Saimaa University of Applied Sciences
Technology, Lappeenranta
Double Degree Programme in Civil and Construction Engineering

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COMPARISON OF RUSSIAN AND FINNISH BUILDING ENERGY CERTIFICATES

Bachelor's Thesis 2013

ABSTRACT

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Comparison of Russian and Finnish building energy certificates
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Saimaa University of Applied Sciences, Lappeenranta
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The purpose of the bachelor's thesis was to compare different systems of making building energy certificates in Russia and Finland and to create an overall picture of the Russian energy audit market for Finnish company Lamit Oy. Lamit Oy is a middle size Finnish company which is interested in entering the Russian market. This thesis topic is quite large, so it is divided into parts, which describe the approach to the theme from different angles.

The first and second parts of the thesis explain the world situation in energy sphere: discloses the reasons for the energy audit nucleation, which countries respond on world's conference about "Kyoto Protocol" and what they are supposed to do, etc. The third part tells about the situation in Russia. The annual fuel consumption statistics shows how Russia deals with the implementation of the Protocol on practice, Russian energy certificate's structure and laws which are the framework for the energy efficiency theme.

The fourth part includes basic information about the Finnish energy efficiency system. Also there is a comparison of two countries' energy certificates: what is similar and different in Europe Norms and Russian SNiPs. Also here is information how Lamit Oy can enter the Russian market.

After comparing it can be said, that the energy certificate systems of Finland and Russia have got similarities and differences. Different methods of calculating and forms of energy certificates, but results and idea are the same.

Keywords: energy efficiency of the building, energy audit, Kyoto Protocol, Energy certificate of the building

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1 INTRODUCTION

This project-based thesis is conducted for the Lamit OY, and aims at assist Lamit OY to develop and expand its marketing efforts in Finland towards the Russian market.

A large amount of energy is constantly going to waste while the demand in energy keeps growing. Between the years 2008-2030 the world's primary energy demand is expected to grow annually by 1.6 percent on average.
(Energy efficiency. 2013)

The bachelor's thesis will consider the comparison of basic laws of two countries in the field of energy efficiency. The first part tries to reveal the main ideas of energy certificate both countries, what is the reason to do energy activities, which documentation is needed, difficult moments in calculation part, and overlook at specific moments during the process in Russia.

Then it tells about the Finnish situation considering other countries. After that, draws the main conclusion, with an attempt to find out differences between two countries. Besides all this information the thesis will try to find out Russian companies which are creators of any software.

The last chapter will cover issues which should be taken through consideration when doing business in Russia. Russian cultural behavior and environment differ considerably from western type. So it is essential to have knowledge and understanding from this field in order to lead business successfully. So it tells specifically about necessary documents to open the market in St. Petersburg, which authorities the company needs to contact. Also the main active competitors in the market are found.

The thesis will go through what has happened so far and how the market has developed. There will be some assumptions about which direction it will move in

the near future. The study will also reveal opinions, experiences and analyses of the specialists, who are already working with energy business in Russia.

In this work there are not any calculation parts, any exact and specific examples of Russian energy certificates' form, and any statistics of working Russian energy efficiency system.

In order to understand all situations concerning energy audit and to give exact and specific information, we have to go deeper into all sections of this sphere including history of international energy activities and agreements. So we raise some library materials, use quotations from interviews of important people. To find out the current situation in Russia, training courses, thematic conferences and an international construction exhibition had to be visited.

Therefore, all the material of the thesis is the latest up to date information. To complete the picture of energy audit also diplomas of students were used, which helped to see the subject from different points of view and to consider some difficult moments.

2 PREFACE

The quality of our life is directly related to energy consumption in all over the world. As time goes by people have to expend more and more energy, so we can see the reduction in the energy efficiency of natural resources, the energy expenditure increases per person. All countries take in attend this situation.

As a consequence in the early eighties developed countries did activities to reduce energy consumption. They decreased by 15%. But at the same time in the developing world the energy consumption increased by 24% to 10% of the world total (compared to 5% at the beginning of the period), i.e. had a tendency

to rapid growth. So, energy consumption in developing countries leads to the further increase in total energy expense.
(Sviderskaya O. 2006)

The constant increase of the manufacturing industry in each country seriously affects energy consumption in the world. In this regard there appeared a definition like energy efficiency. Something is more energy efficient if it delivers more services for the same energy input, or the same services for less energy input. The main goal of it is to reduce the amount of energy required to provide products and services.
(Keay M. 2011)

The biggest part of the world has been interested in how to calculate the amount of energy consumed, estimate costs and reduce energy consumption of houses. The main ways to save energy in buildings are to increase the thermal efficiency of building structures, architectural and planning changes, energy systems; using non-traditional types of energy.

It can be possible by increasing thermal insulation of walls, windows, attics. Also it can be possible by improving moisture conditions of outside fences, heat reflecting coatings, reducing external surface area of building, special facade designing taking into account the wind protection, rational rooms planning, using an improved heating and ventilation systems, etc.

The creating of energy efficient buildings relates to the improvement of each of its element. These elements are interconnected. The building is called energy efficient, if it was designed, built or maintained with the maximum amount of activities to save fuel and energy sources. These actions combine in the definition called energy audit. In turn, the main part of the audit is an energy certificate which includes information about the energy efficiency category of the building.

2.1 Energy audit situation in countries

The main and the first step to improve energy efficiency of existing houses is an energy audit. While the result of the energy audit is just a recommendation, implementation of energy saving activities is the next step. The main thing is that energy audits must be done by specialists, and the report on the state of the object should be right.

The main purpose of this work is to compare energy certificates, as well as to find out differences between Finnish and Russian concepts, because each country in addition to the main task has its own idea to do the energy audit and have a certificate in the end.

In Russia, compulsory energy activity, which was made for industrial companies, state organizations and institutions, involves the assessment of all aspects of the company which are related with the cost of fuel, energy and several different types of resources, such as water. The main aim of activities is to evaluate the effectiveness of using fuel and energy resources and to develop effective work to reduce the costs of the enterprise. Energy certificate provides information about using heat resources by industrial facilities and plan of activities to improve energy efficiency.

In Finland, energy certificate is a legal document in an energy certificate, which has been in use since 2008 and must be presented when applying for a building permit, as well as the building or its premises sold or rented. Energy certificate says the building's energy efficiency compared with other similar buildings. Energy efficiency is defined by calculation or on the basis of actual energy consumption. Finland strives to promote energy efficiency, the use of renewable energy and reductions in fossil carbon emissions through various national and international climate and energy policies.
(Motiva. 2012)

Features of energy activities (surveys, preparation of certificates, reports and recommendations, etc.) are governed by the laws, regulations and other documents which are specific for each country.
However, there are also similarities in the documents of various countries. We will speak about documents in one of the next chapters.

2.2 Conditions of energy situation and stages

The huge energy consumption belongs to the problems, which grow over time. In order to understand the reason and the importance of the energy situation in the world, we need to look back to the world history. The first stage on the way to energy efficiency was made by people after the Second World War, but no results were gained.

The second stage was related to the Arab-Israeli conflict, known as the "Yom Kippur War", the oil embargo and the sharp rise in oil and gas. The big part of the developed countries after the panic with the reason of rising gasoline prices, kilometers of queues at petrol stations in Europe, the uncontrolled growth of the cost of electricity and heating, made the following decisions:

- develop special programs to conserve resources and energy;
- huge budget allocation of funds for research and development in the use of alternative energy sources;
- reduction of energy consumption in various industries;
- developing the legislative initiatives providing the decrease of energy consumption, this was the main thing (as it turned out) at this stage.

New laws were certainly not so perfect and as time goes by they were corrected.
(Shlaim A. 2010)

New energy crisis and the third stage of energy saving was started after the beginning of the famous U.S. operation against Iraq "Desert Storm" in 1991. The price of the oil for a while again rose sharply. So it was a necessary to find new ways to save energy. This stage lasted until 2003, and marked in history

like the most interesting with results in terms of the implementation of new energy technologies.
(John Daly. 2013)

The beginning of the fourth stage of the modern history of energy in 2003 is due to the U.S. military operations in Iraq and Afghanistan and the resulting increase in the cost of hydrocarbons, and also with the recognition that the global climate changes seriously. Global warming is the human's fault, in large part. The main reasons are human activities and uncontrolled release of carbon dioxide.
(War and Terror. 2013)

During this period, there was a significant progress in the design and starting mass production of new materials allowing more efficient use of solar and other renewable forms of energy.
The "Kyoto Protocol" was signed in December 1997. In this paper some states have committed themselves to limit emissions of greenhouse gases in atmosphere (Figure 2.1).

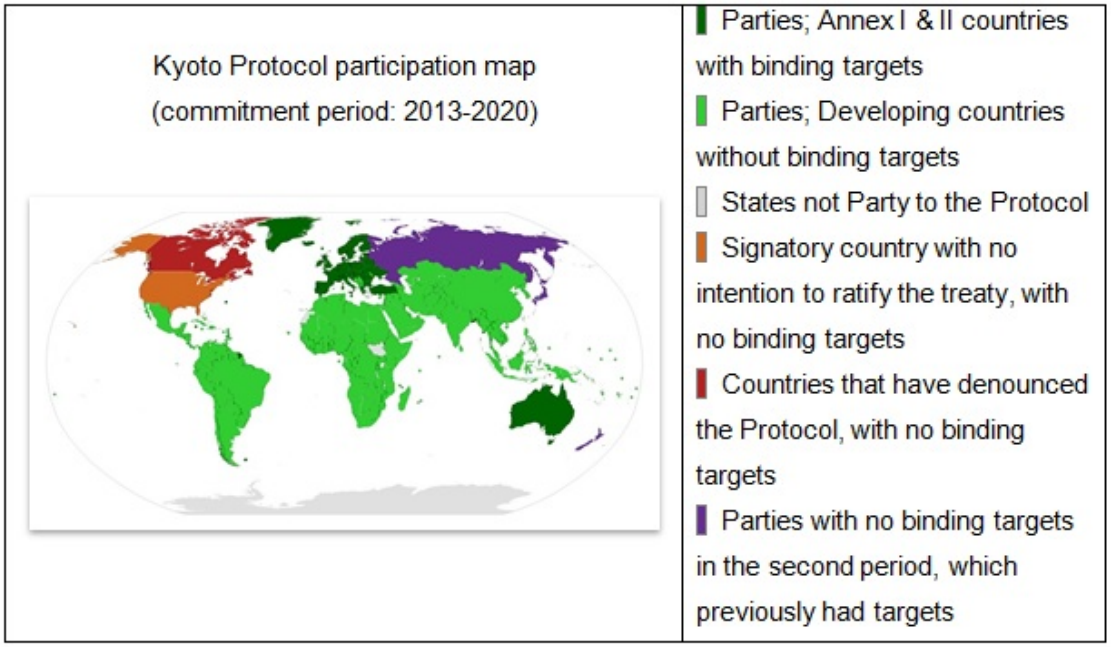

Figure 2.1 Kyoto protocol participation map

Also, states established quotas and developed basic principles about the market of harmful emissions. Developed countries, which produce the big part of CO_2 production, are able to buy “free space” for the emission from those owners that have this space.

In Finland this protocol took action since 31.5.2002. However, intergovernmental agreements took action only after its application in Russia in early 2004, because this country has got the biggest part of free space for these harmful emissions.

The Kyoto Protocol was the first protocol about environmental protection which regulates emissions trading. The first commitment period applies to emissions between 2008-2012. At this first period Finland must maintain the level of emissions as in 1990 during 2008-2012. The second commitment period applies to emissions between 2013-2020.
(Masalevich A. 2006)

The 38 countries including Finland committed themselves to realize the second stage of Protocol. Russia and 2 other countries have participated in Kyoto's first-round but have not taken on new targets in the second commitment period. Other developed countries without second-round targets are Canada (which withdrew from the Kyoto Protocol in 2012) and the United States (which has not ratified the Protocol).

Developing countries do not have binding targets under the Kyoto Protocol, but are still committed under the treaty to reduce their emissions. Under the Protocol, emissions of developing countries are allowed to grow in accordance with their development needs. So we can say that Finland has more rigid framework for emissions and their reduction than Russia.

The main target of Finland is to reduce emissions to those that were in 1990. However, the most stringent conditions of all the EU countries has got Finland. It is caused by the following factors:

- finnish industry needs more energy consumption to save position on the market (increasing production leads increasing of emissions);
- 1990 was one of the wettest years, so the significant amount of energy was made by Scandinavian hydroelectric power station. It was one of the reasons why the amount of “greenhouse” gases was one of the lowest;
- also, economic crisis affected the decrease in production, respectively, the gases also decreased.

(Roginko S. 2003)

There are many industrial companies which produce large amounts of CO_2. It is above all metallurgical, machinery and cement factories, limestone processing, petrochemical complexes, heat and electricity stations. Paper and wood industries need huge energy costs, which also lead to significant emissions of “greenhouse” gases. But we can see that Finnish scientists introduce widely energy saving and environmental technologies in practice.

Therein, EU countries have 3 flexible mechanisms to achieve the goal:

1. Joint implementation (JI)
2. Clean Development Mechanism (CDM)
3. International Emissions Trading (IET)

The third method is not so popular in Europe as two others. For example, if we take JI, Finland has financed the construction of the wind farm in Estonia and district heating plants suitable for the reform of biofuel. Finland will be able to read from the emission reductions of the project benefit from fulfilling its obligations under the Kyoto Protocol. If we speak about CDM we can remember that Finland has supported small hydroelectric power plants in Honduras and can thus be used for these emission reductions from the advantage of fulfilling the Kyoto obligations.

However, due to the fact that Europe is interested in improving the environmental situation in the world, the Kyoto Protocol has played a very important role in the further steps in EU energy conservation. At this stage, there was developed a consolidated document of 27 EU countries, known under

the code name "Program 20-20-20", which was adopted by the European Parliament of 17 December 2008. In the same period, incentives for a rational energy using were increased and inefficient countries paid penalties.

In general, the fifth stage of energy saving had not got big differences with the previous stage. For Europe countries the fifth period is characterized by the fact that only in 2009, actually began to operate "Program 20-20-20". Also the events that occurred after the accident at the nuclear power plant "Fukushima-1" in Japan in March 2011 made their own point.
(Climate action. 2012)

However, for Russia this stage was a big new quality step, because it made the first attempt to a real energy saving progress. After the adoption of the Federal Law № 261 "On energy saving and energy efficiency" in December 2009, several meetings of the Council of State about this theme, a government resolution to Russia in January 2011 and the start of the federal and regional programs for energy efficiency the system started to work.

Currently, Russia, as well as many leading countries of the world, seeks to optimize their energy consumption. The basis of the rational use of energy is extracted hydrocarbons, assuming that the maximum elimination of waste and better involvement in trafficking-products, secondary and renewable sources.
But the most important thing that Russia does not forget is to sell the vacant free spaces for CO_2.

3 RUSSIAN BUILDING ENERGY CERTIFICATE SYSTEM

One of the biggest parts of world’s attention is being paid to energy saving problems as well as in Russian Federation (RF) these days. Law №261 of the Russian Federation concerning energy saving and improving of energy efficiency was passed on 23 November 2009. This law states that energy audits

must be provided until the last day of December 2012. According to the results of energy audit the building energy certificate is created. Energy efficiency of the building is estimated, improving of building energy efficiency arrangements are worked out in case of necessity. But summing up performed work, it can be said that energy audit is performed, but only in paper form.

There are two factors that make the Russian economy vulnerable in the age of globalization to e.g. economic crisis: energy efficiency that is too low, and too high a dependence on natural resource exports. Russia has been depending a lot on the rich endowment of energy sources it has, which is why it is lagging behind its partner-competitors in many areas of energy efficiency. Still, some decent accomplishments have been made. Between 2000 and 2008, the energy intensity of the Russian GDP decreased by one-third and electricity intensity dropped by 30 percent.

Although these look like reasonable results, Dvorkovich states that only the easy changes have been made and now it is time to go deeper to find out the potential and take a step to the next level in energy efficiency.
(Dvorkovich 2009)

Nowadays if we look at the summary information of the Russian fuel and energy complex (Figure 3.1), we can see that energy demand fluctuates greatly. So it can be argued, that the reduction activities of energy efficiency do not yet fully operate or do not work at all. However, there is no overspending too.

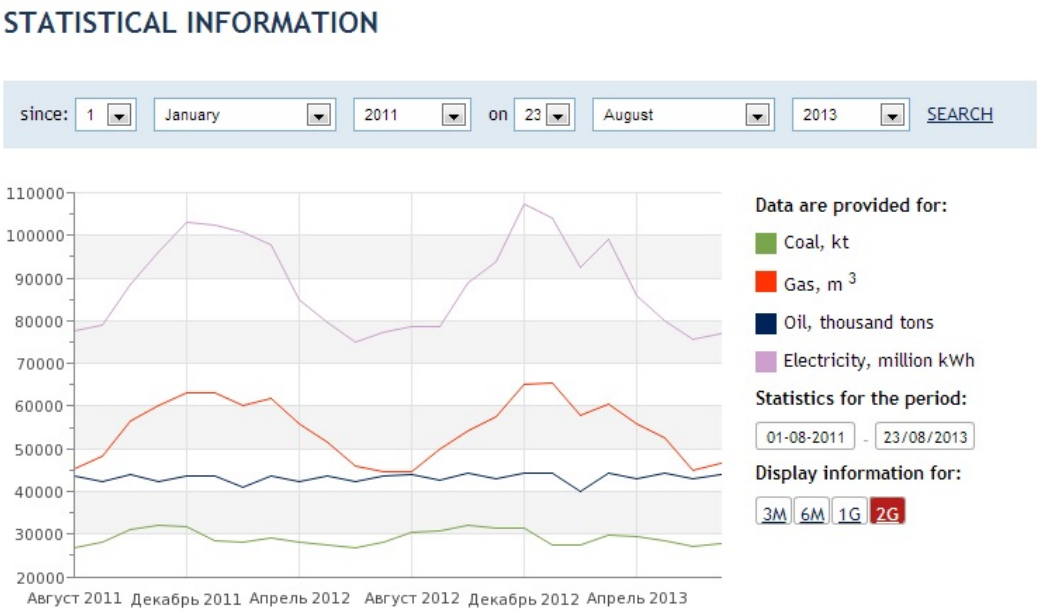

Figure 3.1 Summary information of the Russian Federation (RF) fuel and energy complex for the period of one year (from 01.08.2011 to 23.08.2013)

In order for Russia to be globally competitive, it must at least catch up with most advanced countries when it comes to energy efficiency, says Dvorkovich. Russian Federation president Dmitry Medvedev has set high goals for increasing energy efficiency in Russia. Medvedev has stated that the Russian economy must be modernized, where energy efficiency is on the agenda. By the year 2020, energy efficiency of the Russian economy must be increased by 40 percent, which means that it must be taken seriously and with inclusive activities. (Dvorkovich 2009)

According to Business Week, Medvedev has described the energy efficiency situation in Russia as “depressing”. This is because Russian factories use up four to five times more energy than their colleagues in Western countries.
Plenty of heat will get lost before it reaches consumers because of the wasteful district heating systems.
(Amstel 2009)

3.1 Regulatory framework

If we will speak about Russian situation in regulatory framework around energy efficiency concerning Europe, we can see a huge mess and dampness in them. Our country has grading papers (regulatory documents). Some are advisory in nature. Some are binding. But also there are difficult situations, when mandatory rules contradict each other. In general, the idea is similar, but Russian documents can be interpreted in different ways.

At first, in 90's has stopped the development of applied sciences. In the USSR it financed by the state, and its results fed regulatory framework. Until now, there was no decision, whereby the state level will be maintained regulatory framework. Will the system of voluntary (public) of the valuation be funded by SROs? No. Therefore, the adoption of the EC and EN may be accompanied by funding from the EU + Russia. This will pick up on the current level, and research.

Secondly, the transition to the EC and EN need for harmonization. Harmonization objectives can be formulated for different purposes and at different levels: closeness of scientific principles, identity of the calculation methods, the coincidence of the design requirements and of the results of calculations for the design and construction.

Before a federal law N184 "On technical regulation" (2003), SNiPs and GOSTs were binding on the entire territory of the country. Federal law N184 was considered as the beginning of Russia's transition from these state standards to European standards. It tells us that at the time of transition to European standards, SNiPs and GOSTs will be advisory, not mandatory. And soon, they will be canceled at all, because there will be already translated Europe Norms.

Now is 2013 year and the situation in the construction documents is still not clear. But some builders are still of the opinion that the SNiPs and GOSTs are mandatory, and they are the basis of quality of construction. For example, there is "A comprehensive program for the development of normative and technical

documents in the field of energy ..." from April 20, 2012, which reflects the results and plans for translations of documents on Russian language. So it is planned for 2015 to have a ready-made base of documentation.
(State information system. 2013)

Thus today all of the technical documents "on paper" are advisory and in practice - mandatory. Therefore, when energy certificates are created, there should be considered at least 2 technical documents (even if they contain different requirements). Therefore, the energy companies have to create two different types of energy certificates, which will meet each of these documents. This will increase the chances of signing certificates in the Ministry of Energy of the Russian Federation.

In total, more than 70 laws and regulations were approved that regulate the relations in the field of energy conservation and energy efficiency. The Russian Energy Agency was established to monitor the progress of realization of the Program and also it was launched an information system GIS “Energy Efficiency”.

3.1.1 Federal law №261

The main document in energy efficiency sphere is Federal law from 23 November 2009 №261 “About energy saving and improving of energy efficiency”. The 1st article says that this document regulates the relations of energy saving and energy efficiency. The purpose of the law is to create the legal, economic and institutional framework promoting energy saving and energy efficiency.

The 4th article tells about the principles of legal regulation. They are:

- effective and efficient use of energy sources;
- principles of legal regulation in the sphere of energy saving;
- support and stimulation of energy conservation and energy efficiency;
- complexity of activities on energy saving and energy efficiency;

- planning of energy saving and energy efficiency;
- using the energy resources, taking into account the resource, industrial, technological, environmental and social conditions.

In the 9th article there are a lot of requirements, prohibitions and obligations in energy saving field for state regulation. The failure to comply with these requirements will result overlay the administrative penalty on responsible persons in the amount 750 – 2500 euros (more about penalties is in Code of Administrative violations of RF, article 9.16). Due to the fact that the fines are so small, some companies prefer to pay these fines, not to fulfill the obligations about energy efficiency. But, of course, you will pay it regularly.

The 11th article called “Ensuring energy efficiency of buildings and structures” tells in the 4th clause that once in five years all energy efficiency requirements should be revised. The 5th clause tells about structures that do not need to carry out the requirements. Here includes cultural buildings, temporary structures (max 2 years), individual houses (max 3 floors), summer houses, stand-alone structures with the total area less than 50 m^2.

The 12th article is about energy efficiency in Housing and communal services (HCS). Every developer is obligated to place on the wall of new apartments building the board with its class of energy efficiency. Also there should be done activities to raise energy level. All expenses lie on apartment’s owners. It follows from this in the 13th article that owners should install accounting devices of energy resources (heating, water, gas, electricity). The last date of device installing depends on the type of real estate.

Energy audit can be done only by members of self-regulatory organization (SRO) in the energy audit field. Using the audit results energy certificate is made and then also a report. The 15th article tells that the main ideas of energy audit in Russia are:

- obtaining objective data about using amount of energy sources;
- finding out energy efficiency characteristics;

- identification of energy saving potential;
- to develop a list of energy efficiency activities and to estimate their value.

The 16th and 17th articles include the information about which organizations have to do energy audit and how often they must do it (once in 5 years). Every 3 months the SRO should send copies of the energy audit results to the Ministry of Energy. SRO has the main function in the creation of rules which regulate the audit procedure. Also they check the company's audit work. This work includes:

- the plan of audit making;
- the report about results of energy audit;
- energy certificate;
- other documentation provided by the contract.

Another part of the Federal Law №261 has officially adopted resolutions and orders of the Government of Russian Federation (RF) (Appendix 1).

The energy saving program is aimed at realizing the President decree "About some activities to improve energy and ecological efficiency of the Russian economy". Its goal is to reduce energy intensity of gross domestic product (GDP) in Russia at least by 40% compared with 2007.

This program has 2 stages (Chart 3.1):

I. 2011-2015 – transition to energy efficiency way of economic;
II. 2016-2020 – economic development on energy efficiency way.

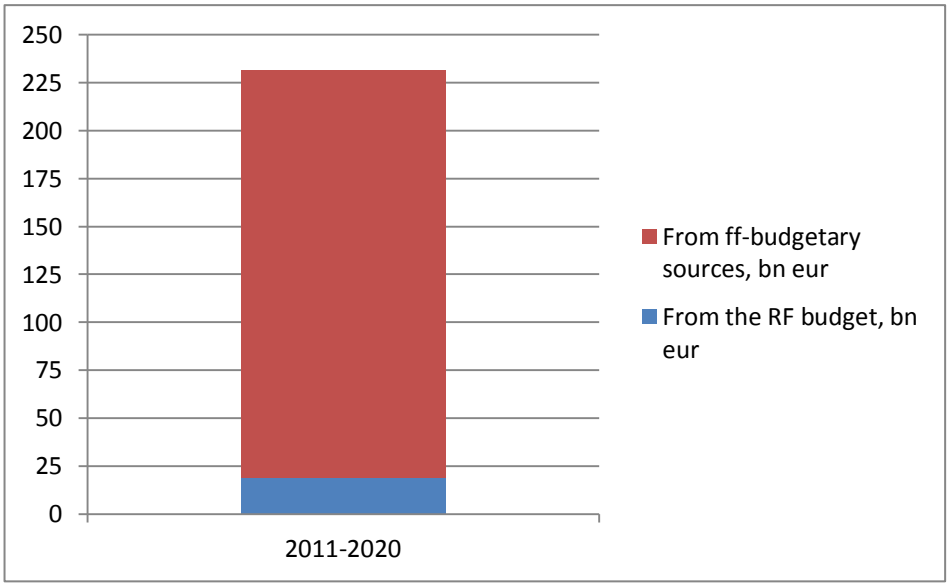

Chart 3.1 Periods of Russian energy efficiency program financing

The planned amount of financing is about 9 532 billion rubles (231 billion euros), where:

- ✓ 760 billion rubles (19 billion euros) from Russian Federation budget and the entities of the Russian Federation;
- ✓ 8772 billion rubles (212 billion euros) from off-budgetary sources of financing.

The Chart 3.2 shows us specific information about the summary ratio of budgets for two periods:

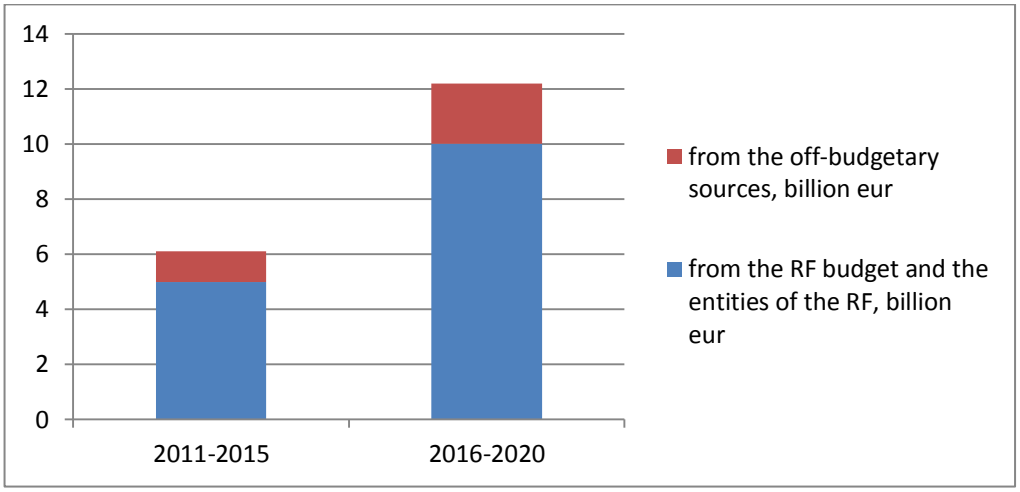

Chart 3.2 Ratio of the budget during each of two periods

In addition, the budget from the entities of RF is 625 billion rubles (15 billion euros) which is divided also into stages:

I. 2011-2015 – 208 billion rubles (5 billion euros)
II. 2016-2020 – 417 billion rubles (10 billion euros)

The expected federal funds account for 135 billion rubles (3,3 billion euros):

I. 2011-2015 – 43 billion rubles (1,1 billion euros)
II. 2016-2020 – 92 billion rubles (2,2 billion euros)

All activities of this Program are divided into subprograms depending on the function type of groups: transport, agriculture, residential sector, etc. Also there are subprograms especially for methodical, information and personnel support of events.
(Sviderskaya O. 2006)

3.1.2 SNiP 23-02-2003 (A)

Another one of the main documents is the actualized version of SNiP 23-02-2003 “Thermal performance of the buildings”, where introduced the appropriate minimum energy efficiency requirements that must be followed in the design, examination, construction, acceptance and exploitation of new and renovated heated residential and public buildings with a design temperature of indoor air above 12°C as well as technology parks usable area of more than 50m (regardless a normalized height of the temperature and the relative humidity of indoor air). These requirements are also for buildings with the maximum of 3 floors and for apartment houses.

In accordance with the requirements of Article 15 of Government Regulation of Russian Federation from January 25, 2011 №18 about phased reduction of indicators characterizes the specific value of annual energy consumption in buildings:

- from 1 January 2011 (for the period 2011-2015) the allowed design of buildings with energy efficiency class “C” and higher (with decreasing not

less than 15% relative to baseline parameters characterizing the annual energy consumption of a specific amount of resources in buildings);

- from 1 January 2016 (for the period 2016-2020) the allowed the building design energy efficiency class “B” and higher (with decreasing not less than 30% relative to baseline parameters characterizing the annual energy consumption of a specific amount of resources in buildings);
- from 1 January 2020 the allowed the building design energy efficiency class “A” (with decreasing not less than 40% relative to baseline indicators of the specific value of the annual consumption of energy in buildings).

From 2011 the energy efficiency class B (“high”) of buildings is achieved through upgrading the heating system with automated heating control units. Also by increasing the thermal resistance of external walls and changing windows to energy efficient (reduced resistance of heat transfer 0,56-0,8 m^2×°C/W, from 2016 to resistance of heat transfer 1,0-1,05 m^2×°C/W), using the devices using exhaust air heat recovery and energy efficient heating and ventilation systems, district heating systems with energy efficiency ratios above 0,65, and decentralized heating systems.

Also there is a reduction in water consumption of residential buildings on 45% till 2015. In 2008 the average actual consumption was about 320 liters/(person/day). So in 2020 it should be 175 liters/(person/day), including hot water from 150 to 85 liters/(person/day). These reductions are achieved by moving the node of domestic hot water (DHW) from central heating station in individual heat points (ITP) in buildings. Such reductions are also achieved by individual water metering devices in apartments.

The annual electricity consumption (kW × h) is determined by the specific design power, with the annual number of hours of use of the maximum.
For residential buildings is allowed to take from the average power consumption 0,015 kW/m2 of the total area in apartments with electric stoves and 0.01 kW/m2 in apartments with gas stoves (with an annual maximum use of plates 3500 and 3000 hours).

The total annual unit cost of end types of energy are determined by summing the annual specific consumption: thermal energy for heating and ventilation of the building during the heating period, the thermal energy for thermal curtains, thermal energy for hot water, electricity on artificial lighting and household needs.

In accordance with the Decree of the Ministry of Regional Development of the Russian Federation on April 8, 2011 №161 on the wall of the building there should be located a pointer with energy efficiency class of an apartment building. In Figure 3.2 there some rules that should be performed:

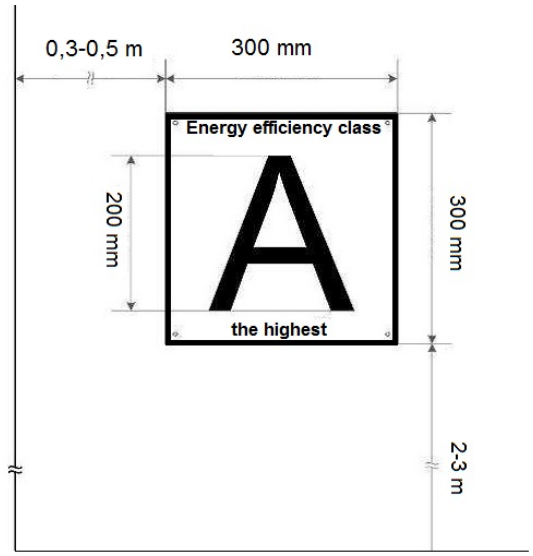

Figure 3.2 Pointer with energy efficiency class

In Appendix 2 there is a schedule from SNiP 23-02-2003 (actualized version, 2011) with energy efficient classes for the newly introduced and renovated buildings. Here we can find the classes from A++ till D and on what parameters they are defined.

In 2012 it is possible to commission the buildings with class B and higher. After 2016 it should be not lower than B+ and after 2020 not lower than B++. Designing buildings with class C, D and E is prohibited. Supervision over this requirement is assigned to the State construction expertise.

But also in this year another regional document was adopted with “recommendations for the energy efficiency residential and public buildings” for Saint-Petersburg, and if we will look to the Appendix 3, we can find another list of classes from this. Class is the percentage deflection of the calculated (actual) index of energy efficiency of the building from the normalized (base) values according to the list in Appendix 2.
As a basic level of energy efficiency requirements for residential and public buildings class «D» energy efficiency is adopted.

So there is a double situation with the building class definition in Saint-Petersburg, because nowadays all these documents are advisory in nature.

3.1.3 Other documents

Also there is the Order from April 19, 2010 №182 about requirements for energy certificate which is drawn up after energy audits using the results and project documentation. Some changes are made in the form №12 of the previously approved energy certificate.

Requirements for the energy certificates are determined federally, for industrial establishment in GOST P 51379 99 “Energy conservation. “Power engineering certificate of fuel-energy resources” for the industrial consumer and for residential and public buildings in SniP 23-02-2003 “Thermal performance of the buildings”. The energy certificate of a building is created at the stage of projects in the section which is called “energy efficiency”. It is corrected in compliance with the real measured value of the envelope thermal resistance. The category of the energy efficiency rating is determined by the value of the specific energy demand during a building’s heating season. If a building’s energy efficiency rating category does not correspond to the standard requirements, the building is not accepted for utilization by technical inspectors in Russia.

Currently, methodical recommendations for arranging energy audits in accordance with Law №261 of the Russian Federation are not created. The

energy certificate form of residential buildings must be added by section “control and regulation of energy consumption”. Consumption of hot domestic water really should also be taken into account.

But there is a document called “complex program of development of normative and technical documents in the field of energy saving and energy efficiency to the period 2012-2015”, which looks like a schedule with the names of new Russian set of rules, analogue ISO/EN, type of future document, terms of development and who will create them (Figure 3.3). It includes 195 items: 9 documents to create in 2012-2013, 186 to create in 20113-2015. The document is approved by the Minister of Regional Development V.F. Basargin.

УТВЕРЖДАЮ
Министр регионального развития
Российской Федерации
В.Ф.Басаргин
«20» апреля 2012 года

Комплексная программа разработки нормативных технических документов в области энергосбережения и повышения энергетической эффективности на период 2012 – 2015 годы

Комплексная Программа разработки нормативных документов в области энергосбережения и повышения энергетической эффективности зданий и сооружений на период до 2015 года (далее - Программа) подготовлена по поручению Министерства регионального развития Российской Федерации Национальным объединением строителей с привлечением ведущих институтов и организаций (НП «АВОК», ОАО «ЦНИИПромзданий», ОАО «СантехНИИпроект», НИИСФ РААСН, «НПО ТЕРМЭК», НП «РОСИЗОЛ») по результатам проведенной научно-исследовательской работы (НИР).

Программы была рассмотрена и согласована Решением Комитета по системам инженерно-технического обеспечения зданий и сооружений Национального объединения строителей, протокол №9 от 25.08.2011 г.

Проведенный анализ нормативных требований Европейского Союза, США в области энергосбережения и изученный опыт реализации нормативных требований по повышению энергетической эффективности зданий в странах Прибалтики, Центральной и Восточной Европы позволил разработать концепцию по реализации основных положений Указа Президента Российской Федерации от 04 июня 2008 г. № 889 «О некоторых мерах по повышению энергетической и экологической эффективности российской экономики», Федеральный закон от 23 ноября 2009 г. № 261-ФЗ «Об энергосбережении и о повышении энергетической эффективности и о внесении изменений в отдельные законодательные акты Российской Федерации».

Программа содержит 195 документов, в которых должны быть установлены показатели расчетной и оценочной энергоемкости зданий по потреблению тепловой и электрической энергии, показатели и методы оценки энергопотребления инженерными системами зданий, требования и методы определения теплотехнических характеристик используемых материалов, изделий и конструкций.

Перечень первоочередных сводов правил, планируемых для разработки в период 2012 – 2013 годы

№ п/п	Наименование разрабатываемого свода правил	Аналог ISO, EN	Тип документа	Срок разработки	Разработчик
1.	Энергетическая эффективность зданий — Общее потребление энергии и определение уровней энергопотребления	EN 15603 Энергетическая эффективность зданий — Общее потребление энергии и определение уровней энергопотребления	свод правил	апрель 2012 - апрель 2013	определяется при согласовании ТЗ

Figure 3.3 Complex program of development of normative and technical documents in the field of energy saving and energy efficiency to the period 2012-2015 (Basargin. 2012)

3.2 Structure of Russian building energy certificate

The energy certificate of the enterprise – the basic document, which contains the credentials on the fact of information gathering and energy audit companies, organizations, in the form of measurements, calculations for all flow rates of energy resources, also, reflecting the balance of energy consumption facilities, businesses, organizations in the process of economic activities.

Energy Building Certificate contains 24 chapters (Appendix 4). They include all information about the technical condition of the building. The last one is based on the sign documentation. It is necessary when you enter an object in operation, repair or reconstruction.

More detailed information about the energy conversation program and energy efficiency activities are contained in the report – the second important document. Without it the examination of the object cannot be completed. According to the experts of NTC “NATES” in the part about the energy efficiency programs there is a border, where the formal approach is not appropriate. NTC “NATES” works closely with laws, create solutions for energy saving, make energy consulting, energy planning and also do energy audits of various enterprises.

A lot of companies make the simple energy audit and write standard report with primitive activities, which will not raise energy saving in the building. The reason for a bad energy saving - companies try to manage to get the energy certificate in time for the execution of the Federal Law 261. In either case, when the term expires, they will be fined or even closed. Nobody wants these effects. In some SROs the transmission of energy certificate without this report is prohibited.
(Krivoshapka I. 2011)

After the energy audit a document is born, which includes the results of the inspection and the prospects affecting viability of the object, organization, etc. Another main moment is the examination of energy certificate in SRO. When

they passed the examination and registered in self-regulatory organization, they send them to the Energy Department.

4 FINNISH BUILDING ENERGY CERTIFICATE SYSTEM

The Ministry of Employment and the Economy states on its website, that when it comes to many energy conservation activities and using energy efficiently, Finland is one of the leading countries in the world. Examples of successful energy conservation activities in Finland are the co-generation of heat and electricity, broad coverage of energy efficiency agreements and the systematic implementation of energy audits.

The International Energy Agency (IEA) has stated that in co-generation with high efficiency and low emissions, Finland is the “model for the world‟. Finland has been investing in energy efficiency for decades covering the entire chain from energy production to its end use. The areas where Finnish technologies are significant are e.g.:

- Combined heat and power generation (CHO) or co-generation
- District heating and cooling
- Efficient industrial processes
- Automation and environmental measurements
- Smart grids and power electronics

(Kaipainen I. 2011)

The European Commission implemented a strategy for Climate Action in 2008. According to that strategy, the Member States will reduce their collective greenhouse gas emissions by at least 20% and boost the share of renewable energy to 20% of total consumption by 2020. In addition, the European Union has set an indicative objective to reduce its primary energy consumption by 20% compared with the projected 2020 energy consumption. These stresses need to increase energy efficiency in the EU.

The Finnish residential building stock is 270 million m^2 of which 55% are single-family houses, 33% apartment buildings and 12% row houses. Commercial and public buildings amount to 82 million m^2 of built area. District heating is the most commonplace heating source in Finland with a share of 43% of all heated area. Oil and electric heating share the second place with 22% each. Solid fuels such as wood and peat are used in 8% of buildings and the remaining 5% use other heating sources such as ground heat pumps.
(VTT. 2011)

4.1 Energy Performance of Buildings Directive (EPBD)

Energy efficiency's primary objective is the reduction of greenhouse gas emissions in a cost-effective way. The common EU goal is a 20 per cent increase in energy efficiency by 2020. Besides being part of climate policy, saving energy also remains important for traditional reasons, including securing the energy supply, reducing energy costs and from other environmental viewpoints.

In many energy conservation measures and in terms of the efficiency of energy use, Finland is among the leading countries in the world. Co-generation of heat and electricity, broad coverage of energy efficiency agreements, and the systematic implementation of energy audits are good examples of successful energy conservation measures.

On 4 February 2010, the Finnish Government passed a resolution on energy saving and energy efficiency measures for implementation during the current decade. This government decision is based on a June 2009 report by a broad-based Energy Efficiency Committee, appointed by the Ministry of Employment and the Economy. The energy efficiency measures implement the objectives of the Long-Term Climate and Energy Strategy.

4.1.1 Main idea

The EPBD, originally introduced in 2002 and recast in 2010 (Directive 2010/31/EU), is a directive of the European Commission that obliges EU Member States to set minimum energy performance standards for new and reconstructed buildings. Furthermore, the Directive obliges each Member State to introduce energy performance certificates (Figure 4.1). This certificate based on ET-value. It included only the heating need of the building plus electricity need for appliances.

(Ideal EPBD 2011)

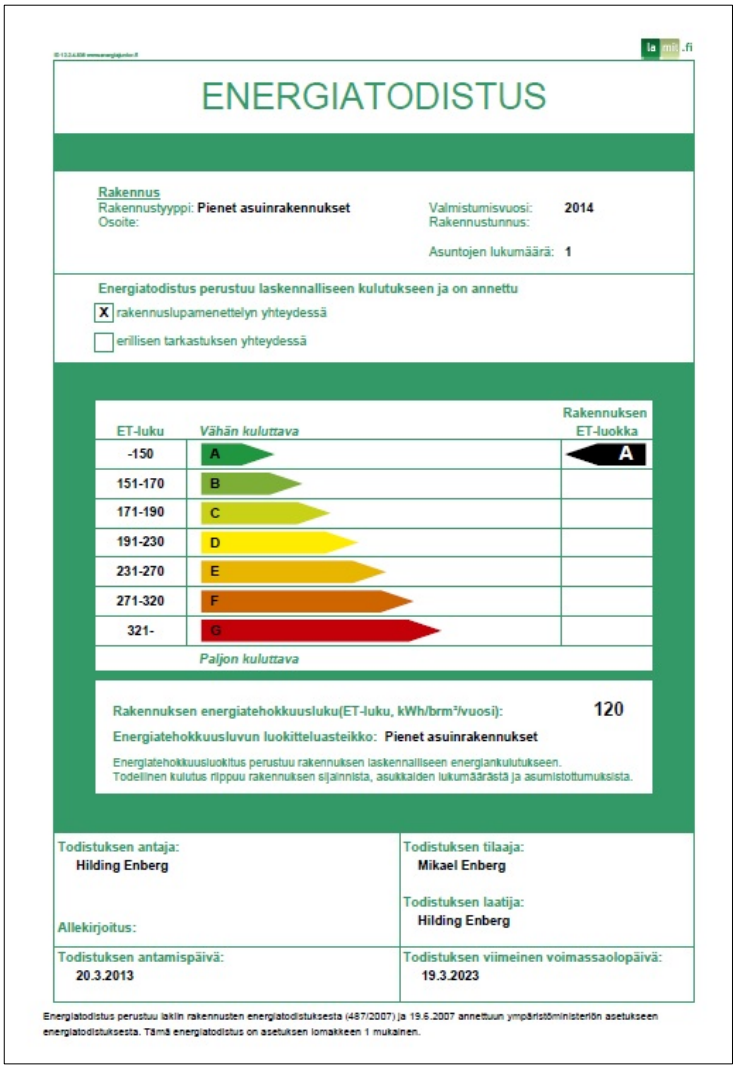

Figure 4.1 Finnish version of energy certificate (available till 1.6.2013)

In 2007, the Finnish government took a number of steps to implement the EU directive on the energy performance of buildings. EPBD implementation required harmonization of the Finnish law to EU directives. On 13 April 2007, the Finnish parliament approved new legislation regulating the energy efficiency of buildings. The new legislation includes two new acts - the Act on Building Energy Certification (487/2007) and the Act on Inspection of Air-Conditioning Systems (488/2007) - and a revision of the Land Use and Building Act. The new legislation came into force from 1 January 2008. Additionally, the existing Building Regulations, given in the National Building Code of Finland under the Land Use and Building Act, were amended by the Ministry of the Environment in order to comply with the directive (see separate entry).
(Ideal EPBD. 2011)

Energy Certificate is obligated:

- after 1.1.2008 for all buildings which apply a building permit;
- since 2009 also for existing buildings which are for sale or rent (not for single-family houses or for more than six dwelling residential buildings or residential groups), and
- is recommended - but voluntary - before 1.1.2008 graduates from private homes in more than six dwelling residential buildings or residential groups.

The energy certificate is not required for:

- buildings with a floor area of less than 50 m^2;
- apartments which are used less than 4 months of the year;
- listed buildings,
- manufacturing and repair of the building or
- churches or other religious community-owned buildings, which are used only in assembly.

The IDEAL-EPBD project was co-funded by the European Union under the Intelligent Energy Europe Program. The project was running from October 1, 2008 until October 1, 2011 and had project partners in 10 EU countries.

4.1.2 Experiences

The EPC was introduced to become an important information source for building owners on energy efficiency. To be successful some preconditions with regard to the EPCs should be fulfilled. Homeowners should:

a) be aware of its existence,
b) understand the information on it,
c) trust the information on it,
d) find the information useful, and
e) be motivated to implement recommendations on it.

In the IDEAL EPBD project homeowners were asked in the questionnaire about their experiences, their opinion and the use of the EPC. The Finnish sample was too small to be included in all the statistical analysis carried out specifically on responses to the EPC questions, because only 25 respondents had the EPC. Therefore the awareness, understanding and usefulness of the EPC among Finnish respondents could not be evaluated by statistical means. However, one important element - the trust towards EPC, could be determined in combination with internet information.

In the Internet survey homeowners were asked about their level of trust in various sources of information on energy efficiency. In four countries combined family and friends ranked highest as the source that most respondents trusted. Quite differently, in Finland respondents reported most trust in the national or local authorities, tradespeople and EPC (see Figure 4.2). Also we can see the level of trust in different countries depending on information source (Figure 4.3).

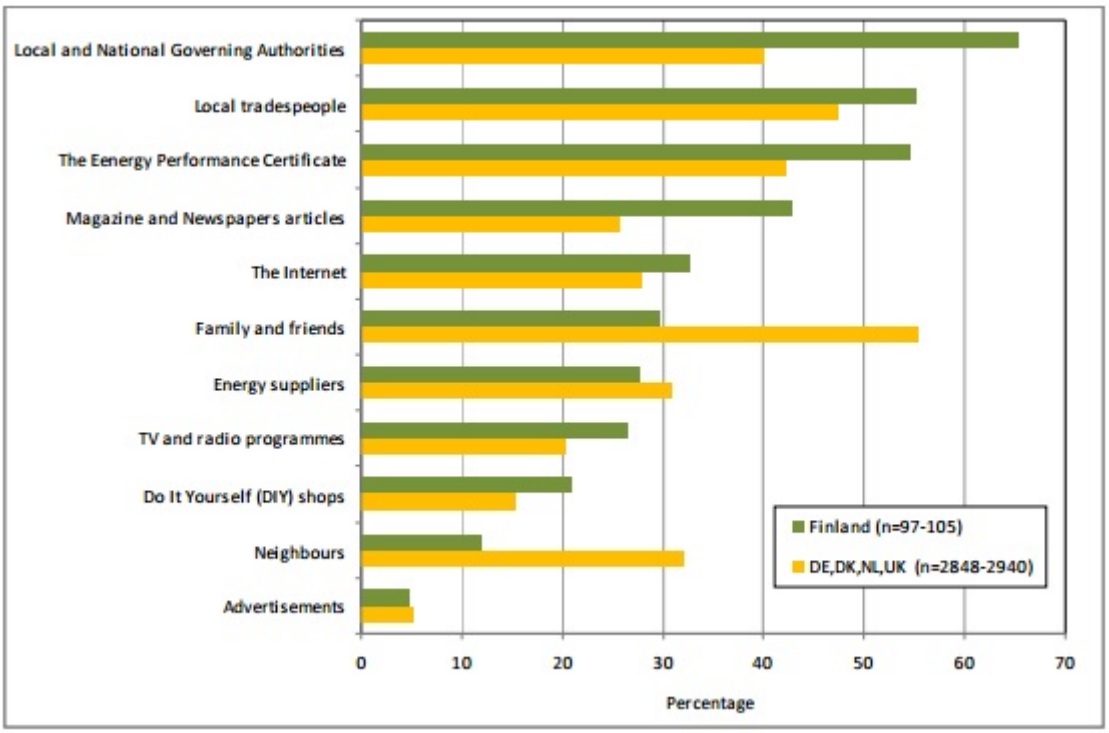

Figure 4.2 Homeowners level of trust in various sources of energy related information (Ideal EPBD. 2011)

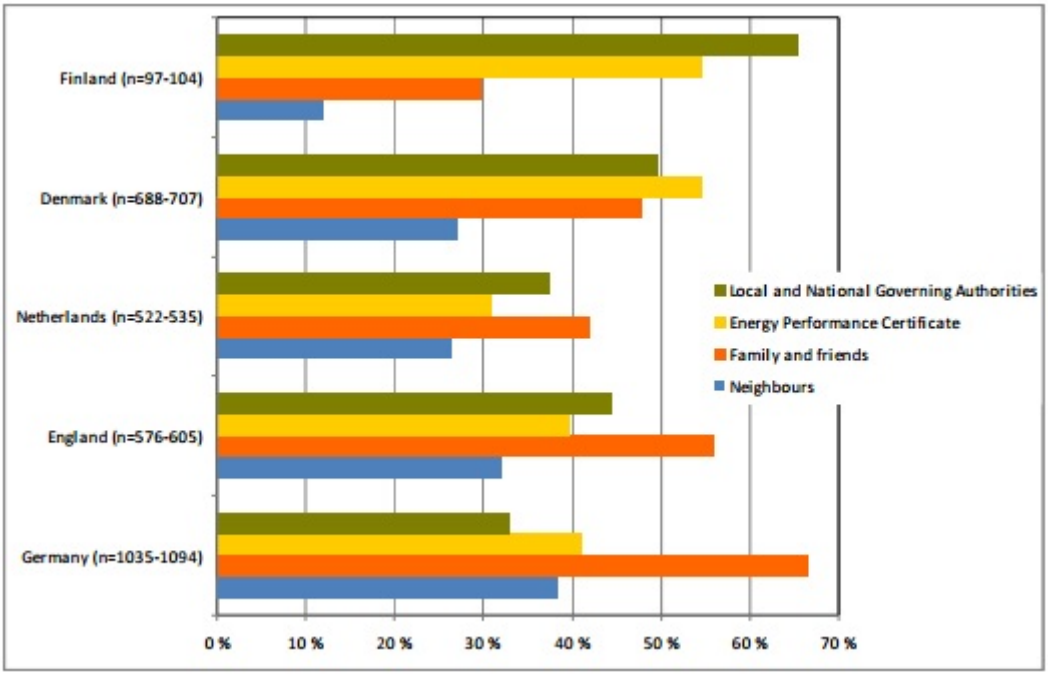

Figure 4.3 Homeowners level of trust in four selected sources of information, by country (Ideal EPBD. 2011)

In Russia there is no statistical information like this, because energy audit is not necessary for our private houses by Russian laws. So we cannot compare Finnish and Russian statistics. But maybe soon it will be real.

4.2 New building certificate system

Energy efficiency in Finland is one of the keys to compare and evaluate the situation in rent and sale spheres, because the consumption part of this sphere is about 27%. Altogether it is over 40% of the total energy consumption in Finland. The new Law of Energy of the building was confirmed on 18th of January 2013 and it will come into force on 1st of June 2013.

The new certificate has the same basic functions as the old one, but there are some changes. The clearest difference between them is their appearance. The new one is made in blue color and provides true actual important information about building, which helps to make a buying decision (Figure 4.4). The new certificate system includes (unlike the old system) based on E-value, which based on the primary energy consumption of the whole building (calculated ET-value told only about the energy consumption of the building itself, without technical systems). The new certificate gives some professional energy saving measures and also the information about ecological measures. In terms of volume, this chapter applies to a few thousand of flats and terraced houses, and during that time built new buildings.

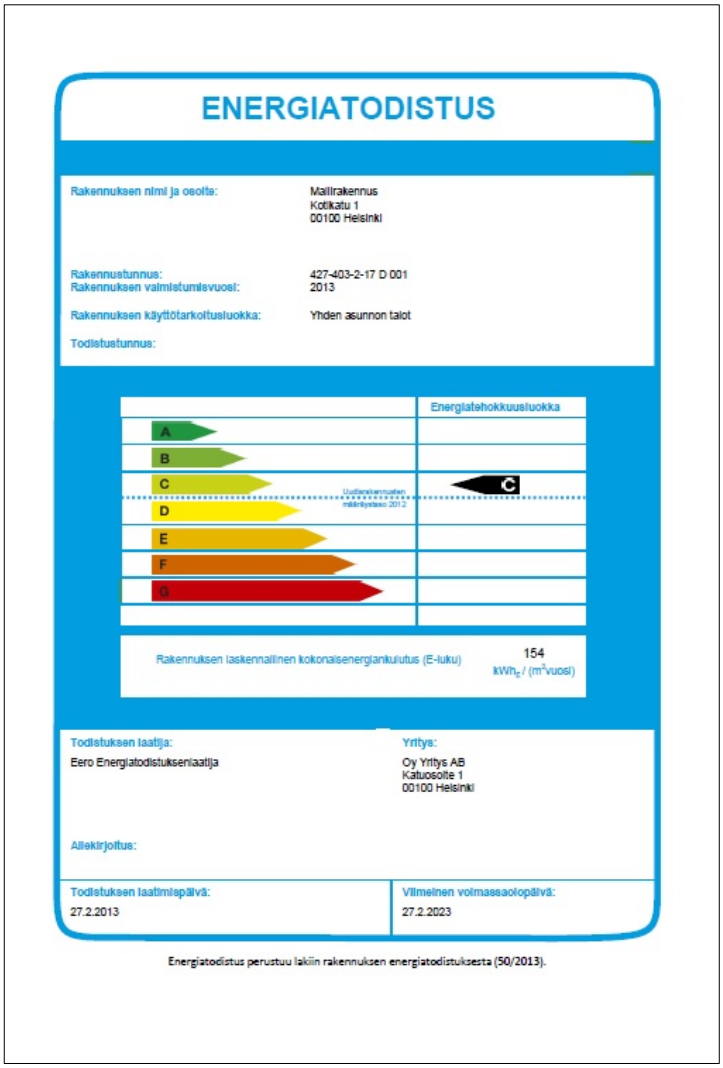

Figure 4.4 New Finnish building energy certificate (available since 1.6.2013)

The energy certificate is not required for:

- buildings with a floor area of less than 50 m^2;
- holiday buildings which are not used for business;
- listed buildings;
- manufacturing and repair of the building, swimming pools, ice rinks, warehouses;
- farm buildings with low energy consumption;
- buildings under protection of Architectural heritage law
- churches or other religious community-owned buildings, which are used only in assembly;
- buildings with disproportionately intended energy using;
- administration building

The pattern of Finnish new building certificate should be prepared in accordance with Annex 5 of the Law on 27.02.2013. Classification of building energy efficiency is in the Appendix 2 of the Law on 27.02.2013. More information about terms for conversion on new building certificate is at paragraph 30 of the new Law on 18.01.2013.

All information and energy calculations should be made on annual consumption results, but not on actual results. The energy house status should not depend on the characteristics of human usage.

Before comparing Russian and Finnish certificates let us do a conclusion to the previous part to find differences between the Finnish new and old system. So the basic difference in the certification systems is the method: the old certificate didn't affect the building permit. Now for new building the energy class must be C or better to get building permit. In E-value usage of renewable energy sources is profitable. In previous system this did not make any difference. In old energy certificate system everybody had to use the same calculation method - provided by the ministry - to calculate the ET-value. Now calculation method and the chosen energy simulation software are free to choose.

5 COMPARING ENERGY CERTIFICATES OF RUSSIA AND FINLAND

In the new certification system in Finland energy performance is based on overall primary energy consumption (kWhE/m^2per year) taking into account the energy source (primary resource factor). Weighting factors for energy sources (oil, electricity, district heating etc.) are fixed in the National Building Code. For example, electricity consumption has 1.7 factor and fuel – 1.0. So the building with oil electrical heating system gets better energy class than the building with electrical heating system.

The energy certificate is always based on calculated energy consumption, which makes it possible to compare different buildings, not different users. The certification is always issued by a qualified energy certification expert. In existing buildings, information about the available actual energy consumption must also be reported.

The prices of Finnish new building certificate and Russian certificate are approximately the same. They are about 500-700 euros. But we should understand the idea and the volume of them in each country.

In Finland the certificate is valid for 10 years, while in Russia companies should do energy audits with energy certificates every 5^{th} year.

Qualification of Finnish specialists in the field of energy certificates is valid for 7 years. In Russia it is valid only 5 years. In Finland there are over 620 qualified specialists who can make the certificate. In Russia this kind of field is quite new, so there are theoretical and primitive practice courses, but it makes no warranty that they make really good specialists, because there is no experience in energy audit. But nowadays major universities contemplate the creation of separate energy efficiency specialty.

To make good energy audits the same following building elements and technical systems must be evaluated in Finland and in Russia:

1) exterior walls, exterior doors, windows, roof and the base floor and other structures;
2) the heating system;
3) the hot water system;
4) ventilation and air conditioning system;
5) lighting;
6) cooling system;
7) the individual forms of power;
8) other systems that have an impact on building energy efficiency.

In Russia there is a strange situation with the classification of energy efficiency compared with the EU. In Russia there are two versions for calculating energy efficiency, because there are two documents and they are both in the force. The first one tells that Russia has got 10 building categories, while in Finland there are only 7.

Estimation of the building energy efficiency category was provided by Russian and Finnish methods. The difference of methods was defined. In Finnish method calculation is provided by the average monthly temperature, but in Russia by the average temperature of heating period. In method D5 water and electricity consumption is used separately, also energy for building ventilation is taken into account. In the Russian method the consumption of hot domestic water is not used, and electricity consumption is used in internal heat gains to the building for the heating season. There is difference between calculations of heat gains to the building by solar radiation. It is explained by different level and empirically determined coefficient. In the Finnish method the temperature of the ground also is taken into account.
(Dmitry Bocharnikov. 2011)

But the main difference was told by T.Raiter in her article in Industrial Construction Review N140 from April 2012: “The basic principle of the finnish management model formulated as a "Plan-Do-Control-Act"”, but Russia nowadays has a fault at first step. So Russia needs help from the leader country in this sphere – Finland, which can bring the system in order and put countries economics on the right way.
(Raiter T. 2012)

6 HOW TO ENTER THE RUSSIAN ENERGY EFFICIENCY MARKET

An idea is to create a picture what it is to do business in Russia nowadays by covering the whole construction industry, Russian cultural factors and practical issues. This part is meant to help to survive with everyday business life in Russia. Before making decisions or taking any steps to expand business, it is very important for the company to analyze the environment and through this to make a correct action plan how to proceed and manage business successfully.

The term “energy audit” now is a part of everyday life for many companies. In late 2009, the President signed the Federal Law № 261 “On the energy supply and improving energy efficiency,” according to which all enterprises whose annual spending on energy using balances exceeds 10 million rubles are required to do this procedure.

Nowadays a lot is written and said about energy audits, but still remain a lot of questions: what is it and what can they give as a result? Whether in Russia any organizations not only declare, but also do regular energy audits? And where is the guarantee that it will pay off?

Energy audit is an assessment of all aspects of the enterprise, which are related to the cost of fuel, energy and other types of resources, such as water. The purpose of the audit is to evaluate the effectiveness of energy resources used and to develop effective activities to reduce the company’s expenses.

Energy Audit allows control power consumption and based on research taken to minimize and save energy costs. The thermal nondestructive testing method allows an energy audit of the building without disturbing the operation of all its systems. The primary and comprehensive energy audit conducted with the registration of an energy certificate (insert in building energy performance certificate). An energy certificate is an official document for the companies which have energy management. The energy certificate provides information about using heating resources by production facilities and plan of actions to

improve energy efficiency. Energy inspection using a thermal method helps in short terms detect defects in the roofs of buildings, heat leakage from the joints of buildings, places of moisture condensation, and the penetration area of underground heating.

According to the Energy Ministry of RF, less than 31% of the 228 thousand budget organizations did the energy audit until the last day of December 2012. This information was announced by Head of Department for Supervision of heating devices and energy management of Northwest RTN, Valery Chmul, at the Conference “The results of the first phase of checking organizations for the compliance with the requirements of 261-FZ. But, certainly, in return they will pay fines totaling more than 7 billion rubles (171 million euros).
(Pirozhkov A. 2013)

So if we speak about the Russian market, it is not excluded, that the best way for any foreign company in this field is to join or create their own SRO. And there are a lot of documents and official suggestions how to do it.

6.1.1 How to join in SRO

SRO it is self-regulatory organization, which is created with Civil Code of Russian Federation (RF) and Federal Law of RF from 12 of January 1996 N7 “About non-profit organizations”. It joins subjects of entrepreneurial and professional activity. The main idea of SRO is to put control and supervision functions from the subject activities in the specific field from state to market participants. And also self-regulatory, which based on membership of individual entrepreneurs, legal entities and foreign companies making activities in energy audit (Figure 6.1).

SRO obligated to develop a procedure for the entry of companies into it, the standards and regulations governing the carrying out energy audits energy audit of its members, including the standards and design rules energy certificates

drawn up by the results of energy audits, standards and rules for determining the list of measures for energy conservation and energy efficiency.

Since 01.01.2011 all activities related to energy audit, may exercise only the members of the SRO energy auditors. Sources of funding SROs are dues companies, donations, income from the provision of services, etc.

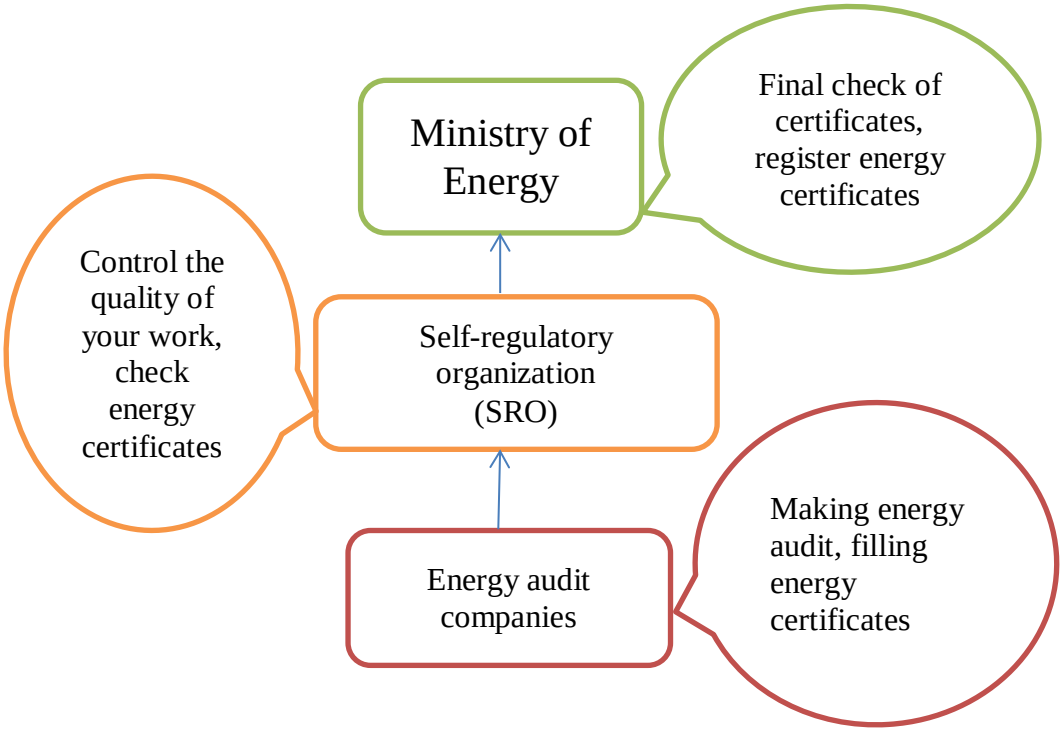

Figure 6.1 System based organizations in Russia

Self-regulation in the field of energy audits was introduced in 2010. It represents the energy audit of companies and organizations. It requires the entrance in SRO for everybody who works with it. So a member of the SRO is admitted and has the rights for energy audit of client organizations.

SRO members can be:

- legal entities;
- individual entrepreneurs;
- individuals.

Also there are requirements to enter the SRO of energy auditors:

1. A person who comes into SRO of energy auditors should have the main activity of one of the following types of works in the field of:
   - Energy audits,
   - Management of real estate,
   - Technical inspection, testing and analysis.
2. For legal entities - availability in the company at least 4 employees who have signed an employment contract with the company and have received appropriate education in the field of energy audits.

   For an individual entrepreneur - presence in staff at least one individual who has concluded an employment contract with the SP and having a proper education in this area, and (or) the appropriate knowledge in this area.

   For an individual - presence of his knowledge in the field of energy audits, as well as certificates of advanced training in the last 5 years and has experience in this area.

The list of documents required to join the SRO of energy auditors:

• Certificate of legal registration legal entity (Certificate ORGN).

• Certificate of tax registration (Certificate of Tax).

• Decision or a protocol on the creation.

• Charter.

• An order for appointment of acting managers (General Manager, Chief Accountant).

• Certificate of Incorporation (issued not later than 3 months prior to the filing of documents in the SRO).

• An information letter registered in Statistical registry Federal State Statistics Service.

• Certificate of admission issued by another SRO for other activities (if any).

• Documents for employees (certificate of advanced training, diplomas, certificates, employment records).

6.1.2 The registration of a foreign company

According to the established procedure, to operate on the territory of the Russian Federation a foreign company (organization) does not necessarily open and accredit a branch or representative office. It is enough to carry out the tax registration in the special tax inspection.

The list of required documents:

1. Legalized extract from the trade register certificate of the country of registration of the organization or any other documents containing information about the body, a registered organization, registration number, date and place of registration;
2. Legalized copy of the constituent documents;
3. Certificate from the tax authorities of the foreign state in any form of registration of a foreign organization as a taxpayer in the country of incorporation with the code of the taxpayer (or its equivalent);
4. The decision of the authorized body of the foreign organizations to establish branches in Russia or in the absence of such solutions, a copy of the agreement under which will be an activity in the Russian Federation;
5. A power of attorney issued by a foreign organization to the head office in the Russian Federation;
6. The lease (or its equivalent) to provide addresses in Moscow;
7. Notarized power of attorney for the interests of the tax authority, to staff.

(Res-group. 2013)

Timeframe: 3-5 days after the filing of documents in the tax office.

6.1.3 Accreditation (open) branch of a foreign company

According to the paragraph 3 of Article 4 of the Federal Law "On Foreign Investments in the Russian Federation", a branch of a foreign company is a branch which was created on RF territory and performs all functions and part of

them, including the functions of representation. Also it is a direct financial responsibility for the activities of the branch in the RF territory.

A branch of a foreign legal entity may operate in the territory of the Russian Federation after the procedure of accreditation of the State Registration Chamber (the SRC) under the Ministry of Justice.

The list of required documents for the accreditation of a branch of a foreign company is in Appendix 5.

1. An extract from the trade register of the country of origin of the parent organization.
2. Registration documents of the foreign entity and translated apostilled.
3. The decision of a foreign company to establish a branch in the Russian Federation.
4. The original and a certified copy of the provisions of a branch of a foreign legal entity.
5. Recommendation letter from the bank servicing the foreign legal entity, confirming its solvency.
6. Power of Attorney Branch (notarized copy).
7. The original document of the agreement with the authorities of the Russian Federation (the administrations of territories, regions, republics and national districts) to establish a branch, it seems that if branch is created outside of Moscow and St. Petersburg.
8. Originals or certified copies of resolutions of relevant expertise in the cases provided for by the laws of the Russian Federation (Russian Energy Ministry, the Russian State Committee, etc.)

Foreign documents are accepted only from the authentic marks of consular legalization, if the release of these procedures is provided by the international agreements of the Russian Federation, together with a certified - a notary or consulate overseas institutions - translation into Russian language and are valid for 1 year from the date of issue except for paragraphs 5 and 6.

The time required for the accreditation procedure of the branch of a foreign company:
- 18 working days from the date of filing in State Registration Chamber;
- 5 days (in the case of acceleration).

The size of the state fee for the accreditation of the branch, regardless of the length of accreditation is - 120 000 rubles (Paragraph 5 of Article. 333.33 of the Tax Code).

Gathering of Registration Chamber for consideration of documents and the accreditation of the branch amounts to:

- 1 year - 20,000 rubles (500 euros);
- 2 years - 35,000 rubles (850 euros);
- 3 years - 50,000 rubles (1200 euros);
- 5 years - 75,000 rubles (1800 euros).

In the case of acceleration up to 5 working days added 15,000 rubles to the amount.

6.1.4 Registration of SRO in Ministry of Energy

Also you should register the SRO in Ministry of Energy. The service is provided using the interdepartmental electronic interaction with the Federal Tax Service of Russia.

To make information about the organization in the Register:
1. Application for entry in the Register of the organization;
2. Copies of the founding documents;
3. A certified list of members of the organization indicating the position;
4. Documents on Compensation Fund (group insurance);
5. The documents on the establishment of departments that will enforce the rules of the SRO;

6. Documents of paragraph 2.3.3 of the Federal Law № 315-F, paragraph 2.4.18 of the Federal Law № 261-FZ. As well as the rules of the SRO, energy audits and energy filling the certificate, the disciplinary measures;
7. Document confirming payment of the state fee for entry of information about the organization in the register of SROs in the energy audit.

Documents which are not required from the applicant to register (at pleasure applicant can give them too):

1. A copy of the certificate on state registration as a legal entity and for registration with the tax authority;
2. Certified by the organization:
   - Copies of documents confirming the state registration of legal entities - members of the organization;
   - Copies of certificates of state registration of individual entrepreneurs - members of the organization.

7 RUSSIAN ENERGY CERTIFICATE SOFTWARE

When the energy efficiency program started, the question is raised: what software we have got to do this work? Nowadays if you google Russian energy audit programs, you can find a lot of webpages and companies with necessary information at first sight. But if you check it, you will understand that the big part of them is fiction. While you read forums, you will select some programs which are in your opinion good ones. Due to the fact that all certificates are checked firstly in self-regulatory organization (SRO) and in the end in Ministry of Energy, in Russia there are not a lot of programs which will be suitable for them.

7.1 AWS “Energoauditor”. AWS “SRO”

This software was made by company called Center of energy saving automation which was founded in October 2009 especially for performing President’s draft law №111730-5 called later “261-FZ”.

In 2012 the company has started designing new versions of its programs:

- PTK “Energostrazh” – microprocessor device which collects database from various metering devices and sensors, also includes control functions for various kinds of devices, systems can be a part of smart grid and smart metering systems. Now they expand the list of supported devices;
- The system energy saving management, “Monitoring of energy efficiency” – a system designed to automate energy saving management and energy efficiency in the regions, municipalities, businesses and organizations, as well as to perform other management-related energy conservation work. Now prepares an appearance the third version of the program;
- AWS “Energoauditor” (Figure 6.1.1), AWS “SRO”, AWS which prepares copies of energy certificates, AWS “Validator” – kind of software which automates the work with energy certificates. Now program designers make supporting of different formats of energy certificates and improve the interface.

Let us take the latest programs – AWS “SRO” and AWS “Energoauditor”. The official website is very useful and convenient. When you come on it, theoretically it can be downloaded by anybody for free by using button “скачать демо версию” and clicking on the link (Figure 6.1.1). Also you can find the button for technical support.

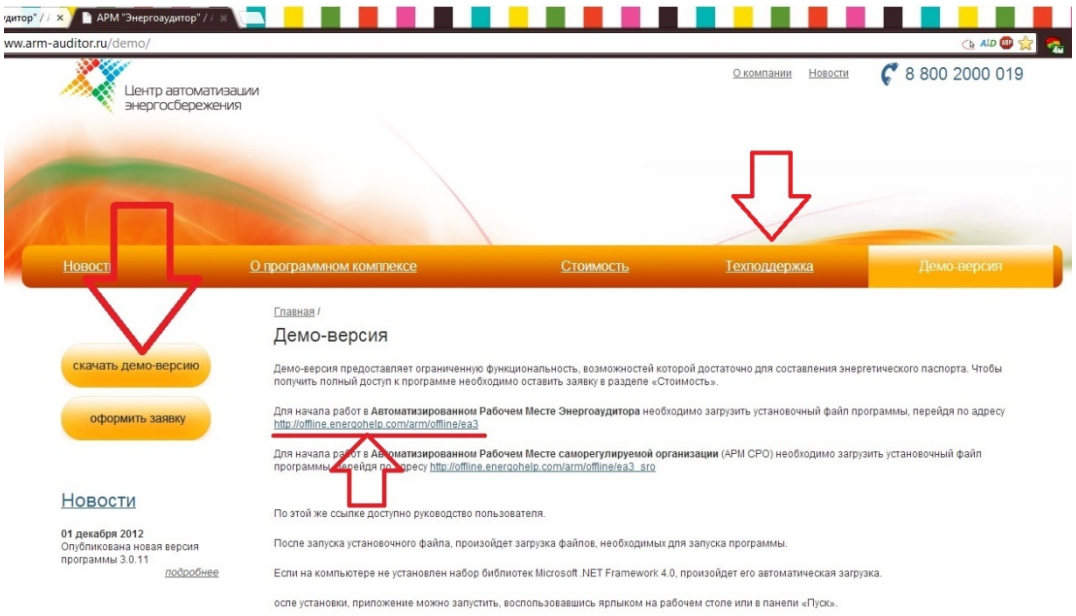

Figure 7.1.1 Downloading demo version AWS “Energoauditor” from official website

After that you will have the invitation to downloading. On this page (Figure 7.1.2) there is also the name of the program, the version, the publisher, requirements and the user’s guide for the program.

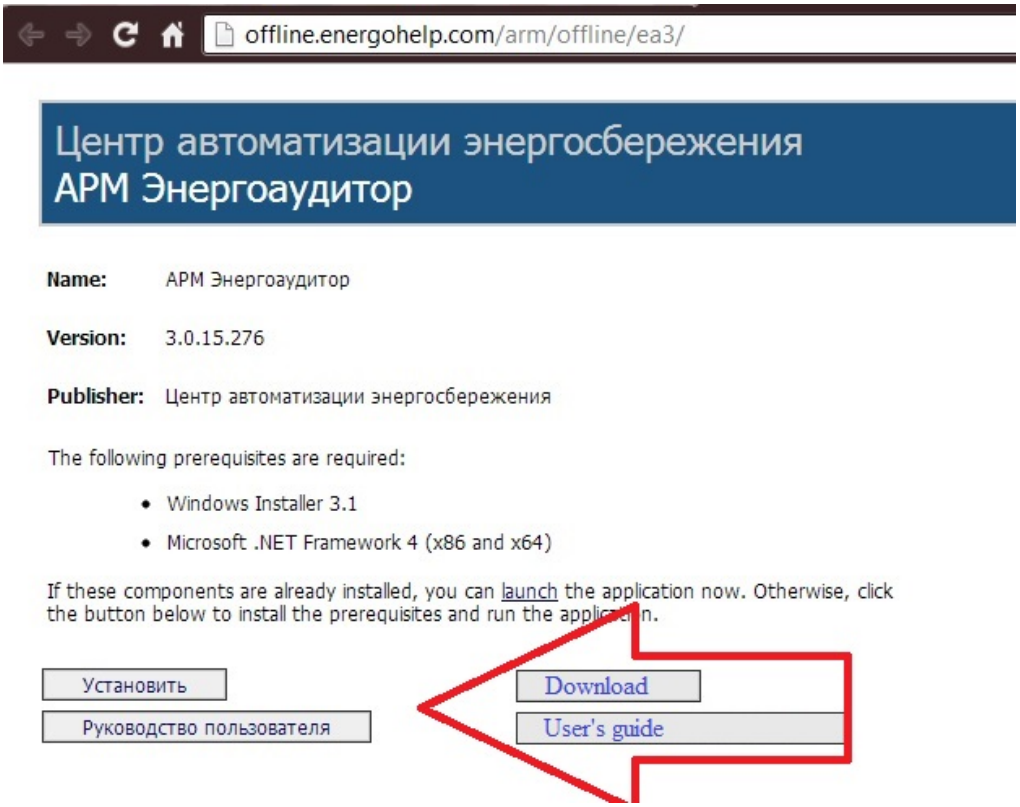

Figure 7.1.2 Downloading AWS “Energoauditor” and user’s guide.

In the end you will have the icon on your desktop and here come problems. The first problem was when i tried to open the program by icon. It starts to load, but then there is a program error, which automatically completes the process. The technical support does not answer for about a week.
If we speak about the price of AWS “Energoauditor”, nowadays it is about 600 euros/year. So if you want to try this program, you should follow these requirements:

- you must be the member of SRO;
- you should draw up and sign contract on subsequent acquisition program.

When reading about this program on forum, people complained about its quality, primitiveness of the execution (the pattern was made without taking into account various cases), shortcomings in the theoretical part of program, etc.

At once it can be said about one of the faults: this company makes software for Saint-Petersburg in Novosibirsk. A lot of opinions are carried about that it is a wrong idea when the company is located in another place and has not got any office in city-user (for example, Saint-Petersburg), especially in Russia. The reason for this is that people make a lot of mistakes in the program.

7.2 AWS E-Pass

Octonica (OOO “Octonika”) – a Russian company, a software developer, focused on product development for the Microsoft. Their customers are Ministry of Finance and Energy, the largest subjects of the federation, OKB “Innovator”, GBU CO “Institute for Energy Conservation,” more than 35 self-regulatory organizations in the field of energy audits and a variety of other organizations.

The software is a program called AWS “E-Pass”. It is the program for making results of obligatory energy audits. It is designed for SROs and auditors in the field of energy audits.

To use this program your PC should meet the following requirements:

- operation system Microsoft Windows XP SP3 or later;
- installed the .NET Framework 4;
- database management system Microsoft SQL Server CE 3.5;
- connecting to the Internet.

Here is the reversed situation from the previous program. The website does not give you all information at once; particularly you do not have the button for a demo version. If you want to try this program, you should connect with the technical support and make a request (Figure 7.2.1). Technical support answers you in 15 minutes and gives you all information about the demo version.

In the demo version of the program all functions except the final formation of the files needed to be sent to the Ministry of Energy are available. The validity of the test connection is one week. Then they send you e-mail links to documentation for installation and a user manual, your data and a password to enter the system.

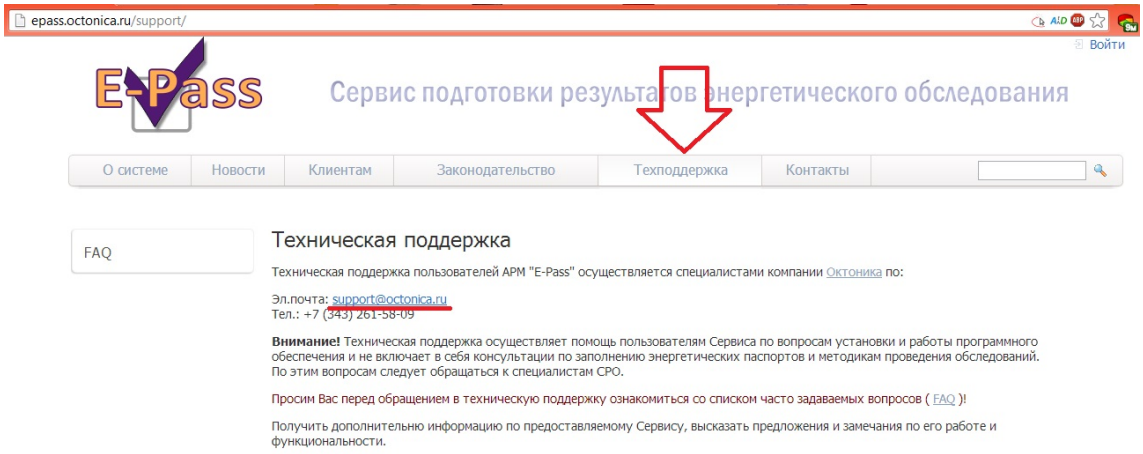

Figure 7.2.1 Official page of E-Pass. Technical support.

The setup file is about 30 Mb. The interface is very useful and easy and the program does not need its specific description (Figure 7.2.2). People from energy audit in Russia prefer AWS “E-Pass” to others.

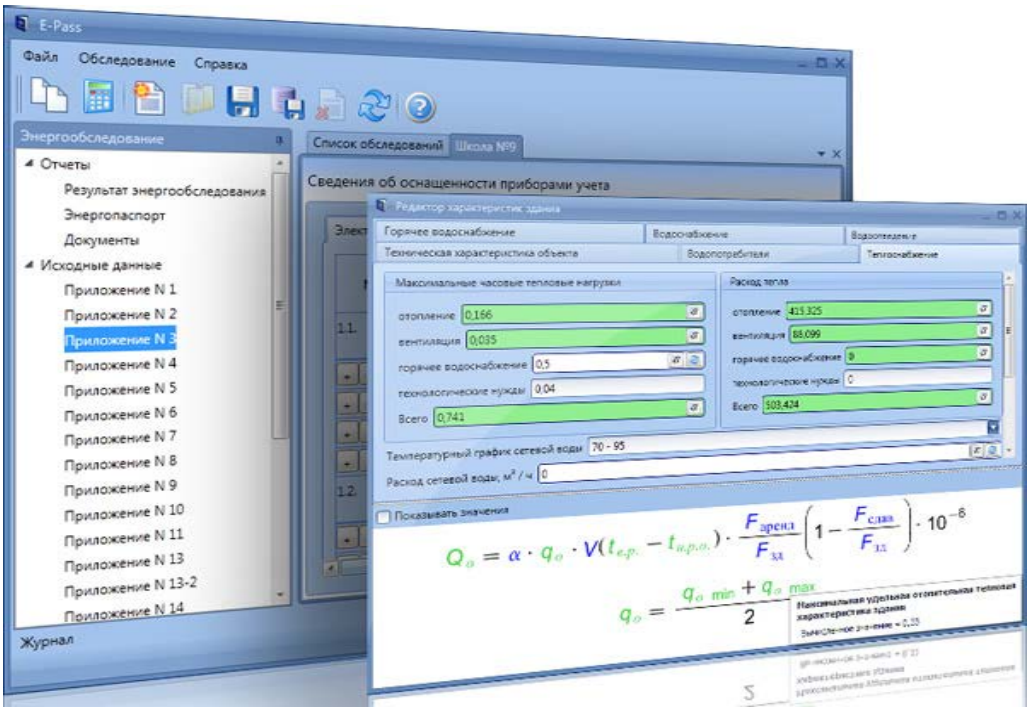

Figure 7.2.2 The interface of program AWS “E-Pass”

The price decision for energy auditors and for SRO is different. There are two ways of payment:

- Connecting for energy auditor without connecting SRO – the monthly fee is 50 euros/month, but the minimum term is 4 months. So it is 200 euros for 4 months or 600 euros/year (like in AWS “Energoauditor”). The monthly fee does not depend on the number of issued energy certificates and the number of employees working with the program;
- Connecting the SRO and energy auditors.
  - For SRO the monthly fee is about 250 euros/month.
  - For energy auditors there are 2 tariffs: “piece-rate” and “subscriber”. The cost of the first one depends on the amount of energy audits. One certificate costs about 5 euros. The cost of the second tariff is about 20 euros/month and does not depend on the amount of energy audits.

So the value for money is beyond the bounds of decency.

7.3 ArCADia software and others

There are also other ways and programs to make energy certificates, but they are not popular in Russia, unregistered, and illegal and you can work with them only on their websites online. Among them there is ArCADia-THERMO, homemade programs in MS Excel and online working on website.

ArCADia-THERMO is one of the Polish company's software using comprehensive thermal calculations of the building. The program determines the energy class of the building, makes energy certificates (Figure 7.3.1) and energy audit. Using this software we can calculate the U-value, heat transfer through the soil, thermal bridges, etc. Also the program defines the structure of the building, which makes it possible to do calculations of thermal zones and areas. The program can calculate the "Demand for ultimate power" in accordance with the calculated number of heating season hours. Also, the program can determine the different sources of the heat, hot water, cooling and lighting sources. You can also calculate the heating season.

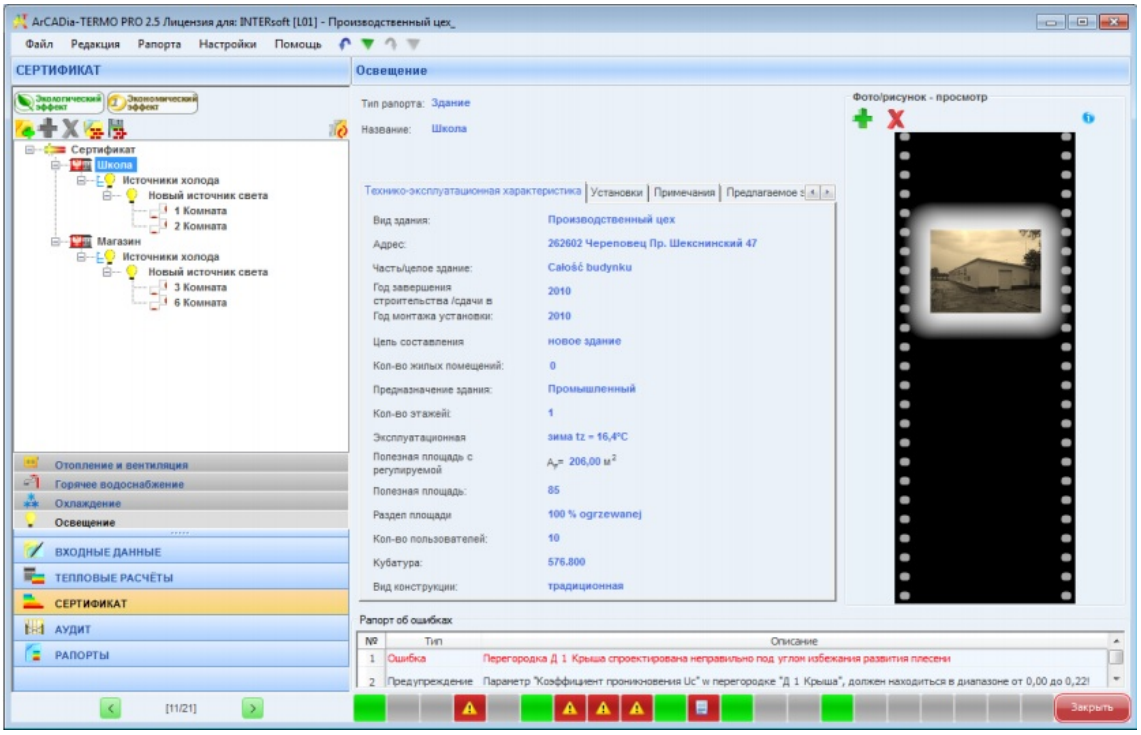

Figure 7.3.1 ArCADia-THERMO. Interface.

On the website page (Figure 7.3.2.) you can click the button to download the program, and then by links you can download this program and user's manual. But, of course, you cannot use it before paying. There is no demo version, but the user's manual is so well written that you do not need a demo at first time. And it is also difficult to connect with technical support, because there is only one Polish e-mail to find answer for any question.

Figure 7.3.2 ArCADia website. Button to downloading.

While browsed Russian forums, found the website called "Energy Passport On-line" (Figure 7.3.3), where you can on-line make express energy audit and fill in the certificate. It is a quite an easy and interesting way to fill in the certificate. At first, you should only register in this system using minimum information about yourself, activate your profile through the received letter on your e-mail and then you can work and fill the pattern.

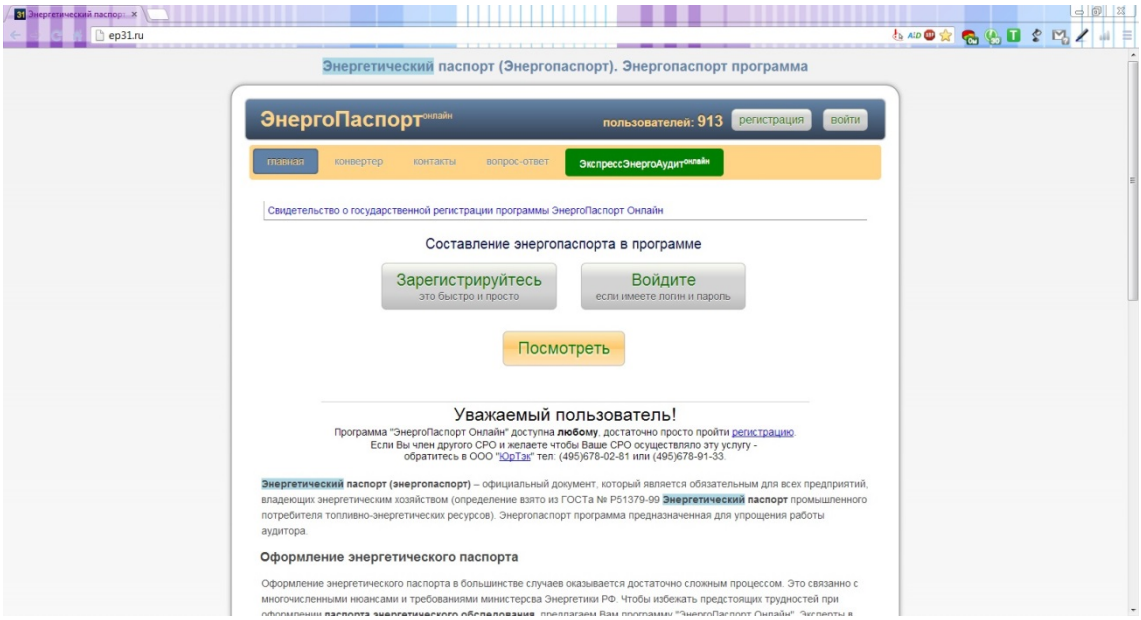

Figure 7.3.3 Energy Passport On-line. Main page.

After five minutes for registration you can start using the demo version and fill in the pattern of energy certificate. Before starting the work there is a headnote (Figure 7.3.4), where authors pay attention to important trivia:

- demo version is available for making and downloading pdf-files of certificates only in the next 24 hours;
- it is not recommended to work on this website through Internet Explorer
- possibilities of full version.

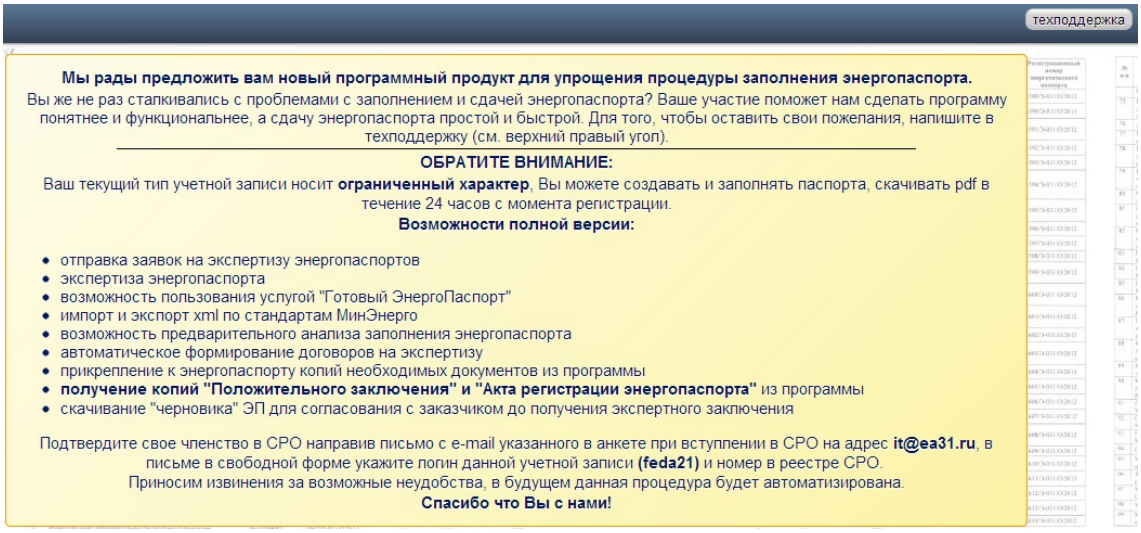

Figure 7.3.4 Headnote on www.ep31.ru

The interface is very useful and rigorous. We can see that the program has all changes in the pattern with comments comparing changes in laws. On the left side there is a column with 23 sections of the Russian certificate form (24 sections are needed in design part) (Figure 7.3.5).

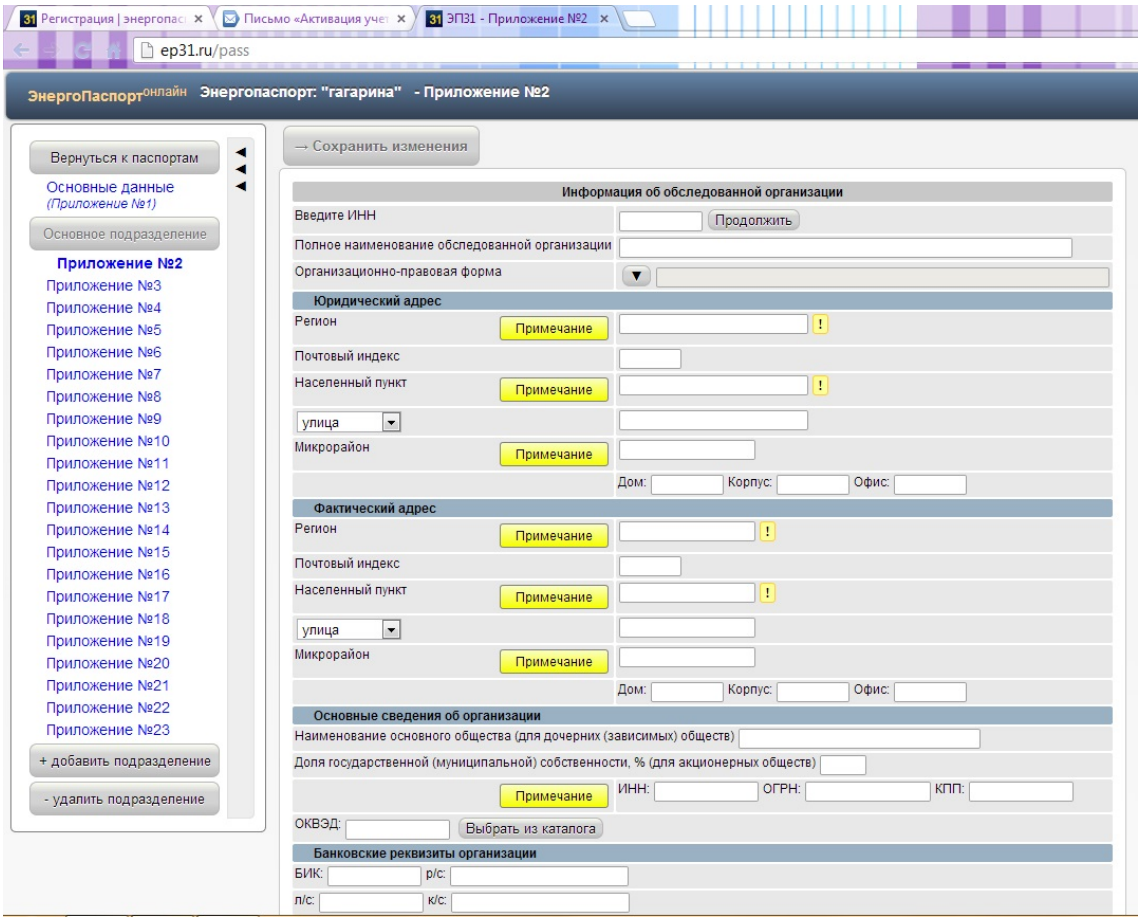

Figure 7.3.5 Interface of program on www.ep31.ru

Also on this website you can find a converter from TER (technic and economic resources) to the (tons of fuel equivalents). And everything seems to be correct, and the program is perfect, but it concerns that this was made by Yurtek Ltd. It is a legal company, which focused on providing comprehensive legal services and consulting of organizations and enterprises who are in SROs.

One of the keys to make a perfect program is having in your staff an engineer with specialized education to understand all difficult details in the purpose of this program. So the program takes into account difficulties in laws, but not intricacies of the building structure sphere. And it not advised to trust with 100%

certainty to small companies from Moscow, who have an office on the outskirts of the city, unless they are your friends.

In the end of this chapter, it can be distinctly said that Russia at the moment does not have perfect software suitable for making certificates. The result of this problem is that in 2013 there are about 14000 certificates waiting for checking and registration, but only 1500 were approved.

This problem slows the rate of development of energy saving, pushes the company from the audit for uselessness and longitude of the process that will eventually lead to non-compliance with the obligations under the contract, protocols, etc.

Consequently, Russia will not be able to perform reduction of energy consumption by the deadline. This means that the timing will either move to the further future, or will be closed on the issue of the Kyoto Protocol and Russia will come out of it.

8 CONCLUSIONS

Russia takes the 3rd place in the world by total energy consumption. On volumes of energy consumption in the country it takes the first place in manufacturing industry, in the second place in housing sector, approximately 25% for each.

In Russia, energy efficiency and energy saving are included in 5 strategic priorities for technological development which were discussed by Russian president D. A. Medvedev. So, one of 5 is to reduce energy consumption by 40%. So it required the creation of the regional laws. One of them was created in 2010 in Saint-Petersburg. The regional program on energy saving will have 165 billion rubles from the budget. There are 5 sectors which need changes to achieve the goal: in the field of power generation and transmission, municipal infrastructure, the budget sector, the housing stock and the transport sector.

It becomes more obvious that the maximum effect in achieving the goals of improving energy efficiency in Russia will give systematic and planned work. For today practically there is no system and analysis in this area.

In Russia, energy service companies after the energy audit prepare documents with recommendations and an energy certificate of the enterprise. It is a comprehensive analysis of the energy enterprise with possible solutions and methods to improve energy efficiency. But the introduction of these solutions is at the discretion of the company's management, which identifies or does not provide funds for its realization. Unfortunately, it often happens that most of these methods still remain on paper.

Why it is happening? Why all energy service companies cannot find investment for enterprise modernization and to benefit from this money?

1. There is no methodological and regulatory material to obtain cost savings by implementing energy efficiency projects;

2. There are no practice results with saved money at the end of the energy efficiency project;
3. There is no rule book entry in cost savings on a regular basis, taking into account its differentiation and accumulation;
4. There is no accepted and legally secured rule to determine the cost-saving period.

As a consequence of blurring the subject of economy and the lack of clear guarantees of investment return, no one is interested in energy conservation.
Especially important is the lack of rules about received cash from the realization of energy saving projects. Nowadays it is impossible to extract money from these projects.
(Kustova. 2008)

Today in Russia already some international standards have been placed. The first of these is ISO 50001:2011 «Energy management systems. Requirements". It tells about rational energy use, planning, etc.

While visiting different conferences and exhibitions, I can say with confidence that Russia is gaining momentum on energy efficiency way, but Russia needs European potential to grow economic and energy spheres. And all these things can be started with progress by the Finnish company Lamit Oy.

REFERENCES

Energy efficiency. Ministry of employment and the economy. 2013. Accessed on 13 February 2013.
http://www.tem.fi/?l=en&s=2586

Keay M. 2011. Energy efficiency. should we take it seriously. The Oxford Institute for energy studies.

Sviderskaya O.V. 2006. Basics about energy efficiency, Minsk. p.21

Motiva. Energy in Finland. Key policies. (Accessed on 10.11.2012)
http://www.motiva.fi/en/energy_in_finland/key_policies

Shlaim A. 2010. Middle East. Israel and Arab coalition.
http://users.ox.ac.uk/~ssfc0005/The%20Middle%20East%20The%20Origins%20of%20Arab-Israeli%20Wars.html

Daly J. 2013. So Much for Desert Storm - Kuwait and Iraq Collaborate on Energy. (Accessed on 15 January 2013)
http://oilprice.com/Geopolitics/Middle-East/So-Much-for-Desert-Storm-Kuwait-and-Iraq-Collaborate-on-Energy.html

War and terror. The price of oil. (Accessed in 2013)
http://priceofoil.org/thepriceofoil/war-terror/

A.I. Masalevich. The Kyoto Protocol and the mechanisms of its implementation. Magazin “Energy supervision and energy saving” N3: 2007
http://www.energosovet.ru/stat678.html

S. Roginko., I. Mashenko. Europe, Russia and Kyoto Protocol, 2003 Moscow: p.118

The EU climate and energy package. (Accessed 10 September 2012)

http://ec.europa.eu/clima/policies/package/index_en.htm

Dvorkovich A. 2009. Raising Russia‟s energy efficiency – From vision to action. Energy vision update 2009. (Accessed on 18 March 2011)

Summary information of the Russian fuel and energy complex for the period of two years. 2013
http://minenergo.gov.ru/activity/statistic/

Amstell D. 10.12.2009. Russian energy efficiency: Medvedev‟s new favourite topic?. (Accessed on 18 March 2011)
http://www.ngpowereu.com/news/russian-energy-efficiency/

Sviderskaya O.V. Basics about energy efficiency, 2006 Minsk: pp.8-11.

State information system in the field of energy and energy efficiency. 12 March 2013
www.gisee.ru/articles/audit_foundations/1098 (Accessed on March 2013)

Federal law from 23 November 2009 №261 “About energy saving and improving of energy efficiency”.
свидерская

SNiP 23-02-2003(A) Thermal performance of the buildings, 2012 Russia.

RU STO NOSTROI 2.35.4-2011 Green building, 2012 Russia

Decree of the Ministry of Regional Development of the Russian Federation on April 8, 2011 №161

The Order from April 19, 2010 №182 “About rules for energy building certificate”
GOST P 51379 99 “Energy conservation. “Power engineering certificate of fuel-energy resources”

Basargin V. 2012. Document approved by the Minister of Regional Development V.F. Basargin. “complex program of development of normative and technical documents in the field of energy saving and energy efficient to the period 2012-2015”

Krivoshapka I. Seven problems of energy audit in Russia. http://www.eprussia.ru/epr/184/13424.htm (Accessed on 20 October 2011)

Kaipainen I. Helping finnish companies in the field of energy efficiency and renewable energy enter the russian market. (Accessed on September 2011) http://publications.theseus.fi/bitstream/handle/10024/34565/Kaipainen_Ilona.pdf?sequence=1

VTT. 2011. Measuring energy efficiency. Indicators and potentials in buildings, communities and energy systems. http://www.vtt.fi/inf/pdf/tiedotteet/2011/T2581.pdf

Results and recommendations for Finland based on the findings from the IDEAL EPBD project. (Accessed on 8 July 2011) http://www.ideal-epbd.eu/download/pap/FI_findings_recommendations.pdf

Finnish Law on 18.01.2013 http://www.ymparisto.fi/download.asp?contentid=141235&lan=fi

Finnish Law on 27.02.2013 http://www.ymparisto.fi/download.asp?contentid=142219&lan=fi

D5 Suomen rakentamismääräyskokoelma Ympäristöministeriö, Asunto-jarakennusosasto, Ohjeet 2007. Referred 25.10.2009. www.finlex.fi.

Bocharnikov D 2011. Energy efficiency of the building. Mikkelin ammattikorkeakoulu

Raiter T. Finnish model of energy saving. 2012

http://stroypuls.ru/vipusk/detail.php?article_id=55084 (Accessed April 2012)

Pirozhkov A. 2013. Mandatory energy audit in Russia. Business Petersburg#61. http://www.dp.ru/1028ch/

Registration of the foreign company. 2013 http://res-group.ru/ru/services/postanovka_na_uchet_inosrannoy_kompanii.htm

Management of state registration of regulatory organization in the energy audits. 2013 http://minenergo.gov.ru/activity/perechen/10984.html

Kustova A. Why west energy service does not work in Russia. Energy saving #8. 2008. http://www.abok.ru/for_spec/articles.php?nid=4183

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APPENDIX 1
3.1.1 (17)

As part of the FZ-261 has officially adopted the following documents:

1. Order of the Government of the Russian Federation of 01.12.2009 № 1830-p "On approval of the plan of energy conservation and energy efficiency in the Russian Federation";
2. Resolution of the Government of the Russian Federation of 20.02.2010 № 67 "On amendments to some acts of the Government of the Russian Federation concerning definition of the powers of the federal bodies of executive authority in the field of energy saving and energy efficiency";
3. Federal Law № 384-FZ "Technical regulations about building safety";
4. Government Decree of 31.12.2009 № 1222 "On the types and characteristics of the products, information on energy efficiency class of which should contain in the technical documentation that came with those products, their marking, labels, and principles of rules of manufacturers, importers energy efficiency class product";
5. Government Decree of 31.12.2009 № 1225 "On the requirements for regional and municipal programs in the energy conservation and energy efficiency";
6. RTR Order № 2079 of June 1, 2010 “List of documents in the field of standardization, which usев on a voluntary basis, compliance with Federal Law of 30.12. 2009 № 384-FZ”;
7. Government Decree of 31.12.2009 № 1220 "On the determination used in establishing long-term rates of reliability and quality of goods and services";
8. Government Decree of 31.12.2009 № 1221 "On approval of rules for establishing energy efficiency requirements of the goods, works and services, placing orders which are performed for state and municipal needs";
9. Order of the Ministry of Economic Development of the Russian Federation from 17.02.2010 № 61 "On approval of the indicative list of activities in the field of energy conservation and energy efficiency, which can be used in the development of regional and municipal programs in the field of energy saving and energy efficiency";

10. Resolution of the Government of the Russian Federation of 13.04.2010 № 235 "On Amendments to the Regulations on the part of sections of the design documentation and requirements to their content";
11. Decision MPP RF № 262 of May 28, 2010 "On the requirements of energy efficiency of buildings and structures";
12. Resolution of the Government of the Russian Federation № 391 dated 1.06.2010 "On the order of GIS in the field of energy saving".

APPENDIX 2

3.1.2 (22)

Energy efficiency classes for residential and public buildings

from SNiP 23-02-2003(A)

Class of the building	Name of the class	The estimated deflexion amount of the indicator of the specific characteristics of consumption for heating and ventilation of the building from the rated amount,%	Recommended activities developed by entities of the RF
For designing and reconstruction buildings			
A++	very high	under -60	economic stimulation
A+		from -50 till -60 (incl.)	
A		from -40 till -50 (incl.)	
B+	high	from -30 till -40 (incl.)	
B		from -16 till -30 (incl.)	
C+	normal	from -5 till -15 (incl.)	any activities
C		from +5 till -5 (incl.)	
C-		from +15 till +5 (incl.)	
For existing buildings			
D	low	from +15,1 till +50 (incl.)	reconstruction with economic feasibility
E	very low	more than +50	reconstruction or demolition

APPENDIX 3

3.1.2 (22)

Energy efficiency classes for residential and public buildings

from Regional recommendation document

Class of the building		Normalized (basic) composite index of energy efficiency, max kWh / (m2 · year)	The estimated amount of deflexion (actual) value of the indicator of energy efficiency of the building from the normative (base) value,%
A		≤0,60×bas.lev.	under -40,0
B		0,70×bas.lev.	from -30,0 till 39,9 (incl.)
C		0,85×bas.lev	from -15,0 till 29,9 (incl.)
D		basic level	from 0 till -14,9 (incl.)
E		1,15×bas.lev.	from +0,1 till +14,9 (incl.)
F		<1,40×bas.lev.	from +15,0 till +39,9 (incl.)
G		≥1,40×bas.lev.	more than +40,0

APPENDIX 4

3.2 (24)

Energy Building Certificate contains:

1. The title page, which says what organization-energy auditor and what the SRO conducted energy audits of the object; name of the organization, which is registered for energy certificate; certificate registration number that is assigned to the document after passing the examination in the SRO.
2. An overview of the energy audit of the object.
3. Information about the set of metering equipment.
4. Information about the consumption of energy resources and its completion.
5. Information about the balance of electricity and its changes (in thousands of kWh).
6. Information about the balance of thermal energy and its completion (in Gcal).
7. Information about the balance of consumption fuel and heating fuel, and its completion (consumption in tons of fuel equivalent).
8. Information about the balance of kinds of motor fuel consumption and its changes.
9. Information about using secondary energy resources, alternative (local) fuels and renewable energy sources.
10. Indicators of using electric energy on lighting purpose.
11. Main technical characteristics and consumption of energy resources using for major technological systems.
12. A brief description of the object (buildings and structures).
13. Information on the performance of energy efficiency.
14. Description of transmission lines (transportation) of energy resources and water.
15. Information about the length of overhead and cable power transmission lines.
16. Information on the number and the installed capacity of transformers.
17. Information about the number and capacity of reactive power compensation.
18. Information about the size of losses transferred energy resources.
19. Recommendations for reducing energy losses during their transfer.

20. The energy saving potential and evaluation of energy resources saving opportunities.
21. The list of standard activities to energy conservation and energy efficiency.
22. List of the officials who are responsible for ensuring activities to energy conservation and energy efficiency.
23. Information of the staff qualifications providing the implementation of energy conservation and energy efficiency.

APPENDIX 5

6.1.3 (39)

The list of required documents for the accreditation of a branch of a foreign company:

1. An extract from the trade register of the country of origin of the parent organization.
2. Registration documents of the foreign entity and translated apostilled.
3. The decision of a foreign company to establish a branch in the Russian Federation.
4. The original and a certified copy of the provisions of a branch of a foreign legal entity.
5. Recommendation letter from the bank servicing the foreign legal entity, confirming its solvency.
6. Power of Attorney Branch (notarized copy).
7. The original document of the agreement with the authorities of the Russian Federation (the administrations of territories, regions, republics and national districts) to establish a branch, it seems that if the branch is created outside of Moscow and St. Petersburg.
8. Originals or certified copies of resolutions of relevant expertise in the cases provided for by the laws of the Russian Federation (Russian Energy Ministry, the Russian State Committee, etc.)