

# Multilateral cooperation: achievements, challenges and opportunities

## The Global Governance of Renewable Energy: International Trends and Russia

T. Lanshina, V. Barinova<sup>1</sup>

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**Tatiana Lanshina** – Research associate, Centre for the Economic Modelling of Energy and Environment, Russian Presidential Academy of National Economy and Public Administration; Research associate, Centre for Industrial Studies, Institute for U.S. and Canadian Studies; 82 Prospect Vernadskogo, Building 1, 119571 Moscow, Russian Federation; E-mail: lanshina.ta@gmail.com

**Vera Barinova** – PhD, Deputy director, Centre for the Economic Modelling of Energy and Environment, Russian Presidential Academy of National Economy and Public Administration; 82 Prospect Vernadskogo, Building 1, 119571 Moscow, Russian Federation; E-mail: barinova@iep.ru

*Recent years have seen an unprecedented explosive growth of renewable energy. The demand for global governance in this sphere has also increased. Existing energy institutes proved to be unable to take lead in global governance not only in renewables, but also in the whole energy sector. Therefore, the last 10 to 15 years have been marked by attempts to solve renewable (as well as traditional) energy problems at the informal level, or within the framework of Group of Seven/Eight, the Group of 20 and the BRICS group of Brazil, Russia, India, China and South Africa. Moreover, authoritative organizations wholly devoted to renewable energy (such as the International Renewable Energy Agency) have emerged.*

*This article studies the structure and trends of the modern global governance of renewable energy. The authors analyze the role and functions of traditional and new energy institutions and informal groupings, and draw parallels with global governance of the whole energy sector. They pay special attention to Russia's participation in international renewable energy incentives.*

*Both qualitative and quantitative research methods are applied. The article contains multiple examples of analytical research methods and a content analysis of international documents. The authors provide a quantitative analysis of Russia's results in complying with the renewable energy commitments of informal groups.*

*The authors conclude that traditional international energy organizations sustain a passive position toward renewable energy. The only exclusion is the International Energy Agency, which has transformed its agenda to include renewable energy. The role of informal groups has been limited (because they have broad agendas and because they were created for other tasks than promoting renewable energy). However, their efforts have a positive influence on the harmonization and development of governance*

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*in renewable energy. The article argues that on most sensitive energy-related issues (in renewables and climate change), soft governance or governance based on aims and commitments formulated by countries themselves and not by international organizations becomes most efficient; the best results are demonstrated by new agencies dedicated to renewable energy only.*

*According to the authors, although Russia has taken part in all major relevant initiatives, the results of its efforts have been rather poor, except for the creation and implementation of the legal framework for renewable energy. Russia's efforts have been mostly declarative in nature. The main reason for this poor performance is the low level of renewable energy development in Russia (except for large hydro), underpinned by the prevailing inertial development model of the energy sector and the whole economy. However, the rapid diffusion of renewable energy technologies in global markets may affect Russia's oil and gas sectors negatively. Therefore, Russia should increase and improve its participation in global renewable energy governance in order to provide national energy and economic security in the long run.*

**Key words:** global governance; renewable energy; International Renewable Energy Agency (IRENA); Group of Seven/Eight (G7/8); Group of 20 (G20), BRICS

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## Introduction

In the last 10–15 years, the renewable energy sector has experienced exponential growth. In 2000, global installed solar energy capacity comprised less than 1 GW; in 2016, it surpassed 227 GW. Global installed wind energy capacity has increased from 17 GW in 2000 to 432 GW in 2016 [IRENA, 2016]. The share of all renewable energy sources (RES) in worldwide electricity generation in 2015 stood at 23.7%, while the share of RES except for hydropower was 7.1% [REN21, 2016]. Renewable energy investment has already outpaced that of fossil-fuel power projects.

Switching to renewable energy is an inevitable but lasting and complex process that requires the participation of both domestic and international institutions. The duration and complexity of this process are due to long investment cycles (up to 40–60 years) and the high capital costs that characterize the energy sector; the conservatism of many companies and governments and their unwillingness to undergo far-reaching technology shifts; and also due to a wide array of entry barriers into energy markets (e.g. fossil fuel subsidies) that are difficult to eliminate.

The goal of this article is to find out the specifics and key participants of the emerging global renewable energy governance system, and to draw conclusions about the role of Russia in it. To attain the stated goal, the authors perform the following tasks:

- Formulate characteristics of the global energy governance architecture;
- Identify the role of major international energy organizations in renewable energy governance;
- Highlight the activity and progress of informal gatherings of the “club” type (e.g. G7/8, G20) in renewable energy governance;
- Discover the role of new specialized international organizations (e.g. IRENA) in renewable energy governance.

When performing these tasks, the authors pay special attention to Russia’s role in RES international initiatives. Both quantitative and qualitative research methods are used, including content analysis of international documents. The authors also perform a statistical analysis of the G7/8 and G20 compliance scores on renewable energy commitments.

## Specifics of global energy governance

The system of global energy governance began to emerge in the 1970s, and during the first decades its main purpose was to ensure energy security, which in its turn was shaped by access to fossil fuels. Global governance in the sphere of climate change and renewable energy was out of reach for international organizations, countries, decision-makers and

researchers for a long time. Some international conferences addressed these issues, and some countries (mainly in Europe – including Germany and Denmark) took measures aimed at RES development, starting from the 1970s. However, it was only in the last 10–15 years that climate change and renewable energy really gained attention.

Even now, global energy governance as a whole remains weak and fragmented [Lesage et al., 2009]. In their energy decisions, nations are often motivated not so much by market interests as by very different political considerations. No international organization is able to provide proper elaboration and decision-making on global energy issues. The mandates of all energy organizations are greatly limited, and these organizations represent the interests of different groups of countries. For example, the International Energy Agency (IEA) is the “voice” of Western energy-importing countries with membership in the Organization for Economic Cooperation and Development (OECD),<sup>2</sup> while the Organization of the Petroleum Exporting Countries (OPEC) is the “voice” of oil-exporting countries. Energy is historically an extremely sensitive area, which makes it difficult for countries to have an understanding of commitments or limitations in this area, which are usually assumed by the system of global governance. Russia has always treated international agreements on the environment with caution, afraid that these agreements could negatively influence its traditional energy sector, and oil and gas exports [Korppoo et al., 2006, p. 24; Kokorin, Korppoo, 2013, p. 2]. The same applies to the Russian attitude towards international incentives in the renewable energy sector.

Neither the IEA nor OPEC have managed to take the lead in global energy governance, since they represent two groups of countries with limited inclusiveness and totally opposite interests. Moreover, OPEC has largely lost its grip on the international energy sector and on the global economy due to a number of reasons. Firstly, due to technological advances including the emergence of energy-efficient technology, as well as shale oil and gas production. These developments have strengthened the U.S. position on the global fossil fuel market. Secondly, due to disagreements within OPEC and political instability in a number of OPEC countries. Thirdly, the weaker role of OPEC may be explained by a decline in the energy sector’s influence on the global economy due to rapid progress in service industries, and deindustrialization in developed economies. The International Energy Forum (IEF), though highly representative (72 member countries), the Energy Charter Treaty (ECT), the Gas Exporting Countries Forum (GECF), also known as a the “gas OPEC,” and other institutes, are even weaker.

Since the established energy institutions turned out to be unable to provide a full-fledged, representative and inclusive system of global energy governance, global energy

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<sup>2</sup> The International Energy Agency (IEA) was created in the framework of the OECD, and still grants its membership to OECD countries only. Therefore, such fast-growing major economies as China and India have no IEA membership. This makes the IEA less representative and limits its role in global energy governance, although the agency is actively cooperating with these countries.

issues were often addressed at the network or club level [Panova, 2015, p. 148]. The “club” institutions addressing international energy issues mainly comprise the G7/8, the G20 and BRICS.

Global renewable energy governance is even more fragmented and weak than overall global energy governance. Global renewable energy actors have even less solidarity, and relationships between them are more complex. Moreover, the development of renewable energy is associated with pollution reduction, including greenhouse gas emissions, and these issues usually cause serious disagreements between countries.

## International energy organizations and global renewable energy governance

Many of the key global energy governance institutions do not participate in global renewable energy governance, or are almost absent from it. One of the most notable examples of such institutions is the OPEC. However, this rule has exceptions, for instance the IEA.

The IEA was established in 1974, in the wake of a severe energy crisis and in response to this crisis. Originally, its main goal was to ensure international energy security for the benefit of OECD countries. From 1980 onwards, the IEA has also been focusing on the impacts of energy systems on climate; its mandate has broadened to include environmental protection, aside from energy security. Currently the IEA is monitoring all forms of energy technology, including renewable energy and decarbonization. Even though the IEA has historically been associated with the traditional energy sector [Van de Graaf, 2012], with fossil fuels at the core of it, during recent years the agency has evolved from a coal, oil and natural gas adherent into a defender of renewable energy [Heubaum, Biermann, 2015, p. 232–233].

Russia is not a member of the OECD,<sup>3</sup> and therefore does not have membership at the IEA. However, since 1994, Russia has been cooperating with the IEA on such issues as energy security, energy efficiency, energy statistics, and data exchange on energy policy and technology. Recent years have also seen some cooperation in renewable energy. The Russian Ministry of Energy supports the IEA in organizing renewable energy workshops in Russia, and takes part in IEA workshops in other countries. Representatives of the Russian Energy Agency (REA) participate in the activities of the IEA Working Party on Renewable Energy Technologies. This cooperation is mainly focused on data and information exchange, and does not result in any significant decisions or initiatives from Russia so it can be considered insufficiently active.

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<sup>3</sup> In 2007, at the 1163<sup>rd</sup> session of the OECD Council, the Roadmap for the Accession of the Russian Federation to the OECD was adopted, but in 2014 the process of accession was indefinitely suspended.

In 1992, the United Nations adopted an important international environmental treaty – the United Nations Framework Convention on Climate Change (UNFCCC), which entered into force in 1994. To date, it has been ratified by 197 countries, including Russia (1994). The primary goal of the convention is to “stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.” The timing for achieving this level must be sufficient for the natural adaptation of ecosystems to climate change, in order to avoid risks to food security and to maintain further opportunities to ensure sustainable economic development.

The convention set up the basis for ambitious work in climate action at the highest international level. In 1997, at the 3<sup>rd</sup> Conference of the Parties of the UNFCCC (COP-3), the countries adopted the Kyoto protocol, which obliged developed countries and countries in transition to decrease and stabilize their greenhouse gases emissions. The 21<sup>st</sup> Conference of the Parties of the UNFCCC (COP-21), held in Paris at the end of 2015, resulted in the UNFCCC Paris agreement, which will replace the 1997 Kyoto protocol in 2020. In November 2016, following the ratification of the new document by more than 55 countries, accounting for more than 55 percent of the global greenhouse gases emissions, the Paris agreement entered into force. Russia has signed but yet not ratified the agreement.

The aim of the new document is to keep “the increase in the global average temperature to well below 2 degrees Celsius above pre-industrial levels” up to the end of the 21<sup>st</sup> century, and to try to limit it to 1.5 degrees Celsius. In contrast to the Kyoto protocol, the new agreement does not set quantitative limits on greenhouse gases emissions, but obliges all countries to adopt national emission reduction plans. Thus, the agreement applies a bottom-up approach, which was innovative for international climate deals, and allows the countries themselves to determine achievable national goals. This significantly simplifies the negotiations.

The UNFCCC does not have provisions relating to renewable energy sources, but achieving the main goal of the convention assumes a greater role of RES in the energy sector. Most experts admit that action on climate change demands fundamental shifts in the way energy is generated and consumed, including a widespread diffusion of renewable energy technology. Moreover, both the Kyoto and Paris agreements contain provisions on renewable energy sources. According to the text of the Kyoto protocol, in order to comply with their commitments and to promote sustainable development, participating countries must, among other things, introduce and improve government policies supporting R&D in the RES sector as well as promoting, developing and increasing the share of RES [UN, 1998]. The Paris agreement acknowledges the urgency of promoting overall access to sustainable energy in developing countries, especially in Africa, through the accelerated growth of RES [UN, 2015].

Russian climate policy is often considered by experts to be not sufficiently active – it is more focused on the country’s image on the international stage than on real action [Kokorin, Korppoo, 2013, p. 4]. For example, Russia’s voice was decisive for the Kyoto protocol to enter into force: it needed to be ratified by developed countries and countries in transition, which in 1990 accounted at least for 55 percent of global emissions; the U.S., which refrained from ratification, accounted for 34 percent of global emissions, and Russia accounted for 16 percent. Thus, without Russia’s ratification, the protocol would not have taken effect. Among other reasons, Russia’s decision was influenced by the fact that the fate of the Kyoto protocol hinged on its voice. However, Russia had actively participated in research efforts underpinning the preparation of the Paris agreement [Lugovoy et al., 2015]. Moreover, in 2015 and 2016, the Russian Ministry of Natural Resources and Environment laid down the foundations for establishing a reporting system for greenhouse gas emissions [Kokorin, 2016, p. 43].

## Solving renewable energy issues within “club” institutions

Unlike international energy organizations, “club” institutions were intended not only for global energy governance. However, energy issues have made up a significant part of their agendas at certain times.

The first G7/8 summit took place in 1975, bringing together the leaders of six countries. The creation of the forum was preceded by the global energy crisis of 1973, after which countries worldwide began to take a consistent interest in renewable energy, and several developed countries introduced government policies to support this emerging energy sector. The original purpose of the G7 was to discuss current global economic issues and coordinate national macroeconomic policies. In the early years of the forum, energy played an important role in its agenda, but soon this issue was almost forgotten, until the 2000s.

The G20 was created after another global crisis, namely the financial crisis of 1997–1998. However, until 2008, countries were represented at its summits only by finance ministers and central bank governors. The first leaders’ summit was held only in 2008, in response to the global financial crisis of 2008–2009. So far the G20 has mostly addressed financial and economic problems. Nevertheless, renewable energy and climate change have been part of the agenda of the forum from the beginning (Table 1), and anti-crisis programs of many G20 countries (USA, China, South Korea and other major economies) included some support measures for the green economy, including renewable energy.

The G7/8 and G20 discussions on energy consists of four main components: (1) fossil fuel supply, prices, transportation and consumption, (2) renewable energy and energy efficient technologies, (3) nuclear security, and (4) energy trade [G20

Information Center, 2010]. Thus, renewable energy is included in the general agenda of the “club” institutions.

*Table 1: G7/8, G20 and BRICS commitments in renewable energy, stated in the final leaders’ communiques and declarations*

Year	G7/8		G20		BRICS	
	Summit location	Number of RES references	Summit location	Number of RES references	Summit location	Number of RES references
1978	Bonn (Germany)	2				
1979	Tokyo (Japan)	1				
1980	Venetia (Italy)	1				
1981	Ottawa (Canada)	2				
1982–1999		0				
2000	Okinawa (Japan)	3				
2001	Genova (Italy)	8				
2002–2006		n.a.				
2007	Heiligendamm (Germany)	9				
2008	Hokkaido Toyako (Japan)	2	Washington (USA)	0		
2009	L’Aquila (Italy)	13	London, (UK) Pittsburgh (USA)	0 6	Yekaterinburg (Russia)	1
2010	Muskoka (Canada)	1	Toronto (Canada) Seoul (South Korea)	0 0	Brasilia (Brazil)	3
2011	Deauville (France)	2	Cannes (France)	1	Sanya (China)	3
2012	Camp David (USA)	3	Los Cabos (Mexico)	0	New Delhi (India)	2
2013	Lough Erne (UK)	0	Saint Petersburg (Russia)	1	Durban (South Africa)	0
2014	Brussels (Belgium)	3	Brisbane (Australia)	0	Fortaleza (Brazil)	4
2015	Schloss Elmau (Germany)	2	Antalya (Turkey)	1	Ufa (Russia)	1
2016	Ise-Shima (Japan)	3	Hangzhou (China)	2	Goa (India)	3

*Source:* [BRICS Information Centre, 2017; G7 Information Centre, 2017; G20 Information Centre, 2017], authors’ calculations.

The G7/8 countries made commitments to develop renewable energy as far back as the late 1970s and early 1980s. (Table 1). One of the commitments made at the G7 summit in Bonn (Germany) in 1978, was a promise to help developing countries “to bring into use renewable energy technologies” (as well as to carry out joint or coordinated



R&D in this sphere). The 1979 declaration contained similar commitments. In the 1980 communiqué, the countries stated their intention of making significant efforts to increase the use of coal and nuclear power in the medium term, and to increase the production of synthetic fuels, and the use of solar and other renewable energy in the longer term. In 1981, most countries committed to develop renewable energy, including solar and geothermal power, as well as bioenergy, to the fullest possible extent. However, after the sharp decline in prices of fossil fuels amid high relative costs of renewable energy technology, it became clear that the green energy revolution was going to be put off indefinitely, and the G7 ceased to make commitments in the field of renewable energy up to the 2000s. Countries began to accept their obligations to combat climate change from 1997 onwards [G7 Information Centre, 2016]. In 2010s, renewable energy issues were addressed at virtually every summit.

In 2000, the G8 Renewable Energy Task Force was created, with the aim of developing precise recommendations for renewable energy diffusion in developing countries. This group existed only until 2001, despite the fact that the next summit in Genoa (Italy) again recognized the importance of renewable energy and its significant role in diversifying energy sources and promoting sustainable development. The policy proposals prepared by this task force in 2000–2001 were completely ignored [Lesage et al., 2010].

The summit at Gleneagles (UK, 2005) strengthened the importance of the G7/8 in addressing global renewable energy issues, and renewed a lively discussion on this subject within the forum [Lesage et al., 2009]. This period was characterized by the increasing importance of energy issues. The finiteness of fossil fuel reserves as well as the negative impact of burning these fuels on the climate and the environment, became recognized worldwide. Before the Gleneagles summit the forum paid attention to technological cooperation in the field of sustainable energy.

In 2007, at the G8 summit in Heiligendamm (Germany), the so-called Heiligendamm Process was initiated. This was aimed at developing energy and energy efficiency dialogue between the G8 and five major developing countries (the O5 outreach countries) – China, India, Brazil, South Africa and Mexico. At the summit, the G8 members made a commitment to stabilize the concentration of greenhouse gases and reduce emissions. Many climate commitments directly referred to renewable energy: the promotion of renewable energy technology through the introduction of specific legislation and state support measures, energy diversification through increasing the use of renewable energy sources, integration of renewables into the power grid, etc. (Table 1).

The most active work of the G8 on renewable energy and related issues (climate change, energy efficiency, etc.) was carried out in 2005–2009. This was a period of increased public attention to climate change issues and renewable energy. During this period the G8 also conducted a dialogue with O5 representatives, resulting in the initiation of the G20 leaders' summitry process.

G20 renewable energy policy actions are similar to those of the G7/8, although the G20 commitments have been mostly focused on the diffusion of renewables among G20 member countries. In particular, the efforts of this «club» were aimed at attracting funds in the renewable energy sector and formulating policies to promote a favorable investment climate for renewable energy. One more important issue that has been continuously addressed by the G20 is the phase-out of inefficient fossil-fuel subsidies.

The BRICS forum recognized the need to strengthen international dialogue and cooperation in the energy sector from the outset – at its first summit in Yekaterinburg in 2009. At that summit, the BRICS agenda comprised a long list of commitments related to sustainable development, renewable energy, and energy efficiency development (commitments 7–9 out of 16). From the beginning, the agenda of BRICS has always included renewable energy issues, as well as related issues, such as energy efficiency technology and sustainable development (Table 1).

In April 2015, the Ministers of Natural Resources of BRICS countries held their first official meeting in Moscow, where they decided to create a BRICS green technology platform. The first meeting of this platform took place on 11 April 2016 in St. Petersburg (Russia). The discussion was focused on the problems of water resource ecology and on attracting finance for green projects, including through the BRICS New Development Bank.

In 2003–2009, the University of Toronto evaluated the compliance of G7/8 countries with their renewable energy commitments. A score “+1” was given to a country for full implementation of commitments, “0” – for partial implementation, and “–1” – for non-compliance. During this period, the renewable energy commitments achieved an average compliance score of 0.83, and 0.71 for Russia. The relatively high level of Russia’s results were driven by Russia’s promises to increase the share of renewable energy in its energy sector and to create new renewable energy businesses. Many of these promises have not been fulfilled. For example, in 2008, the Biotekhnologii corporation announced its intention to build 30 biobutanol plants (second-generation biofuels) in Russia by 2016. However, the timeframe was repeatedly shifted, and the project was eventually scrapped. The target for increasing the share of renewable energy sources in the Russian energy sector has not been met either – the RES share still does not exceed 0.5% (excluding large hydropower).

Among all of the G20 obligations that were regularly monitored and evaluated by the University of Toronto, two obligations were directly related to renewable energy sources: the phase-out of inefficient fossil-fuel subsidies, and the expansion of clean energy technology. According to the authors’ calculations, in 2009–2015, the average scores for G20 members’ compliance with these commitments were 0.012 and 0.79 respectively, and for Russia – 0.17 and 1.0. Russia received a high score for the phase-out of inefficient fossil-fuel subsidies because of its intentions to solve this problem

within the framework of its Energy Strategy for the period up to 2030, and also due to other declarative documents and statements. Russia's high clean-energy score was a result of government policies aimed at extending the scope and amount of natural gas use (the "cleanest" fossil fuel), and also Russia's participation in international cooperation agreements in clean energy, as well as new Russian legislation aimed at fostering the renewable energy industry and energy-efficient technology. However, there was a dramatic lack of real action to facilitate the expansion of renewables, except for the introduction of legislation.

It should be noted that not only in Russia, but around the world, inefficient fossil-fuel subsidies are being phased out very slowly, and subsidies are still very high. According to IMF estimates, in 2015 the average amount of pre-tax fossil fuel subsidies in G20 countries exceeded \$100 per capita, and in Russia it was close to \$300 per capita; average post-tax fossil-fuel<sup>4</sup> subsidies amounted to more than \$1,000 per capita in G20 and \$2,334 in Russia [IMF, 2015].

Many G20 countries have taken measures to stimulate the green economy, including the renewable energy industry, within their national anti-crisis programs which were adopted after the global financial crisis of 2008–2009. In the G20 Leaders' Statement at the 2009 London Summit, countries promised to implement clean, innovative, resource-efficient, low-carbon technology and infrastructure, and to work jointly to develop sustainable economies. Of the \$3.3 trillion allocated in 2008–2009 to combat the global crisis worldwide, more than \$522 billion was spent on funding the green sector and providing tax credits for it [Robins et al., 2009, 2010]. However, most of the anti-crisis programs were not aimed at developing green industries. Also, not all G20 countries included the green stimulus in their anti-crisis programs (this was the case for Russia, India and Brazil), and the share of anti-crisis funds spent on green economy varied greatly between countries: in South Africa it was about 10.7%, while in South Korea it was 78.7%. In addition, fossil fuel subsidies, as well as the absence of effective environmental taxation, reduced the effect of green stimulus [Barbier, 2010].

It was not infrequent for countries to make strong declarations and receive high scores for compliance with their respective commitments, but without fulfilling their promises. However, there were many incremental improvements at the national level, and the G7/8 as well as the G20 and BRICS made an important, though limited, contribution to the development of global renewable energy governance. Germany is one of the countries that has achieved particularly high results in renewable energy, including results that were due to the "club" institutions' efforts. Germany took steps to improve its feed-in tariffs, and increased its share of renewable energy in total power

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<sup>4</sup> According to the IMF methodology, pre-tax subsidies arise when consumer prices are below supply costs; post-tax subsidies include pre-tax subsidies and a tax to reflect environmental damage as well as an additional tax applied to all consumption goods to raise government revenue.

production from 6% in 2000 to 32% in 2015. It also tightened its energy efficiency requirements for buildings, created incentives to increase demand for cars that are more environmentally friendly, and contributed to the development of international cooperation and public-private partnerships. In fact, Germany has become a national leader in global renewable energy governance.

The overall real level of Russia's compliance with commitments on renewable energy, energy efficiency technology and climate change is low. Russia's efforts in these fields have often been declarative. Its representatives participated in international conferences on renewable energy issues and Russia itself hosted similar events; the country's leaders stated the need for renewable energy development [G8 Research Group, 2006]. However, no large companies have been created in the RES sector (except for the Hevel group of companies, which was created in 2009; it specializes both in manufacturing solar PV modules and in solar power plant design and construction. The RES share in the energy industry has also not increased.

Perhaps the only important achievement of Russia was legislative work conducted in 2009–2016. In 2009, Russia set goals for the renewable energy sector (updated in 2015). According to these goals, by 2024 Russia will install 5.871 GW of renewable energy generating capacity, which will provide about 4.5% of the country's total electricity consumption. In 2013, Russia adopted a capacity-based renewable energy support scheme on the wholesale electricity and capacity market. As a result, new solar power plants with total capacity of about 60 MW were built in 2016. In 2015, Russia introduced a support scheme for renewable energy in retail electricity markets. However, compared to the pace of renewable energy diffusion in many other countries, this is not enough.

The share of new renewable energy sources (i.e. all renewables except for large hydropower plants with installed capacity exceeding 25 MW and traditional biofuels such as wood and charcoal) in Russia's total power generation is still less than 0.5%, which is almost the same as it was several decades ago. Russia is not engaged in active international cooperation, which is discouraged by the current political situation. Consequently, Russia's role in global renewable energy governance is extremely low. Meanwhile, the influence of global renewable energy governance on the development of this sector in Russia is also extremely weak.

## New specialized agencies in global renewable energy governance

The first efforts to create a specialized agency, wholly dedicated to renewable energy, began as far back as the 1980s. However, up until 2009, all of these initiatives (WREN, REN21, GBEP, etc.) achieved very limited success, and global renewable energy governance was unevenly distributed among these organizations. Much has changed

with the creation of the International Renewable Energy Agency (IRENA). This new organization has very quickly attracted the overwhelming majority of countries as its members, and has taken on the role of an umbrella organization, integrating and coordinating the work of other international renewable energy organizations.

The International Renewable Energy Agency was established in 2009, just after two preparatory conferences, on the initiative of Germany and with the support of other European countries, notable for their developed renewable energy sectors. Abu Dhabi, the capital of UAE, was chosen as an interim headquarters location for the new organization; in 2011, it was confirmed as the permanent headquarters.

IRENA positions itself as an organization for all-inclusive international cooperation in the sphere of renewable energy, and as a source of authoritative analysis and data on renewable energy issues. Its aims are quite clearly defined: to facilitate the widespread adoption of renewable energy in the pursuit of sustainable development and low-carbon economic growth, and to provide a range of services that supplement other proposals on the market and concentrate fragmented action in the area of renewable energy. These services mainly contain legal analysis and reviews of renewable energy technology transfer policies in IRENA member countries, facilitating R&D, and providing training. An important detail: the organization is not engaged in funding activities.

Initially the number of IRENA's members was 75, and as of 2017 it has increased to 150; another 27 countries have started the formal process of accession. Russia joined the organization in 2015. Almost all G7/8 and G20 countries have IRENA membership. Among the G7/8 countries, the only exception is Canada, and among the G20 the exceptions are Brazil and Canada.

According to a number of researchers, IRENA stands out as an important and unusual example of institutional innovation. It is notable for its high inclusiveness and flexibility, for restraining from imposing requirements on its member states, for not introducing legally binding obligations, and for almost entirely omitting discussion on climate change issues, which often provokes arguments and disputes. The absence of project funding in IRENA's mandate allows it to remain an organization with a slim budget, and thus causes fewer controversies about raising and distributing funds. At the same time, through its analytical work, IRENA is able to build political consensus around RES, to facilitate the unification of RES policies, and to decrease the systemic risks of governance. The fact that the organization was created during a period of overall decay in global environmental governance and at a time of institutional innovation stagnation in global governance as a whole, is illustrative of IRENA's success [Lesage et al., 2009; 2010; Van de Graaf, 2012; Urpelainen, Van de Graaf, 2015].

Other attempts at global RES cooperation were generally related to binding goals and thus had both supporters and strong opponents. For example, at the World Summit on Sustainable Development, held in Johannesburg (South Africa) in 2002,

some countries proposed setting a global goal of 10–15 percent of renewables in the world’s energy supply by 2010. However, this initiative was rejected due to resistance of other countries. It is worth noting that many countries, regions and even cities have voluntarily set even more ambitious goals. This example shows that soft governance, allowing countries to set goals themselves, may be more efficient when looking for solutions to complicated global challenges.

IRENA does not promise exceptional opportunities in the sphere of international cooperation, but neither does it face the risks that often accompany ambitious cooperative projects. Its mandate is realistic, containing mainly technical goals that do not have a high potential for serious disagreements. These characteristics explain the rapid process of IRENA’s creation, its large number of member countries achieved within a short time, and the continuous expansion of its global influence.

For Russia, cooperation with IRENA involves the Ministry of Energy, the Ministry of Foreign Affairs, and the Ministry of Finance. According to the agency’s statute, Russia along with other countries takes part in RES best-practice analysis, monitoring and systematization, in cooperation with inter-governmental and non-governmental organizations, and also in consulting on renewable energy issues, setting contacts facilitating renewable energy technology transfer, in RES research, and in information exchange.

IRENA membership provides Russia with access to best practices in renewable energy deployment and to up-to-date scientific findings. Facilitating the creation of favorable conditions for technology transfer allows it to participate in the international standard-setting process and to take part in other forms of international cooperation in renewable energy. Russia has actively participated in the development of the Roadmap for a Renewable Energy Future up to 2030 (Remap 2030). In 2016, for the first time, a representative of Russia took part in the work of the IRENA Assembly as a full-fledged member, and presented a report at a roundtable on renewable energy. In terms of its cooperation with IRENA, Russia is forming its national renewable energy policies, working on its Roadmap for a Renewable Energy Future up to 2030, and reviewing the development of its renewable energy sector.

## Discussion

Global renewable energy governance, like global energy governance as a whole, is fragmented and quite weak. This is mainly due to dramatic differences in national economic and political interests in this sphere.

The existing energy institutions have proved to be unable to provide a full-fledged and all-inclusive system of global energy and renewable energy governance. Most of these institutions are only distantly related to renewable energy sources, apart from the

IEA, which was recently transformed from an antagonist to a defender of renewable energy sources, and started to include the RES sector in its analysis. The UNFCCC has also played quite an important role in global renewable energy governance. The text of the Convention does not contain RES provisions, but they may be found in the Kyoto protocol and in the Paris Agreement. Moreover, reducing greenhouse gas emissions assumes, among other things, a partial transition towards RES.

Much work on global renewable energy governance has been done at the so-called “club” level, i.e. in the framework of the G7/8, G20 and BRICS. These unofficial forums certainly have not and could not become driving forces of global renewable energy governance, but they have managed to establish platforms for discussions on major renewable energy issues as well as for exchange of best practice and technology.

IRENA – a new organization, wholly devoted to renewable energy – is of particular interest in the context of global renewable energy governance. Due to its flexibility and limited mandate (analytics, data and information exchange, international cooperation, training), this international agency has quickly managed to achieve a high level of inclusiveness, and has become an umbrella organization consolidating efforts of other renewable energy organizations. However, since IRENA’s functions mainly concentrate on analytical work, the agency is only indirectly influencing global renewable energy governance.

Soft governance and the bottom-up approach, which allow countries to determine their goals and commitments themselves (instead of having goals and commitments set by an international organization), have been recently gaining support. It was these approaches that were used in the Paris agreement and greatly simplified the negotiations. Also, much of IRENA’s success can be explained by soft governance. In the near future, these approaches may play a leading role in global governance on such complex issues as renewable energy and climate change.

The role of Russia in global renewable energy governance remains substantial, largely because of the low diffusion of RES in its domestic energy sector (except for large hydro). As follows from the text above, Russia participates in all renewable energy governance initiatives, but its participation often has only a formal and declarative nature; it lacks real actions, except for legal work, undertaken in 2009–2016, which resulted in the introduction and development of RES government support and regulation. Taking into account the quick pace of the global renewable energy sector’s development, noted in the introduction to this article, the lack of Russia’s activity in the sphere of renewable energy and global governance creates risks for the energy security of Russia in the long run, as well as risks for the country’s oil and gas sector and therefore its economic security.

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