

Supporting renewable energy in Russia: steps to follow

What has been done?

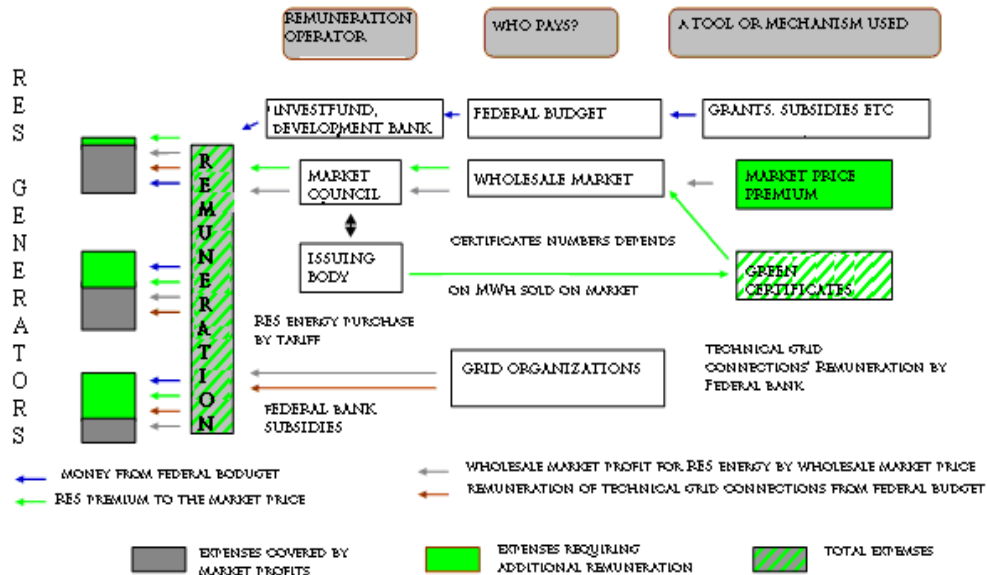
Now it's time to discuss the current trends of forming a legislative and normative base upon RES development in Russia. Finally the set of RES support measures and the main provisions of the system have been prescribed by the law in the following way.

The law (Art.3) stipulated the set of renewable energy sources: “the energy of sun, wind, water (incl. sewage but excl. pump storage plant – auth.), tides, waves generated by water objects, ...geothermal energy, ... low-capacity geothermal energy, air, biomass., biogas, gas generated by industrial wastes and consumption at waste dumps, gas generated at bank excavation”.

The law (Art.21, i.1) stipulated requirements that the government had to develop the major trends of state politics in energy-efficiency and RES as well as to identify RES energy share indicators in production balance and energy consumption on annual basis. In fact the government was supposed to set specific progress indicators for itself regarding long-term renewable energy development. The Russian Prime Minister's directive dated 08.01.2009 № 1-p came as a result to this legislative requirement. To say the truth, no plan or activities program have been elaborated so far which are necessary to fulfill the target indicators. But we will talk about this a bit later.

In order to reach the abovementioned goals based on renewable energy development the law has set the major supporting schemes for RES generators (see pic. 1):

- introducing a mechanism of fixed price premium to RES energy in addition to the wholesale market price
- subsidizing expenses upon < 25 MW RES generators connection to the grids and the possibility to cover other expenses from the federal budget
- obliging the grid organizations to purchase RES energy on the market for reimbursement and within the limits of their technical losses.



Pic. 1. The mechanism of financial support for RES generators

So, how should such support system operate? In a very simplified form it looks like this - the RES generating capacities are put into operation and the corresponding turbine acceptance certificate is signed (generator). To undergo the generator qualification procedure the turbine owner applies to the Market Council. Qualification requirements are introduced by the lawmaker first of all to identify energy generated by RES and secondly that the generator meets mandatory legislative requirements to get any kind of support. Based on Art. 21, i.1 the government "sets the rules, criteria and order of RES generator qualification" and the qualification procedure will be carried out by the Market Council.

Qualification criteria are as follows:

- compliance with target indicators set in the frame of major state RES policy and energy efficiency;
- in order to receive legal support measures generator's capacity shall be within the set limits (< 25 MW) if such limits are stipulated by law
- generator's constitutive documents will be checked: property rights and its subject, project documents, enabling documents (permits, licensees) etc;
- confirmation that the generator is exploited (is turned into exploitation mode and is not under repair or out of order);
- confirmation that the generator is connected to the electrical grid in the set order and equipped with measuring tools complying with legal requirements upon electricity, market adjunction rules and with System operator requirements.

The qualification procedure will be carried out in the form of an application and will come down to checking the applicant's documents. The generators are supposed to be inspected. If the generator is qualified, it will be registered in the log and it could to issue RES certificates within the limits of the confirmed output. If the generator is not qualified, no support measured prescribed by the law are applicable.

When a qualification procedure is over and a generator is qualified, it should become a wholesale electricity market player in order to sell the energy output on that market. Therefore the installed capacity of the generating equipment at one supply set should be at least 5 MW. The same requirements apply to all wholesale market players.

1. There shall be a contract with the grid organization upon electricity supply
2. There shall be a contract upon operational-dispatching control signed with the System operator or its regional management
3. A package of contracts about connecting to the trade wholesale market system shall be signed
4. A station shall be equipped with telemetric equipment and tools to connect with the System operator or its regional management
5. Ensure that commercial data is gathered, processed and transmitted to the Commercial operator – **obtain an AIIS compliance certificate** with technical requirements upon commercial accounting set by the normative legal documents, wholesale market rules and a connection agreement.

Now a wholesale market player becomes a qualified RES electricity generator and starts generating energy and selling it on the market. The market sales are made "one day ahead" which means sellers and buyers make bids and proposals to sell and purchase energy for the coming day. Therefore when the energy is sold upon the market price RES generator gets the first half of profit.

The generator regularly applies to the Market Council which is also acting as an Issuing committee and provides its commercial accounting data confirming the volumes of the sold energy. The Issuing committee provides a certain number of RES certificates or as they are called "green" certificates depending on the energy volume.

These certificates are submitted to the commercial market operator that is part of the Market Council and acts as an administrator for country electricity markets. Now the Market shall collect money and pay back RES generators that have submitted their certificates. The Market commercial operator calculates the money that has to be collected on the wholesale market and paid as premium to RES generators. The sum is calculated by multiplying the total number of RES certificates (provided by generator to the operator) by the governmentally set premium.

Let's see the example. Over a month the market commercial operator has received 200 MWh wind power certificates, 150 MWh biomass certificates and 1300 MWh small hydro-station certificates. The premium for the corresponding RES has complied to (allowance): wind power stations – 2500 roubles per 1 MWh, biomass station – 1400 roubles per 1 MWh; small hydro-electric stations – 2400 roubles per 1 MWh. Then the total sum that the operator has to collect from the market will equal to

$200 \text{ MW} \times 2500 \text{ roubles/MWh} + 150 \text{ MW} \times 1400 \text{ roubles/MWh} + 1300 \text{ MW} \times 2400 \text{ roubles/MWh} = 3.830.000 \text{ roubles}$

The final sum will be divided among all buyers at the wholesale market proportionally to the purchased electricity over the same period and will be included in their clearing account upon operations result over the month. Then the market commercial operator distributes all money collected from sellers in line with the calculations and transfers the stipulated sums on the account of each RES generator – wholesale market players.

The scheme of collecting money from the market and their redistribution among the qualified generators is not significantly different from the ones used on a wholesale market, i.e. it is very similar to the scheme of non-balance distribution when clearing mutual payments among the market players. Therefore one can say that this procedure is automatically performed under conditions.

The buyer on wholesale market can't refuse to honour its commitments to purchase a share of RES energy as part of its total purchasing volumes. This obligation is prescribed by law and will be included in the set of contractual mandatory requirements about joining the market (art.33, i.4) that should be signed by each player in order to start operating on the wholesale market. If this commitment is not complied with, the sanctions stipulated by the contract will follow (up to being excluded from the market players). The law prescribes the Market Council to control compliance with this commitment in particular (art. 33, i. 3).

If RES generator's capacity doesn't exceed 25 MW, then apart from profits, market and fixed premium on energy prices, the generator's **expenses on grid connections could be subsidized**.

Even if we turn on the simple logic, it is clear that the share of technological connection expenses within the general project costs is higher for small generators than for big ones. Therefore, the law (art. 21, i. 1) stipulates requirements that the government shall develop criteria to allocate money within federal budget to cover expenses over technical connection of small generators to the grid. Such "lightening" approach to small generators expenses will significantly improve their finances.

But this is not the only help that RES generation receives from the grid organizations. The Law Art. 31 i.3 obliges the grid organizations to purchase RES energy on the market: "Grid organizations shall compensate losses in electric grids first by purchasing electricity generated by qualified generators connected to the grid organizations and operating on RES". Which means that in any case grid organizations shall purchase energy to compensate their losses in the grid. If so then let them first purchase RES energy.

Here we should pay attention to several important circumstances. First of all, grid companies have such obligations only over RES generators connected to their grids. Second, the purchase volume has the upper physical limit as an absolute volume of technological losses inquired by the grid company. Third, the same law prescribes the necessity to purchase energy for compensating your technical losses in the electrical grids and the new amendment only specifies the source (where to purchase energy from).

The same obligation is prescribed by German law. The difference is that losses are not limited plus there's a procedure to transfer this obligation to the higher grid company if the first (lower one) can't any longer purchase this energy. The German legislation as opposed to Russian allows grid companies (operating as part of a vertically integrated energy-company or by themselves) to sell and purchase electric energy.

The lawmaker prescribed the possibility of other budget support measures within the current budget legislation. Even though they are not directly mentioned in the law, we think that they could deal with remunerating expenses over debt financing of RES projects by their owners, increasing amortization rates over the corresponding equipment and therefore decreasing tax burden, allocating budget grants in the frame of target programs etc.

Green energy certification system based on RES in Russia

The fulfillment of all support measure shall be grounded by efficient system registering RES energy production volumes. Based on the given logic it was agreed to use a special RES energy certificates system or "green" certificates.

You can always come across the term "green certificates" in the printed media and when somebody talks about support mechanisms of RES energy development. At the same time we should admit that scientific and methodological basis of this category and processes where such certificates partake in any way are developed vaguely. The fact that methodologically this issue is not thoroughly elaborated is partly explained by its novelty and in some sense by novelty of the notion that has emerged recently.

The system that was later called "green certificates" first was created as a tool to account and monitor RES electricity generation and consumption in Netherlands in 1997-98 and was known as "green label system". That's where the name for certificates comes from and has remained ever since. Let's review briefly how the system operates.

It's an open truth that as soon as electricity is transmitted to the consumer via transformer busbar on generating station the energy becomes blind (egoless). In fact it means that apart of rare exceptions the consumer doesn't know what energy is consumes generally and at this exact moment. Due to the fact that special support mechanisms for some electricity types (first of all based on RES) were launched, the two tasks had to be solved: accurately identify energy volumes at generation stage (1) and during consumption (2). The first task is ordinary and is solved usually using well-known methodological and technical approaches. The second task could be solved using the same approaches as the first one: detailed analysis of two-party agreements, analysis of commercial accounting data and energy transfer data etc. But these results will be rather vague or very costly. The situation is even more difficult in operating schemes of regional energy pools (where energy is "mixed") and during "swap" energy negotiations etc.

As an alternative to such direct approach the scheme of using special "green"

¹ Currently two terms are used for the similar categories "green certificates" and "guarantees of origin" (GO), which in fact are really similar terms.

certificates was proposed in late 90-ies to confirm that electricity is generated by RES. To get such certificate a generator installed in Russia shall undergo qualification or accreditation procedure as our European colleagues call it. When the generator is qualified and the energy is generated the producers receive special “green” certificates confirming that they have produced and sold the certain volume of renewable or green energy on the market.

These certificates are issued by special bodies called issuing bodies. In line with International association RECS (<http://www.recs.org/>) there could be only one issuing body in one country. Apart from RECS there exists another association of national issuing bodies AIB (<http://www.aib-net.org>). The position of central national bank within the banking system when the bank regulates money issue and circulation in the country based on rules set by the federal law is the best analogue of place and role of such issuing body in certification system.

The association RECS International consists of approx. 200 members from 24 (European) countries and its task is to form and develop pan-European market for renewable energy certificates. Registered in March 1999 in Brussels (www.recs.org/home.asp). The association was founded as a result of aspiration of several big European energy companies to create international system of certificates trade at liberal EC markets.

In order to ensure certificates issues and circulation based on unified rules and standards, every national issuing body shall be an AIB member. Only one issuing body from each country can become an association member. In order to open certification account at AIB which is necessary for further operations with certificates, the interested agent (producer, supplier or trader) shall become an RECS International member.

The number of certificates issued is related to the volume of the generated energy. Usually each certificate equals 1 MWh. The certificates future depends on RES support system chosen by the state. Even though certification system as a whole is not a support system but it is an obligatory tool apart from which none of the major systems will operate.

When the system supporting RES development is based on quotes, certificates get on trade sites where they are purchased by companies that need to confirm that they meet mandatory quotes of RES energy consumption. There at the certificates are canceled in order to avoid double-accounting and fraud.

The support schemes based on fixed tariffs and premium to the market price are only obliged to confirm generated energy volumes. The consumption is confirmed based on voluntary company commitments and depending on the volumes of such voluntary commitments.

² Support schemes are covered in more detail by “Economic aspects of support scheme for RES development in Russia”, author Kopylov A.E. Published in Energy: Economics, engineering, environment, 2008 № 9.

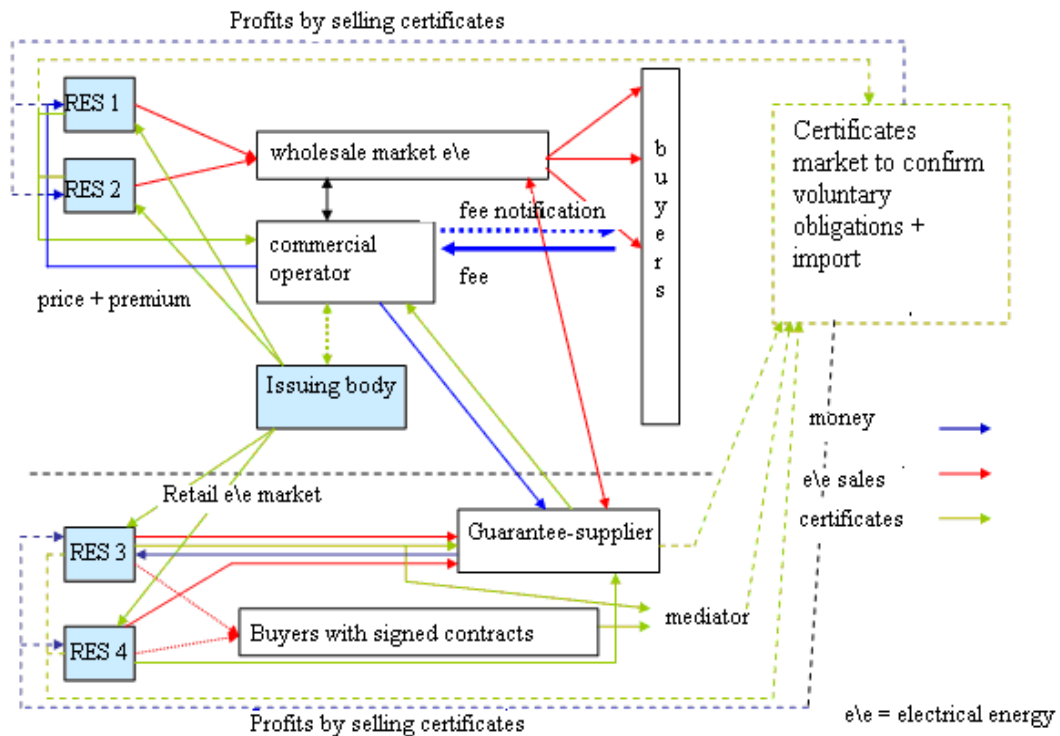
Therefore in line with RECS International regulations certificates circulation doesn't depend on energy flow grounding such certificates issue. This provides agents that do not generate RES energy but purchase certificates for their own purposes with a possibility to use these certificates. It's important to note that they become focal points on special markets and get their market price.

Therefore a "green" certificate is a new tool for regulating electricity energy market in Russia and could be used for different purposes that mainly relate to RES energy generation and consumption.

1. a certificate documents environmental and corresponding economic efficiency of RES energy which is affirmed and confirmed by the state
2. gives the right for generator to receive premium for the sold RES energy
3. serves as a tool for statistic accounting of generated RES energy volumes considering different generation methods and ensures how national targets in this area are reached
4. ensures control how voluntary commitments of RES energy consumption are fulfilled

The law gives the Market Council responsibility over maintaining "the certificates issue and cancellation log confirming the electrical energy production volumes based on renewable energy sources" (Art. 33 i.3). The government shall develop and "authorize the order of maintaining the certificates issue and cancellation log confirming the electrical energy production volumes are generated at qualified stations based on renewable energy sources" (Art. 21 i. 2).

The Russian "green" certification is a bit different from German and international scheme. The rule to cancel certificates as soon as support is provided operates in Germany but is not applicable in Russia. Russian certificates will only be marked that a certain kind of support is received in order to exclude the possible re-appeal of the certificate owner for this type of support. Russian "green" certificates will be cancelled only if the consumption is confirmed or when their life-period is over. In comparison to international rules in Russian electricity purchase-sell system the certificate will be bounded and will follow the energy flow during purchasing-selling process and therefore will end up on energy-buyer's desk if the buyer shows such interest. In the future these Russian certificates could be also used to confirm the corporate voluntary commitments regarding RES energy consumption. The general scheme of using certificates within electric energy market is shown on chart 2. The pecked line on the chart shows processes and elements of certificates sale confirming voluntary obligations of juridical bodies that now have adequate legislative or regulatory lay-out.



Pic. 2. Certificates flow in electrical energy markets' scheme

What else should be done?

To respond to a question in the article's title let's go over support measures in the described order.

Paying premiums to the market prices on RES energy. A resolution of possibly the most important issue from the remaining list is still delayed. As far as we know, regardless multiple appeals by the expert community and public to the Prime Minister and President to speed up resolving the premiums issue, the draft decree hasn't been submitted to the government. The discussion of fundamental issues in future premium decisions is continued: should there be one premium or several depending on different RES technologies, should a premium(s) be interconnected with the constantly changing price or shouldn't, how high should the premium level go and therefore the pulling power of such projects for investors etc.

When this decree is authorized the wholesale market rules should be amended to pay premiums in practice. We think that even the decision over premium itself could get renewable energy moving in Russia, at least regarding large-scale generation (≥ 25 MW capacity) that doesn't need to wait for a decree upon remunerating technical connection expenses. Of course under condition that their level will make RES projects economically viable.

Remuneration of grid connection expenses for RES generators with < 25 MW capacity

On 4 June 2008 Russian President signed a Decree N 889 “Measures to increase energy and environmental efficiency of Russian economy” that stipulates that the necessity “to prescribe budget payments necessary to support and boost RES projects and environmentally safe production technologies when drafting tariff policy and federal budget projects over 2009 and for 2010-2011 and coming years” (i.1, subitem “r”). Which means that Decree’s provision transforms the legislative norms upon supporting renewable energy from budget money in the field of commissions to the government.

But we do not know if the draft (drafts) has been further elaborated. Authorities shall identify if this subsidy will cover all or part of RES generator expenses calculated by authorized methods and in line with approved regulation. It is also under discussion who will actually receive money: the generator or grid company connecting it to the grid.

RES energy purchase by grid companies. As far as we know no draft documents exist on this issue and the deadline for their signing is unknown.

The scheme of renewable energy certificates or “green” certificates

Almost all normative enactments which are necessary to launch a certification system are ready but some require a bit of editing and finalizing the provisions. In general certificates are not really necessary if taken by themselves only. But to launch a certification scheme could be rather desirable as to try it on field and to create accounting platform to solve energy efficiency problem. We talk about the possibility to create an additional subsystem of certificates on its platform but now for energy efficiency purposes.

In the end I would like to stress that the Federal Law mentioned in the first lines has not yet solved all problems in legislative support for renewable energy. In particular, the lawmakers missed the small-scale RES energy because there were no law provisions upon retail electricity market where small-scale generation could be selling its energy.

The lawmakers missed so called non-price market zones where tariffs were still set centrally and not by market prices. This is related to such regions with high RES capacity as Kaliningrad and Sakhalin oblast, Kamchatskiy kray, Chukotka and Magadanskaya oblast, Arkhangelskaya and Murmanskaya oblast.

For Russia renewable energy is not only future green energy but thousands of new jobs mainly on small & medium size enterprises manufacturing RES equipment and servicing it. The experience of countries that ensures quick and large-scale development of this branch fully confirms this provision.

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