

## AN OVERVIEW OF LEGISLATIVE AND INSTITUTIONAL BARRIERS OF LATVIA'S RENEWABLE ENERGY PRODUCTION<sup>1</sup>

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In the paper authors analyze barriers of renewable energy source usage in electricity (RES-e) production in Latvia, and their institutional environment. Legislation and institutions are the two very important components for energy development. The aim of the paper is to give overall analysis of legislation and institutional barriers in RES-e production in Latvia. Authors give short inside path-dependency of electricity production of RES-e, yet the current main problems in energy legislation and institutional environment should be taken into account as well. Potential solution is drawn also. Authors conclude that basic barriers are structural and legislation, as well as existing information asymmetry between player in RES-e producers and state. The absence of realization of long-term policy in Cabinet of Ministers level contradicts with already accepted long-term policy programs. Therefore the amount of feed-in tariff (one of the highest in EU) so far had no great impact on promotion of RES-e production increase in Latvia.

*Key words: legislation, institutions, RES-e, Latvia.*

*JEL codes: B520, E650, Q280.*

### Introduction

In sustainable development context one of most importance has renewable energy usage and therefore its legislation and institutional framework. RES promotion in Latvia (basically because of strong pressure of EU) has viewed only in electricity generation context, disregarding the fact that in Latvia heat energy production has 2/3 of all final consumption energy.

**The aim** of the paper is to give overall analysis of legislation and institutional barriers in RES-e production in Latvia.

Authors used the methods of synthesis and analysis to achieve that aim and carry out following tasks: 1) to give overview of RES-e production path-dependency in Latvia; 2) to analyze shortly legislation in national level regarding RES-e; 3) to summarize basic institutional barriers in context of new institutional economics theory.

In the beginning of 90-ties main task for Latvia was to secure energy supply regardless energy sources. Despite that national economy went through radical structural changes (qualitatively and quantitatively), energy supply did not. So, volume of national production in 1997 compared to 1990 decreased rapidly for more than 60%. Structural changes in industries caused decrease in electricity demand, so decrease was in period 1990- 2005 around 25% (8.26 to 5.7TWh). However after 2005 electricity demand increased and in 2008 it was 6.6 TWh (LR CSP, 2011).

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Promotion of RES-e of all kinds till the 2005 was done partly. In institutional aspect should be noted that time period of 1991-1999 characterize structural changes in national government institutions, and several governments ruled even only several months. National and regional legislation regarding energy production and consumption was based on old soviet time prescriptions (especially regarding technological requirements) and was in process of transformation. In such processes it was nearly impossible to create efficient and long-term legislation base for electricity production.

The lack of natural (fossil) resources and path-dependency of electricity generation in Latvia influenced very strongly current situation. Basic supply comes from water resources (developed since 1930-ties) and natural gas (developed since (1960 ties), later created situation when by rapidly increased demand for electricity (during 1970–80 ties) was felt electricity deficit. All the existing biggest HPP build (Rīgas HPP, Ķegums HPP, except Plaviņas HPP) build during soviet occupation time till the 1990 and at the moment provides second highest RES-e proportion among EU-27 countries in electricity generation. The most powerful networks of electricity grids exist with Russia and Belorussia compared to low capacity of grids between Baltic states and other European countries. This is because of soviet energy policy to keep Latvia in tight electricity deficit and today it leaves Latvia as country with one of highest energy import (from Russia) structure among Baltic countries.

Electricity production from largest Hydro power plants (HPP) and Thermal Power plants (ThPP) become property of Latvenergo (biggest electricity producer in Latvia now; state owned) since regaining independence in 1991. Latvia electricity generation system has serious lack of base production powers (HPP and ThPP can't secure full year supply efficiently).

Long-term and complex planning legislation documents and legislation system about electricity were accepted only after entrance in EU. Till that only one RES-e generation were promoted small HPP (<5MW), but since 1997 even these measures got bad reputation in society because of suspicions for misuse. In the begging of 2011 parliament started to process Renewable energy law after three years long preparation. RES-e policy and support environment is yet fully not predictable, also economic situation holds back potential RES producers. Several of risks are hidden in institutions and legislation, and they will be analyzed in this paper.

### **Existing laws and regulations in RES-e production**

In general RES legislation was created slowly and brokenfully. However there was awareness that Latvia will need to adopt legislation according to EU entrance demands. There are several levels of national legislation: 1. national laws; 2. other national laws regarding RES; 3. Regulations and planning documents by Minister Cabinet (MC).

#### *National Laws*

Till the 1995 there were no laws at all regarding energy market. All actual regulations were issued by MC. Parliament in 1995 accepted law "Regulation of Entrepreneurship in Energy" and basically only because of uncontrolled reconstruction of old or building new small scale HPP (<2MW) even in nature protected areas. The

law forced the Latvenergo (the only electricity seller) to buy electricity from these HPP for double average tariff (average tariff were stated by Regulator). Others RES-e are not included.

After three years in 1998 “Energy law” was accepted, this abolished 1995 year’s law. Energy law (amended 10 times) preserved HPP superior status over other RES – double average tariff, but other RES only 1.5 times. Since 2001 till 2005 other RES-e purchased tariff is approved by PUC (Public Utilities Commission).

However all these law had little of influence, since all national economy went through the deep transformation process and usage of renewable energy sources (except HPP) in electricity production has been considered in society as very expensive.

Radical changes started in 2005 as was accepted “Law of Electricity Market” (2005) and among other the biggest electricity producer Latvenergo was formally divided in three companies (but still state’s owned) following EC directives to setup free electricity market. The mentioned reform created situation when Latvenergo as public seller buys from its other company in ThPP generated electricity (Zvanītājs J., A. Deniņa, 2009). That is important because also in cogeneration created electricity has almost the same compulsory tariff as clean RES-e like HPP, as well as Latvenergo production costs can’t be compared to other small scale RES-e producers.

The Law of Electricity Market (2005) established national goals for RES-e till 2010 (not achieved, see Table 1), as well created some institutional and legislation setup and guidelines for RES-e generation. However, MC kept the power to accept the final feed-in tariffs from RES-e producers; it leaved much space for lobbyism from RES-e associations. Latvia turned to feed-in tariff system and in 2009 it had comparably (to average weighted tariff) highest tariff in EU.

Here should be noted that several technological barriers exist as well since most RES-e (e.g. biomass or biogas PP) are most appropriate for build in territories with available resources. But this is limited because of weak electricity grids. This limits to develop, for example, network of Wind PP in West coast line of Latvia.

Based on The Law of Electricity Market (2005) are issued MC regulations, which regulate RES-e purchase and volume. In 2011 Parliament started to look through for new law – Renewable energy law which is not known when is targeted to come into force. The basic goal for Latvia is to achieve 40% of RES in total energy consumption (in 2008 was 30,2%) (LR Ministry Economics, 2010).

#### *Regulations of Cabinet Ministers*

Since 1997 feed-in tariff volume is decided by regulations of MC. This often informally recognized by RES associations as unpredictability creating fact, because of changes in ruling policy and priorities leaves too much space for lobbyism and can be easily impacted by ruling party’s short-term development visions. So, regulations of MC are really important and in fact create real legislation environment and are its main axis.

As was said, only HPP had feed-in tariff (since 1995). Later after acceptance of Energy Law (1998) MC started to limit new build total RES power for each year in time period 2002–2005, in 2006 abandoned). However, quite it was proved as completely false policy and needless to say, those RES limits never were achieved (Zvanītājs, 2009).

It took almost 2 years to create first regulations in support system for RES-e. Only in 2007 regulations by MC first time approved feed-in tariff system for all RES-e (MC Nr. 503), but in 2006 for cogeneration (MC Nr. 921). Those regulations were acknowledged as not appropriate for production point of view (feed-in tariff was deeply connected with natural gas price system in Latvia Gas – the biggest gas private company). The issue around cogeneration power plants is that they use fossil energy and also receive feed-in tariff because in Regulations. The main discussion is about two big ThPP (both mainly use natural gas, location Riga) which belongs to Latvenergo.

It took another 2 years to elaborate feed-in tariff system in 2009 with Regulations of MC Nr. 198 „Regulations on electricity production using renewable energy resources, and pricing arrangements” and received much harder critics from RES associations and experts. MC corrected Regulation nr. 198 within 3 months (!) and MC Nr. 262 „Regulations on electricity production using renewable energy resources, and pricing arrangements” (2009) are now in force. Rapid change in regulation however is connected with the situation as several wind power plant companies within few days after mentioned regulation came into force (2009, March) took all quotas and thus blocked other RES-e producers opportunity (biogas and biomass) to participate in purchase.

Very rigorous requirements for RES power plants (biogas, biomass, wind etc.) in MC Regulations to participate in feed-in tariff were very close to maximum of available potential in some cases to much over possible potential, so for example, in MC Nr. 262 says that in order to qualify the power plant has to work at least:

- hydro power plants – 5000 h/year (was 5000h in MC Nr. 503);
- wind power plants – 3500 h/year (was 3000h in MC Nr. 503);
- other power plants – 8000 h/year (including sun power!) (was 7000h in MC Nr. 503).

Mentioned case is an example of serious restriction for RES-e development. In reports of RES associations and research institutions consider that existing MC regulations is unfavorable for RES-e. At the moment solar energy usage is not promoted at all. The analysis shows that feed-in tariff in last four year has been changed three times, thus creating uncertainty and makes nearly impossible create business in RES-e in long term (see MC Nr. 503; MC Nr. 198; MC Nr. 486; MC Nr. 262).

MC also accepts planning documents about energy policy. First planning paper was accepted in summer 2006 “Energy development guidelines for 2007–2016” and few months later was launched “Renewable energy guidelines 2006–2013”. Of course, both planning documents are important, but taking into account economic collapse in 2008–2010 in Latvia and states’ fiscal policy tendencies in the 2010 and the 2011, we can safely say that these documents has only formal power without any consequences in MC regulations. If the government will continue existing RES policy, it is for sure, that in 2020 years goal will not be achieved (see Table 1).

Most import law is Added value tax law (1995), since it influences the final price for consumers. So, in 2009 two times was changed tax for firewood (from 10% to 21% and back). From the year 2011 electricity has removed out of low tax zone (10%) and putted with full tax – 22% around 11.61 Eurocent/KWh. Natural resource tax is not paid by biogas and biomass power plants.

Table 1. The goals of proportion of total final consumption in electricity covered by RES-e in Latvia (%)

RES and type of power plant	MC Nr. 503 (2007)				MC 198 Nr. (2009)		MC Nr. 486 (2009)	
	2007	2008	2009	2010	2009	Since 2010	2009	Since 2010
HES > 5 MW	41.28	39.32	37.35	35.39	36.35	34.31	36.35	34.31
HES < 5 MW	1.04	1.06	1.08	1.10	1.88	1.98	1.88	1.98
Wind	1.48	2.78	4.08	5.37	0.20*	0.27*	0.20*	0.27*
					3.88**	5.10**	3,88**	5.10**
Biogas	0.38	1.07	1.77	2.46	<b>1.97</b>	<b>2.66</b>	<b>6.90</b>	<b>7.93</b>
Biomass and mixed biomass/fossil fuel	0.44	1.95	3.46	4.97	3.46	4.97	3.46	4.97
Photovoltaics	No				0.00	0.01	0.00	0.01
Total	44.62	46.18	47.74	49.30	47.74	49.30	52.67	54.57

Source: authors' made summary based on information from Minister Cabinet regulations

\* Wind power station <0.25MW, \*\* Wind power station >0.25MW

### *Other national laws regarding RES*

Several other laws regarding entrepreneurship and Natural environment as well regulates RES-e producers, but it applies in general way.

### **Some major issues in renewable energy institutional environment**

Economic theory assume that traditionally there is always search for more cost-effective production, however empirical research shows that it does not take place so often. This phenomenon is described as efficiency gap (Levine, 1995). New institutional economics theory it explains with high transaction costs existence. Markets exist in institutional environment and is in itself the cause of transaction costs (Williamson, 1987). Since, there is informational asymmetry and insecurity about provide property rights, then there are costs for entrepreneurs and consumers which are reflected in prices of goods and services, however not immediately (Coase, 1960).

Looking from that perspective it is possible to identify several barriers in RES-e as well:

- informational – information is expensive or even there is no such, it is not available in needed amount for RES-e producers to make best investment decision. There is information asymmetry between RES-e production – some of them have better access than others. Regarding consumption side – households continue to be precautions since information about real benefits of RES contradicts between different information sources. So, they stick to the traditional solution, e.g. natural gas usage.

- financial – investments are not made since consumers and producers lack need capital for new more efficient technology. This is strongly influenced by finance institutional behavior in finance markets. Investments will not be made until investor can cover at least some initial costs, even if investments can be very good repaid.

- technology and infrastructure – Latvia energy infrastructure (in electricity and natural gas grids) so far has been not ready to connect with new RES-e producers (wind, biogas) regardless government policy in RES, besides corresponding green technology adoption for Latvia climate is still in process in research institutes. Partly this aspect could be connected with weak performance of machinery in Latvia due several other factors.

- bounded rationality – there is no strong demand side for RES-e (not only because many households in Latvia already use so called green energy in firewood form), but also because consumer does not behave completely rational sense of in neoclassical economic theory. Obviously it has to do with information barrier – investors make investment decision based on their experience, avoiding additional information collection cost, so, not the best optimum decision is made (Wilson, 1987).

- interest rate – in energy saving programs and investments often participates parties with different (if not even contrary – case with MC and RES-e associations, local self-governments and local fossil heat companies, finance institutions) opinions about costs and benefits. Bigger companies and self-governments can easier create investments with longer terms, better access to capital with lower costs, risks can divided between more investments, interest rates are lower than compared to households or small company.

- investment criteria – not always profit is priority criteria. Consumer (industrial/household) will favor infective technology if new (but better) demands uneasy applicability. There are a lot very subjective criteria on which the final decision for investment can be made. The analysis of those criteria however it outside economics theory.

In the context of Latvia's progress in RES-e promotion, the authors state that if the price is the main argument for market development, then the market of RES would develop much faster as it is now in Latvia. There exist barriers and many of barriers are institutional in character. They can be hidden in several levels – producers, consumer and governmental. Also in development programs, the lack of appropriate finance mechanisms or barriers which reveal after starting the implementation of projects. Those barriers change in time, but create unfavorable conditions in long time period, since institutional change cannot change fast as prices in market. There is possible to get closer to identify barriers for RES-e:

- the lack of knowledge for best available technology – lack of knowledge, misunderstanding, and preconception often works as obscuring factors. Local entrepreneurs who located outside energy market often does not know technologies and specifics of energy production. The same applies for local self-government leaders.

- dominant opinion in national government level is that RES-e is not the best choice because primary target is to secure energy supply. However, if Latvia would have more inland energy production than import, would it be worse?

- the lack of feedback between research institutes – often information is outdated or delayed, in most cases society get information not useful in praxis. Many (if not most) researches are technological in character (which is good). Economic and political evaluation of RES-e costs and benefits made by institutions are very general

(contains only very approximate calculations) and those entrepreneurs who are willing to risks have to rely on their social capital and finance stability. Very important aspect is low number of RES-e energy experts in Latvia.

- financial barriers – local finance institutions does not want to credit company or household in RES-e if the projects are small, basically also the lack of information about costs and benefits, also in the nature of credit institutions it is to doubt any project (regardless its potential profit).

- novelty of RES-e – despite that in Latvia water usage in electricity production is not new, the other types of RES are new – wind, solar, biogas, so many rural entrepreneurs has to get into these technologies in very short period of time.

## **Conclusions**

Summarizing all that was said above, we may conclude that basic energy legislation barriers are:

1. Because Latvia continues to lack a basic renewable energy law, despite improvements of energy security, adjustments of energy structure, cannot be effectively carried out.

2. Cabinet of Ministers launches the most important regulations, but they in many contradict long-term planning documents, Regulations are reactionary by character (reacts to certain processes) but not counted first.

3. Existing legislation practically leaves out of game local self-governments.

4. Often and short term changes in main legislation corpus, for example, in Added value tax law.

So, we can also conclude, that most basic institutional barriers for Latvia RES-e promotion are:

1. Lack of long-term willingness in governmental level (e. g. disagreements in Ministries level – between Agricultural, Economics, Environment etc.) to fulfill goals in planning documents. Due to the above reasons they are unable to comprehensively study important strategies and policies of energy development.

2. Investments in RES-e severely has restricted by unfair governmental regulations and unpredictability.

3. Barriers between research institutions and experts – research often contains outdated or delayed information, interconnected is low, they often overlap each other, information flow between research and decision makers, and investors contains a lot communication problems (scientists still are not able to prove economical validity of RES in rural areas, politicians – have problems long-term energy policies and the scarcity of necessary instruments).

One of possible solution regarding institutional barriers could be network strong regional energy agencies.

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# ATSINAUJINANČIŲ ENERGIJOS IŠTEKLIŲ JURIDINIŲ IR INSTITUCINIŲ KLIŲČIŲ ANALIZĖ LATVIJOJE

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## Santrauka

Straipsnio tiksas – išanalizuoti juridines ir institucines kliūtis elektroenergijos gamyboje iš atsinaujinančių energijos išteklių (AEI) Latvijoje. Naudoti analizės ir sintezės metodai, kurie leidžia pasiekti straipsnio tiksą ir užduotis: 1) apibūdinti AEI gamybos istorinės prielaidas; 2) analizuoti nacionalinę jurisdikciją; 3) nagrinėti AEI gamybos kliūtis institucinės ekonomikos teorijos atžvilgiu. Straipsnis užbaigiamas išvadamis, kad yra trūkumų juridikcijos struktūroje, sudėtyje reglamentuojančiuose dokumentuose ir pastebėta informacinė asimetrija. Tai pagrindinės kliūtis, kurios trukdo AEI gamybos naujojimo prieaugį. Svarbi kliūtis AEI gamybai yra valstybės atramos politikos nenuoseklumas. Juridinių ir institucinių kliūčių analizė rodo, kad reikia kurti stiprias regionų valstybinės Energetikos agentūras, kurios galėtų koordinuoti informaciją, konsultuoti ir remti potencialius AEI verslininkus ir naudotojus.

*Raktiniai žodžiai: legislation, institutions, RES-e production, Latvia.*

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