.lv/doc.php?id=55125, (2001)

Energy challenges and policy, Commission contribution, to the European Council of 22 May 2013

Moore, I., Vanags, A.: Expert evaluation network delivering policy analysis on the performance ofcohesion policy 2007-2013 year 1-2011; Task 1: Policy paper on renewable energy and efficiency of residential

Skapare, I., Kreslins, A., Research of Available Mineral Geothermal Water Resources for Utilization in Latvian Sanatoriums, Proceedings of WGC 2010 (2010)