



Non-Profit Partnership
"Russian National Committee
of International Council on Large Electric Systems"
(CIGRE RNC)

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Report

on scientifically-technical, project-oriented
and organizational activity of CIGRE RNC

Reporting period:
October 2013 – March 2015

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Abstract

This report is an overview of scientific, technical, project-oriented and organizational activities of CIGRE RNC for the reporting period of October 2013 through March 2015, held in accordance with the decisions of the 6th CIGRE RNC Assembly (10/10/2013, protocol 3/13) and CIGRE RNC Presidium (11/15/2014, protocol 4, item 1 "6th CIGRE RNC Assembly decisions accomplishment").

The report is formed for the 7th CIGRE RNC Assembly and is aimed to individual and collective members of CIGRE RNC, executives of Russian electrical power engineering companies, industry research centers, infrastructure organizations, technical higher education institutions as well as to whom it may concern: scientists, technologists, experts, and managers who form Russian professional electrical power engineering community.

CIGRE RNC has a rule that Russian representatives who participated in a CIGRE international event write an overview or analysis report with attached proceedings. Similar reports of general arrangements held in Russia are made by CIGRE RNC Study Committees, Technical Activities Committee and CIGRE RNC Executive Office. Such reports are published openly on CIGRE RNC website and are an important type of work to inform Russian electrical power engineering community about recent development of science and technology in electrical power engineering sphere, to enable transfer of innovative technology to Russia, as well as to share information about scientifically-technical activities of CIGRE RNC.

Taking into account the availability of such information, it is not provided here. For users' convenience, the electronic version of the Report contains hyperlinks to materials and proceedings of every event.

Opening remarks by the Chairman of CIGRE RNC

A detailed business report of CIGRE RNC is published for the first time ever and introduces information about all relevant problems that CIGRE RNC Technical Activities Committee and Executive Office worked on in the period from October 2013 to March 2015 after the 6th CIGRE RNC Assembly.

In the reporting period major efforts were made: representation of Russian professional community in CIGRE, organization of scientific and technical exchange, preservation and development of educational and scientific and research competences of Russian technical higher education institutions, assistance in creating a pool of qualified workforce for benchmark companies, information and publishing activities, etc.

A significant result of the reporting period is increase of weight of CIGRE RNC in the power industry. CIGRE RNC representatives are invited to report on relevant industry forums organized by federal executive authorities and leading electrical power engineering companies, to be experts and to engage in scientifically-technical agencies (councils, collegia, etc.) activities, as well as to play an ever-prominent part in scientifically-technical sphere. It is now possible to found a unique business communication center at the premises of CIGRE RNC due to the foundation of first Study Committees: B4, B5, C2, C6, D2.

The key long term objective until 2020 is to found other CIGRE RNC Study Committees. The founding Study Committees are:

for CIGRE RNC members - organized places of information exchange and professional communication in scientifically-technical and industrial sphere;

for the Partnership – an efficient form of collaboration among scientists, specialists and research centers to fulfill CIGRE RNC statutory objectives, as well as a way to reach out to every member;

for professional electrical power engineering community - places to form an expert opinion, to shape policy on relevant scientifically-technical questions and problems of development of Russian electrical power engineering sphere;

for technological platforms in electrical power engineering and industry federal executive authorities – an independent technical expert which informs



Boris Ayuev,
Doctor of Engineering Sciences, Chairman
of CIGRE RNC, Chairman of the
Management Board of JSC "System
Operator of United Power System"

about scientific and technical problems that should be taken into account in spheres of politics, business, strategic planning as scientifically-technical or technological constraints.

The executed work and achieved success affirm the way the Partnership organize its activities:

the major driver force that makes it possible to achieve the CIGRE RNC statutory objectives is the members of the Partnership. The success in solving problems of the Partnership depends on their creative and organizational activity;

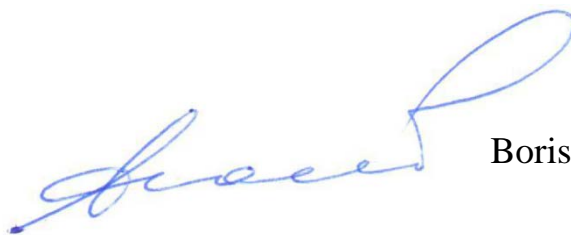
feasibility and successfulness of solutions which are worked out by CIGRE RNC Governing Bodies largely depends on the degree of their support by Partnership members;

the duty of the Partnership Executive Office is to coordinate efforts and activity of the Partnership members, as well as to create proper conditions for creative and organizational potential mobilization to fulfill CIGRE RNC statutory objectives.

I express my gratitude to everybody who has been actively involved in CIGRE RNC work and has contributed to the development of the Partnership in the reporting period. I express special gratitude to our representatives in CIGRE Research Committees, who quickly provided the accessibility of CIGRE 45th session materials for general public. Also, I note with satisfaction that three CIGRE RNC members were awarded CIGRE prizes in 2014, which enhances the international prestige of Russian scientists.

I wish further fruitful work, new achievements and success for the benefit of the Russian electrical power engineering sphere to all CIGRE RNC collective and individual members.

CIGRE RNC Chairman



Boris Ayuev

1. Overview

Russia joined CIGRE in 1923 with the beginning of the GOELRO plan. Since 1929, the basic organizing principle of CIGRE is to work through national committees, uniting industry companies and institutions of the country or geographic region.

CIGRE National Committee of USSR (Soviet National Committee of CIGRE) was founded by the decision of CIGRE Administrative Council in 1957. Before 1991 Soviet National Committee of CIGRE operated at the premises of All-Union Electric Power Research Institute of the USSR Ministry of Energy. Committee for the Participation of the USSR in the International Energy Associations of USSR State Committee of Council of Ministers of Science and Technology was organizing the activities of National Committee.

In 1992 Soviet National Committee was renamed as CIGRE Russian National Committee and until 2006 continued to operate at the premises of All-Union Electric Power Research Institute in the structure of RJSC "UES of Russia". After 2006 the base organization changed in connection with restructuring the electrical power engineering sector in the country. Until 2008 the functions of the former RJSC "UES of Russia" were performed by a branch of JSC "Research and Development Center of Electrical Power Engineering" - All-Union Electric Power Research Institute, and since 2009 they have been performed by JSC "System Operator of United Power System".

At present, increasing participation of Russian scientists and experts in CIGRE international scientific and technological exchanges is considered as part of the state industrial policy in the field of international innovative cooperation and development of international scientific and technical relations. A feature of this policy is that it is developed and implemented under the supervision of industry specific federal executive authorities through [strategic companies with state participation](#)¹, which include JSC "System Operator of United Power System".

In this regard it should be noted that the objectives of CIGRE RNC activity organization are formulated and approved in the Innovative development program of JSC "System Operator of United Power System" for 2012-2016 and till 2020,

¹ - A list of Russian strategic companies is prepared by Ministry of Economic Development and Trade of the Russian Federation and approved at the meeting of the Government Commission on Economic Development and Integration 02/05/2015. The list includes 199 companies, the profit of which form 70% of the aggregate national income, while the number of employees is 20% of total employees in the economy. It includes the largest legal entities under the jurisdiction of the Russian Federation, including those belonging to industrial groups, holding entities, vertically integrated companies that have a significant impact on GDP, population employment and social stability in the regions of Russia.

which is approved by the Board of Directors of JSC "System Operator of United Power System" (04/26/2012 protocol 123)².

Since 2002, CIGRE RNC acts in the form of non-profit partnership. Statutory objectives of the non-profit partnership CIGRE RNC are as follows: representing the interests of the Russian professional electrical power engineering community in CIGRE, organization of scientific and technical exchange in Russia, promoting the proper functioning, development and innovation development of the national electrical power engineering sphere as a pillar of society.

As of 03/31/2015 CIGRE RNC has 58 collective and 418 individual members. CIGRE RNC collective members are made up of JSC "Federal Grid Company of the United Energy System", JSC "System Operator of United Power System", OJSC "Mosenergo", OJSHC "Elektrozavod", OJSC "Power Machines", LLC "Massa" ("Izolyator" plant), Co.Ltd. "Togliatti Transformator", JSC "E4 Group", JSC "Russian Relay Engineering Research Institute ", JSC "All-Russian Research and Development Institute for Cable Industry", Federal State Unitary Enterprise "All-Russian Electrotechnical Institute", CJSC "RTSoft", JSC "Institute "Energosetproject", JSC "Scientific and Technical Center of United Power System", Saint-Petersburg State Polytechnical University, Ural Federal University, Melentiev Energy Systems Institute the Siberian Branch of Russian Academy of Sciences, as well as other leading Russian electrical power engineering organizations, higher education institutions and industry scientifically-technical centers.

² - JSC "System Operator of United Power System" is included in group II of the List of partially government-owned companies, which are subject to the requirements for innovation development program defined by the Government Commission on High Technology and Innovation (08/03/2010 protocol 4) in the fulfillment of the orders of the President of the Russian Federation (01/04/2010 protocol 22 and 09/29/2010 protocol 2865). Approval of these programs and annual reports on their implementation by companies of group II is performed by their Boards of Directors in coordination with the relevant federal executive authorities. Ministry of Energy of the Russian Federation is the relevant federal executive authority for JSC "System Operator of United Power System".

2. A list of scheduled activities of the reporting period

In accordance with the materials of the 6th CIGRE RNC Assembly, the following scientifically-technical, project-oriented and organizational activities in the reporting period from October 2013 through March 2015 were conducted:

- assistance in participation of Russian scientists and experts in international scientific and technical exchange;
- assistance in scientific and technical exchange in Russia;
- development of communications in Russian professional community on important scientifically-technical issues related to the national electrical power sector;
- participation in the development and implementation of projects and programs for the preservation and development of educational and research capacity of relevant Russian technical higher education institutions;
- assistance in the preparation of qualified workforce for leading companies;
- maintenance of CIGRE RNC Governing Bodies work and organizational work with CIGRE RNC members;
- information and publishing activities.

The contents of activity in these areas are determined by the CIGRE RNC Presidium decision ([11/15/2014 protocol 4](#)) regarding "6th CIGRE RNC Assembly decisions accomplishment".

A list of CIGRE RNC scheduled events in 2014 noted in the decision of CIGRE RNC Presidium (11/15/2014 number 4), and progress reports on them reflected in the Report Section

Number	Action item	Accomplishment	Report Section
1	Participation in the 22th Conference and Exhibition "Relay Protection and Automation for Electric Power Systems" (RPA 2014) in May-June 2014, Pavilion number 55, All-Russian Exhibition Centre, Moscow	Completed	Report Section 4.3
2	Preparation and organization of the Russian delegation participation in 45th CIGRE session, 08/24-29/2014, Paris, France	Completed	Report Section 3.2
3	Development of Russian technical higher education institutions competences by placing orders for scientific research with the financial support of electrical power engineering benchmark companies.		
3.1	– 2013-2014 years - grant for research of steady-state load characteristic of 6-110 kV industrial customers	Completed	Report Section 5
3.2	– 2014-2015 years - grant for research of the optimal configuration of automatic excitation control system of low-power generators (up to 60 MW)	In progress	

Number	Action item	Accomplishment	Report Section
4	Development of Working Groups activity on thematic areas corresponding to the activities of CIGRE Study Committees A3, B4, B5, C4, C6	In progress	Report Section 4.2
5	<p>The program " CIGRE RNC Youth section" implementation in 11 Russian technical universities:</p> <ul style="list-style-type: none"> – 2013-2014 academic year - Samara State Technical University (Samara), National Research Tomsk Polytechnic University (Tomsk), Ural Federal University (Yekaterinburg), Kazan State Power Engineering University (Kazan), Ivanovo State Power Engineering University (Ivanovo), Saint-Petersburg State Polytechnical University (St. Petersburg); – 2014-2015 academic year - South Russia State Technical University (Novocherkassk), North Caucasus Federal University (Pyatigorsk), Moscow Power Engineering Institute (Moscow), Novosibirsk State Technical University (Novosibirsk), National Research South-Ural State University (Chelyabinsk) 	Completed	Report Section 6.1
6	<p>Creating a mechanism for increasing the activity of CIGRE RNC members in the Partnership research activities, projects and programs:</p> <ul style="list-style-type: none"> – members breakdown by the thematic areas corresponding to the activities of CIGRE Study Committees, according to personal research interests; – approval of standard of activity arrangement of the working and project groups on thematic areas; – determination of operating procedures of Russian representatives in CIGRE Study Committees (status, tasks, functions, forms, methods, etc.). – determination of the list of industry journals and publications for publishing CIGRE and CIGRE RNC materials; – improving the forms and methods of CIGRE RNC Executive Office work 	Completed	Report Section 4.2
7	<p>The development and adoption of the Regulation on awards, distinctions and commendations CIGRE RNC:</p> <ul style="list-style-type: none"> – types of awards, distinctions, commendations; – category of be awarded / encouraged persons and the reasons of rewarding; – procedure for sponsors and third parties encouraging that support CIGRE RNC; – distribution of awarding powers and responsibilities between the Partnership Governing Bodies 	In progress	Report Section 3.8

This report provides information about these and other activities carried out in accordance with the decisions of the 6th CIGRE RNC Assembly for the reporting period from October 2013 to March 2015 (see below).

3. Participation of Russian representatives in international scientific and technical exchange

3.1. Overview

The aims of participation of Russian scientists and experts in the international scientific and technical exchange are as follows:

- 1) to obtain information about the best achievements of world science and technology in electrical power engineering sphere, transfer of advanced technologies for the innovative development of the industry in Russia;
- 2) to exchange experience in solving the most complex and urgent problems of technological advancement in modern electrical power engineering sphere;
- 3) enhancement of the role, importance and scientific authority of Russia in CIGRE and on the international arena.

Key events in the reporting period:

- selection and presentation of Russian reports at the 45th CIGRE Session in Paris, August 24-29, 2014 and the Russian delegation participation in the 45th CIGRE Session, August 2014, Paris;
- bidding for the 2017 Colloquium of CIGRE Study Committee B5 in St. Petersburg, Russia;
- preparation for participation in the 46th CIGRE Session in Paris in August 2016;
- participation in CIGRE Study Committees and Working Groups activities;
- participation of Russian representatives in international colloquia, symposia and conferences;
- representation in CIGRE Governing Bodies;
- encouraging of CIGRE RNC members with CIGRE awards.

3.2. Participation in the 45th CIGRE Session, 08/24-29/2014, Paris (France), and results report

"Regulations of preparation and participation of CIGRE RNC delegation in CIGRE sessions" were approved and enacted by the order of CIGRE RNC (11/08/2013, number 08.01-16) in order to improve the work on the preparation and participation of Russian delegation in CIGRE sessions.

According to the regulations, the regular two-year cycle begins with the presentation of the relevant materials from Russia in December of the year preceding the next Session year, and ends in December of the Session year with a discussion of the final content at a CIGRE RNC Technical Activities Committee meeting.



For information support of the preparation and participation of the Russian delegation in the 45th CIGRE Session a special section on CIGRE RNC website was made: http://www.cigre.ru/activity/session/session_2014/, containing all the necessary information about the session: general information, topics and abstracts, the full texts of reports from Russia, the procedure for registration and participation payment, session report documents, etc.

The Russian delegation had 151 participants (126 delegates and 25 accompanying persons) of the total number of 3,235 participants. The Technical Program of the Session included 10 presentations by Russian scientists and experts, which were selected at a meeting of CIGRE RNC Technical Activities Committee (03/25/2013 [protocol 2](#)).



A collective Russian exposition, prepared by the Ministry of Energy of the Russian Federation with the participation of Federal State Unitary Enterprise "The Russian Energy Agency" according to the order of Government of the Russian Federation (01/23/2014, number 62-p.), was presented for the first time at the technical exhibition "CIGRE 2014" held during the Session. [A full report](#) of the participation in the session was considered at a CIGRE RNC Presidium meeting (10/06/2014 protocol 6/11).

Proceedings of the 45th CIGRE Session 2014 were translated into Russian, studied and analyzed by CIGRE RNC Study Committee representatives. The results of this work are approved at a joint meeting of Russian Academy of Sciences Scientific Council on the problems of reliability and safety of large-scale power systems, Scientific-Technical Board of Scientific and Technical Cooperation of United Power System and CIGRE RNC Technical Activities Committee ([12/10/2014 protocol 10/14](#)).

For a broad awareness of Russian professional electrical power engineering community about the results of the 45th CIGRE Session 2014, a public [scientifically-technical seminar](#) "A generalization of global trends of technological and technical development of electrical power engineering sphere (based on the results of 45th CIGRE Session 2014)" was formed at the premises of JSC "System Operator of United Power System" on March 30, 2015. The seminar drew a considerable interest and gathered over 120 participants from more than 40 organizations. Under the seminar not only were reports of the thematic areas heard, but also the work in sections was organized, where an active dialog to discuss topical issues of scientific and technological development of the Russian electrical power engineering sphere took place.



In the course of the seminar [a special issue](#) of "Energy abroad" journal (issue 1-2, 2015 supplement to the magazine "Energetic") with the review of the proceedings of CIGRE Session 45 in all thematic areas was presented, as well as other industry publications of CIGRE RNC media partners.

3.3. Bidding for the 2017 Colloquium of CIGRE Study Committee B5 in St. Petersburg, Russia

The proposals of national committees of countries applying for the right to host the next meeting of the committee and the colloquium in 2017 were considered at a private meeting of Study Committee B5, held during 45th CIGRE Session in August 29, 2014.

Russian CIGRE RNC representative, committee member Goda Nudelman came up with a proposal to hold a meeting of Study Committee B5 and a colloquium in 2017 in St. Petersburg, combining these activities with the 6th International Scientific-Technical Conference "Actual trends in development of Power System Relay Protection and Automation." The Organizers of the conference are traditionally CIGRE RNC, JSC "System Operator of United Power System" and JSC "Russian Relay Engineering Research Institute."

It was noted that there are big scientific and technological centers and educational institutions in Russia, engaged in deep theoretical research, on the basis of developing in Russia information theory of relay protection, and have experience of creation and operation of emergency and performance automation of large interconnected power utilities. The proposed program preliminary includes a visit to JSC "Scientific and Technical Center of United Power System", which has the largest in Russia electrodynamic model of the Russian United Power System.



Russian presentation was highly appreciated by the audience.

India, Republic of South Africa, Australia, New Zealand and Ireland also presented their proposals for B5 meeting and colloquium. The final decision on the choice of venue will be taken at the next committee meeting and colloquium B5, which will be held [September 20-26, 2015 in China](#).

Details are presented in [the announcement 08/30/2014](#) on the website in section "CIGRE RNC News."

3.4. Preparation for participation in the 46th CIGRE Session in Paris, August 21-26, 2016

The regular two-year cycle for the preparation and participation in the next session of CIGRE was launched in December 2014 with the announcement of the priority topics for Russian reports.



[A special section](#) on the CIGRE RNC website is opened. It is devoted to the preparations for the 46th CIGRE Session 2016. This section contains all the necessary information:

- [Public Information Notice 12/20/2014](#) under the section "CIGRE RNC News";
- [Preferential subjects](#) for the preparation of abstracts at 46th CIGRE Session 2016 (in the English and Russian languages);
- [Instructions for the presentation of Papers at CIGRE Sessions](#), enacted 09/28/2009 (in English);
- [Requirements for abstract preparation](#) (in Russian).

The list of selected reports from Russia is to be determined at a meeting of CIGRE RNC Technical Activities Committee in May 2015, and then submitted to CIGRE Central Office in Paris.

DEADLINES

> Receipt of synopses
at Central Office:

30th June 2015 *

> Notification of
acceptance:

12th October 2015

> Receipt of full Papers
at Central Office:

15th February 2016

















3.5. Participation in CIGRE Study Committees (SC) / Working Groups (WG)

3.5.1. Representation in Study Committees.

Currently, Russia is represented in each of the 16 CIGRE Study Committees, and 8 Russian representatives have the status of Regular Member, and other 8 Russian representatives have the status of Observer Member. The corresponding decision was made at the meeting of CIGRE Executive Committee, [May 19-20, 2014, Charlotte](#) (USA).

The current list of members of all CIGRE Study Committees for the period from August 2014 to August 2016 is available [here](#).

[CIGRE RNC representatives list](#) has updated for 5 people. The first meetings of reshaped Study Committees took place under the 45-th CIGRE Session.

A1 Rotating Electrical Machines		C1 System Development and Economics		B2 Overhead Lines		C5 Electricity Markets and Regulation	
	Yuri Vinnitsky General Electric		Denis Pilenieks JSC "System Operator of United Power System"		Sergey Kolosov JSC "Electrosetstroy-proyekt"		Andrey Kataev JSC "System Operator of United Power System"
A2 Transformers		C2 System Operation and Control		B3 Substations		C6 Distribution Systems and Dispersed Generation	
	Vasily Larin Federal State Unitary Enterprise "All-Russian Electrotechnical Institute"		Vladimir Diachkov JSC "System Operator of United Power System"		Leonid Darian CJSC "Technical Inspection UES"		Pavel Chusovitin Ural Power Engineering Institute of Ural Federal University
A3 High Voltage Equipment		C3 System Environmental Performance		B4 HVDC and Power Electronics		D1 Materials and Emerging Test Techniques	
	Valery Ivanov Federal State Unitary Enterprise "All-Russian Electrotechnical Institute"		Igor Babkin LLC "High Voltage Engineering Center"		Angrey Gerasimov JSC "Scientific and Technical Center of United Power System"		Mikhail Yarmarkin St. Petersburg Energy Institute of Advanced Studies
B1 Insulated Cables		C4 System Technical Performance		B5 Relay Protection and Automation		D2 Information Systems and Telecommunication	
	Vladimir Ovsienko JSC "All-Russian Research and Development Institute for Cable Industry"		Yuri Kucherov JSC "System Operator of United Power System"		Goda Nudelman JSC "Russian Relay Engineering Research Institute"		Aleksey Danilin AlteroPower Consulting

Background information:

The list of CIGRE Study Committees members is updated every two years.

To nominate their candidates National Committees send proposals for Regular Members and Observer Members to CIGRE Secretary General at the end of each odd-numbered year. Upon review of the proposals, CIGRE Secretary General in cooperation with the heads of Study Committees and CIGRE Technical Committee Chairman

produces updated lists of Study Committees members and submit them for approval by CIGRE Steering Committee.

As a rule, the decision of extension of the term of office of current Study Committees members and new appointments is accepted by CIGRE Steering Committee at the first meeting of each even-numbered year.

The newly appointed members of Study Committees officially go about work at the first Study Committee meeting after their appointment. As a rule, this meeting is being held during the regular CIGRE session in Paris.

3.5.2. Representation in Working Groups

As of 03/01/2015 there are 34 CIGRE RNC representatives in 39 CIGRE Working Groups. Some representatives work in several groups, they are: Mikhail Yarmarkin (2), Andrey Podshivalin (3), Sergey Kolosov (3), Vladimir Shkaptsov (2), Maksim Nikandrov (2), and Aleksey Shevelev (2). Furthermore, 3 CIGRE RNC representatives participate in Study Committee A1 as experts: Fedor Polyakov (JSC "Elektroservis"), Mikhail Roitgarts ("Electrosila" plant, OJSC "Power Machines"), and Pavel Sokur (JSC "Scientific and Technical Center of United Power System").

A Full list of CIGRE RNC representatives in CIGRE Working Groups as of 01/03/2015 is available [here](#).

Reports which disclose information about the work are regularly published on the CIGRE RNC website, in particular:

- [JWG C4/C6.35/CIRED](#) (Stanislav Utz) – 2014 business report;
- [WG B4.64](#) (Natalia Lozinova) – 2014 business report;
- [WG B4/C1.65](#) (Olga Suslova) – 2014 business report;
- [WG C6.28](#) (Pavel Chusovitin) – A report on the activities of the Working Group in August - December 2014

3.6. Participation in international colloquia, symposia and conferences

As a rule, the bulk of international colloquia, symposia, conferences on CIGRE thematic areas is held in odd years at the premises of different countries national committees. During the session years the number of such events is limited because all attention is focused on the preparation and conduction of the session, which is the central event of CIGRE scientific and technical activity.

Intersessional CIGRE activities attended by Russian representatives in the reporting period

	Date, place	Activity	Report document
	09/09-13/2013, Brisbane, Australia	Joint Colloquium of SC B3 "Substations" and SC D1 "Materials and Emerging Test Techniques" and SC "Substations" B3 meeting	Report: PDF file  Author Leonid Darian
	09/14-20/2013, Auckland, New Zealand	International Symposium and CIGRE Study Committee B2 meeting: "Best Practice in Transmission and Distribution in a Changing Environment"	Report: PDF File  Author Vladimir Shkaptsov
	10/07-11/2013, Somerset West, Republic of South Africa	International Colloquium C1, C3, C5 under CIGRE 7th Southern Africa regional conference "Innovations and Good Practices to Support the Reliable, Efficient and Sustainable Supply of Electricity"	Report: PDF File  Author Elena Repina
	10/06-11/2013, Yokohama, Japan	International Colloquium C6 "Distribution Systems and Dispersed Generation"	Report: PDF File  Author Yuri Kucherov
	10/15-17/2014, Split, Croatia	3rd International Colloquium A2 "Transformer Research and Asset Management"	Report and proceedings: PDF Files  Author Leonid Darian
	05.12-14.2014, Lyon, France	International Colloquium C4 "Lightning and Power Systems",	Report and proceedings: PDF Files  Author Sergey Vorobyev

3.7. Representation in CIGRE Governing Bodies

3.7.1. Value of CIGRE RNC representation in CIGRE regulatory bodies.

CIGRE RNC provides a representation of the Russian professional electrical power engineering community in the following Governing Bodies of CIGRE:

- CIGRE Administrative Council
- CIGRE Steering Committee

The detailed information on CIGRE Governing Bodies is available on the website <http://www.cigre.org/What-is-CIGRE/Structure>.

Participation of CIGRE RNC representatives on a regular basis in CIGRE Governing Bodies gives the following benefits:

- It confirms the high prestige of Russia and its contribution to the development of international scientific and technical exchange in the field of electrical power engineering;
- It creates favorable conditions for the promotion of Russian interests in the preparation and adoption of CIGRE key decisions;
- It opens up additional opportunities for Russian scientists and organizations to access the recent developments in science, engineering, and technology of the global electrical power engineering sector.

Under current rules, the quota for the participation of representatives of national committees in CIGRE Governing Bodies is determined by the number of votes allocated for a particular national committee. The number of votes of the National Committee depends on the number of its members and categories of the members, according to which they pay membership fees.

According to these rules, CIGRE RNC with 469 voting members at 3/31/2015³ has a total of 623.5 votes:

Number	Membership category	Number of votes per member	Number of CIGRE RNC members	Number of votes
1	Collective members I	5	47	235
2	Collective members II	2.5	9	22.5
3	Individual members I	1	319	319
4	Individual members II	0.5	94	47
5	Students	0	0	0
Total:			469	623.5

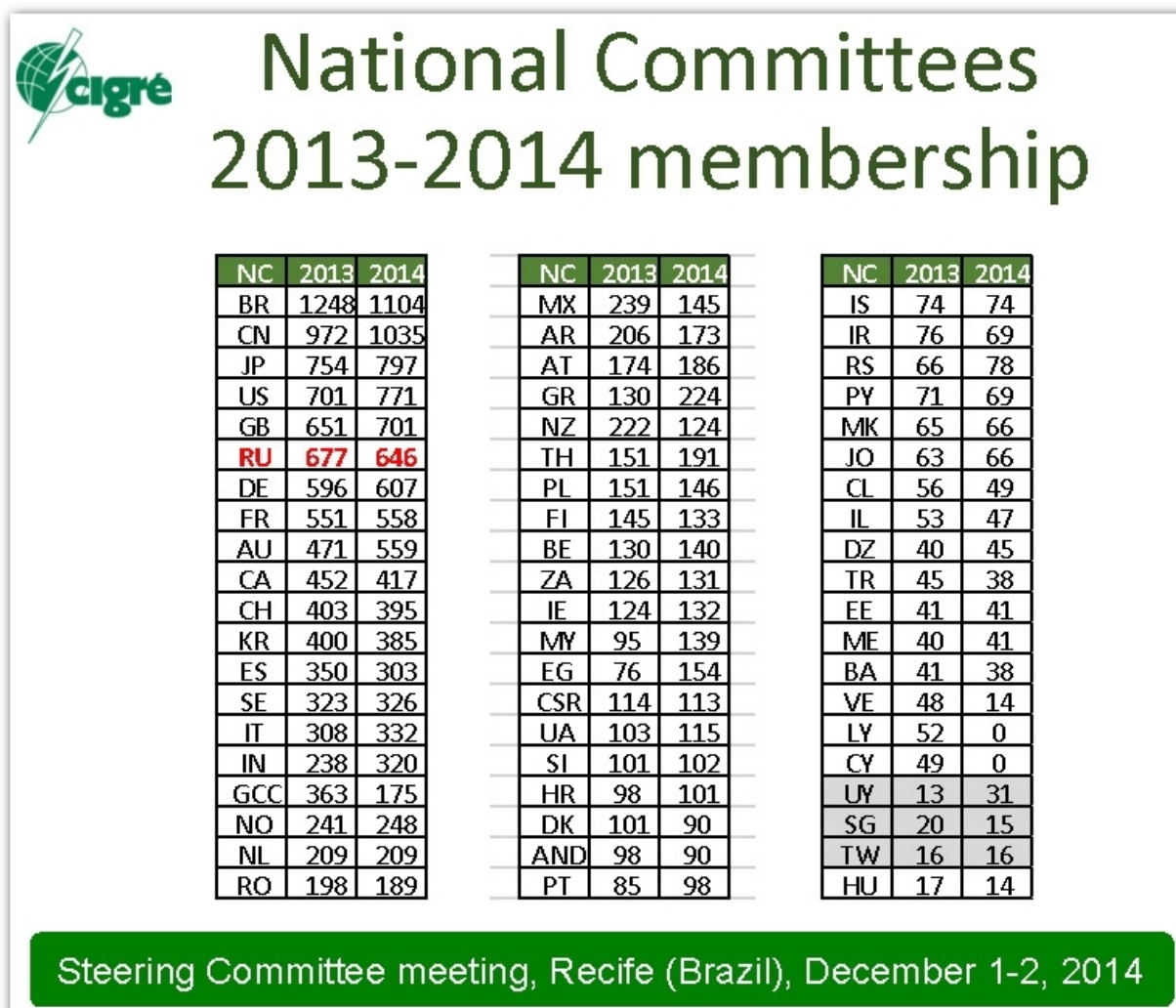
This indicator - 623.5 votes - is the key to identify the opportunities of CIGRE RNC representatives to enter CIGRE Governing Bodies. As of September

³ – At 03/31/2015 the total number of CIGRE RNC members was 476, of whom the following are not voting for CIGRE statistics:

- 2 collective members: Founders of the Partnership: The association "Elektrosistema" and non-profit partnership "Russian National Committee of World Energy Council" historically do not have CIGRE international membership numbers;
- 5 individual members who entered the Partnership in 2015 and look forward to international CIGRE numbers; after assigning the specified numbers the number of CIGRE RNC votes in CIGRE will increase to 628.5.

2014 the indicated figure was 646 votes, and as of 01/01/2015 it decreased due to the improvement of CIGRE RNC membership structure ([section 7.1 of the Report](#)).

At the meeting of CIGRE Steering Committee held in December 2014 in Recife, Brazil, the comparative data on the number of votes of national committees were presented. According to these data, CIGRE RNC boasts the 6th largest number of votes, after Brazil (1104), China (1035), Japan (797), USA (771) and the UK (701). After Russia, the most numerous are the national committees of Germany (607), France (558) and Australia (559).



Thus, to solve the problem for secure entry of Russian representatives in CIGRE Governing Bodies we should maintain a certain number of members and work to increase this number, giving priority to the development of collective membership providing the largest number of votes.

It should be noted that the maintenance of a certain number of CIGRE RNC members is also important to ensure that members of CIGRE RNC will have maximum quota of the number of reports submitted to the sessions and other regulated activities of CIGRE.

Slides from the presentation of CIGRE Secretary General Philip Adam at a meeting of the Steering Committee 12/01-02/2014 in Recife (Brazil) on the determination of quotas for the National Committees on the number of reports submitted to 46th CIGRE Session 2016.



3. Application of the rules for 2016

Minimum membership	Maximum number of papers	Number of NCs for 2014	Number of NCs for 2016	Change 2016/2014
300	10	14	15	7%
200	7	5	4	-20%
150	5	2	7	250%
100	3	12	11	-8%
80	2	6	3	-50%
40	1	18	13	-28%
Maximum number of proposals		753	795	6%

Steering Committee meeting, Recife (Brazil), December 1-2, 2014

Under current CIGRE rules maximum number of reports (10) at the session may be submitted by national committees with more than 300 members, these include CIGRE RNC; the national committees with more than 40 members may submit a minimum number of reports (1). Under these rules 753 reports were submitted to 2014 session. If we do not change the quota, 795 reports should be submitted to 2016 session, this owes to an increase in the size of national committees.



4. Possible changes (option 1)

Minimum membership	Maximum number of papers	Number of NCs for 2014	Number of NCs for 2016	Change 2016/2014
300	9	14	15	7%
200	7	5	4	-20%
150	5	2	7	250%
100	3	12	11	-8%
80	2	6	3	-50%
40	1	18	13	-28%
Maximum number of proposals		753	750	0%

Steering Committee meeting, Recife (Brazil), December 1-2, 2014

The increase in the number of reports makes it difficult for their full discussion in the standard terms of Sessions. It is advisable to review the quota of the number of reports submitted by the National Committees.

Option 1 – to reduce the maximum quota of reports for national committees with more than 300 members from 10 to nine.

In this case, 750 reports will be submitted to 2016 session, which corresponds to the level of 2014.



4. Possible changes (option 2)

Minimum membership	Maximum number of papers	Number of NCs for 2014	Number of NCs for 2016	Change 2016/2014
400	10	14	10	-29%
200	7	5	9	80%
150	5	2	7	250%
100	3	12	11	-8%
80	2	6	3	-50%
40	1	18	13	-28%
Maximum number of proposals		753	750	0%

Steering Committee meeting, Recife (Brazil), December 1-2, 2014

Option 2 – to keep the existing quotas, but to increase the requirements for the national committees that can provide the maximum number of reports (10), increasing the threshold of the required size from 300 to 400 members.

In this case, 750 reports will be submitted to 2016 session, which corresponds to the level of 2014.

According to the decision of the Steering Committee the second variant is preferred.

Thanks to such a high number of members (more than 400), CIGRE RNC has retained the right to submit to the 46th CIGRE session 2016 the maximum possible number of papers (10) made by Russian scientists and experts.

3.7.2. Representation in CIGRE Administrative Council

CIGRE Administrative Council is the highest Governing Body of CIGRE, providing overall management of the organization in the period between General Assemblies, which take place every two years as part of CIGRE sessions.

The basic rules of CIGRE Administrative Council work:

- CIGRE Administrative Council consists of the President of CIGRE, the representatives of each National Committee, The Chairman of the Technical Committee and The Treasurer;
- sessions are held once a year and decisions on all key issues of the CIGRE work are made then;
- during the voting representatives of the National Committees with more than 400 votes get Green Cards which are equivalent to three votes (maximum).

Under these rules, the representation of Russia in CIGRE Administrative Council is provided in any case, since Russia has its own National Committee – CIGRE RNC. Furthermore a representative of CIGRE RNC as member of CIGRE Administrative Council has the maximum possible number of votes granted to the national committees - 3 votes (Green Card), as CIGRE RNC has more than 400 votes in CIGRE.

Permanent Russian member of CIGRE Administrative Council since 1987 is professor Anatoly Dyakov, and at the 45th CIGRE Session 2014 his powers were extended for another term.

Dates and locations of meetings of CIGRE Administrative Council, nearest to the reporting period:

- October 2013 – [126th meeting, Kazan, Russia](#). The issues discussed and decisions taken:
 - creating a new group in CIGRE - Southeastern Europe (SEERC);
 - approval of requirements for the election of a new Secretary General and overseeing his or her activities;
 - financial strategies to ensure the proper level of financial reserves for the safe operation of CIGRE in the global financial crisis;
 - creation of a new National Committee - National Committee of Turkey;
 - new chairmen of Study Committees;
 - basic principles used in all official events of CIGRE to enforce antitrust laws compliance.



At a meeting of CIGRE Administrative Council, Paris, 08/24/2014

- August 2014 – 127th meeting, Paris, France (under 45th CIGRE Session). The issues discussed and decisions taken:
 - creation of a new membership category for students "Student member", giving registered students free access to all electronic documents and exemption from registration fees for CIGRE events;
 - free access for people without CIGRE membership to the majority of CIGRE Technical Library documents three years after their publication, contributing to the improvement of awareness of the results of CIGRE activities to a wider audience outside CIGRE;
 - new CIGRE magazine titled "[CIGRE Science & Engineering](#)".
- August 2015 – 128th meeting, Kuala Lumpur, Malaysia. Information on the agenda and the decisions will be submitted later.



CIGRE Administrative Council at the 45th CIGRE session, Paris, France, 08/24/2014. Professor Anatoly Dyakov is in the middle.

3.7.3. Representation in CIGRE Steering Committee

CIGRE Steering Committee is an advisory governance board, making recommendations on the decisions made by CIGRE Administrative Council. Meetings are usually held—at least once a year before the meetings of CIGRE Administrative Council. Before 2005 it was called CIGRE Executive Committee.

Steering Committee is formed from 15 people by the following rules:

- 3 members are included in the Committee owing to the election to CIGRE senior position: 3 seats for Officers elected (President, Treasurer, TC Chairman) representing their respective countries;
- 9 seats allocated to National Committees, grouped according to geographical area ("Europe", "Africa and the Middle East", "Asia and Oceania", "America"), and the quota for each group is determined by the total number of votes that these national committees have (according to CIGRE statistics) The basis for selection is membership numbers, and ensuring (through the 3+9 seats) representation of the 4 geographical zones acknowledged in the CIGRE statistics;
- Additionally, 3 seats are attributed through direct election by the Administrative Council. The relevant rule says: Three additional seats are attributed through direct election by the Administrative Council, among Administrative Council representatives who will have put forward their candidacy. The three candidates with the largest number of votes will be elected.



At a meeting of CIGRE Steering Committee, Charlotte (USA), 05/19-20/2014

As of the current date, the group "Europe" has 40 national committees, and, according to these rules, they are allocated a quota of 5 places for the election of CIGRE Steering Committee members. One of the seats is provided to Russia since by the number of votes, as shown in Table 3.7.1 of the Report, CIGRE RNC took the 2nd place in Europe after the UK National Committee.

Permanent Russian member of CIGRE Steering Committee since 1987 is professor Anatoly Dyakov, and at the 45th CIGRE Session 2014 his powers were extended for another term.

Dates and locations of meetings of CIGRE Steering Committee, nearest to the accounting period:

- September 24, 2013 – Kazan (Russia): Recommendations on issues discussed at the meeting of CIGRE Administrative Council 09/25/2013 were prepared;

- May 19-20, 2014 – Charlotte (USA): Preparations for the 45th session of CIGRE were discussed and new list of CIGRE Study Committees members for 2014-2016 was approved.
- December 01-02, 2014 – Recife (Brazil): Quotas for the submission of abstracts for the 46th session of CIGRE 2016 were discussed; in particular, it was defined that:
 - the maximum number of reports (10) may be submitted by national committees with more than 400 members, these include CIGRE RNC;
 - a minimum number of reports (1) may be submitted by the national committees with more than 40 members.
- May 27-28, 2015 – Lund (Sweden): meeting is held under the International Symposium «ACROSS BORDERS HVDC SYSTEMS AND MARKET INTEGRATION». Information on the agenda and the decisions will be submitted later.

3.8. Russian representatives who received CIGRE awards

To date, CIGRE RNC has not adopted regulations for the awards, distinctions and commendation (see inquiry on the matter at the end of this paragraph. In this regard, to encourage its members, CIGRE RNC Presidium uses only types of rewards (encouragements) specified by CIGRE rules.

Until 2014 CIGRE rules provided 4 types of rewards (encouragements) in recognition of its members contribution.

1. "CIGRE Medal".

Established in 2008. Individual members (one or two) are awarded every two years at the opening of CIGRE session as a sign of an outstanding contribution to the development of CIGRE. CIGRE Administrative Council nominate a candidate and they are approved by CIGRE Special Committee decision.



To date, this award honored a total of six people, including two in 2012: former CIGRE President Merlin André, France, and former Chairman of Study Committee C1 "System Development and Economics" Ray Colin, United Kingdom.

2. "Honorary Membership".

The status is provided by CIGRE Charter, and is assigned by the decision of the Administrative Council in the year of CIGRE session to the individual members, holding high positions in CIGRE Governing Bodies (Chairman of the Study Committee, a member of the Administrative Council, a member of the Steering Committee) as a sign of special recognition of exceptional services to CIGRE.

Over the entire period of CIGRE existence from 1921 to 2012 this award was handed out to 89 people, including one Russian representative - Boris Lebedev, who led the Committee on the participation of the USSR in international energy associations from 1959 to 1973.

Another 11 people were awarded at the 45th session of CIGRE 2014 including one Russian representative - Honorary Chairman of CIGRE RNC Anatoly Dyakov, who has represented Russia in CIGRE Administrative Council and Steering Committee (until 2005 - the Executive Committee) since 1987.

Thus, at present, the total number of awarded CIGRE members is 100, including two representatives of Russia.

Awarding the title "**Honorary**



CIGRE President Klaus Froehlich and Honorary Chairman of CIGRE RNC Anatoly Dyakov at the procedure of awarding the title of "Honorary Membership", Palais des Congrès, Paris, 08/24/2014

Membership" to Honorary Chairman of CIGRE RNC, the Chairman of CIGRE RNC Technical Activities Committee Anatoly Dyakov is a clear recognition of his work, as well as confirmation of the significant contribution of Russian National Committee to the activities of CIGRE.



The members who awarded the title of "Honorary Membership» in 2014, Paris, 08/24/2014

3. "Technical Committee Awards".

Established in 1993 to honor individual members for a special and significant contribution to the technical activities of CIGRE. Each year, one or two candidates are nominated for awarding by the chairmen of the Study Committees among the members of their Study Committees or Working Groups. The decision to award is confirmed by the Chairman of CIGRE Technical Activities Committee. Among Russian scientists this award was handed out to Nikolai Tikhodeev (HVDC Power Transmission Research Institute) in 1998.

4. "Distinguished Member".

The title was established in 1996 and is assigned to individual members for many years of cooperation with CIGRE technical activities or participation in the work of CIGRE National Committees. National Committees submit candidates every two years in the year of CIGRE session. The decision to award is confirmed by CIGRE President.

The title of "Distinguished Member" was awarded to 24 Russian representatives in the period from 1996 to 2013.

Russian representatives awarded the title of "Distinguished Member" in the period from 1996 to 2012.

Number	First name, Surname	Company	Year
1.	Lev Mamikonyants	All-Union Electric Power Research Institute	1996
2.	Nikolai Tikhodeev	HVDC Power Transmission Research Institute	1996
3.	Vyacheslav Ishkin	Central Dispatch Administration of the Unified Energy	1996

Number	First name, Surname	Company	Year
		System of Russia	
4.	Igor Glebov	All-Union Electric Machine Industry Research Institute	1998
5.	Andrey Lohanin	Federal State Unitary Enterprise "All-Russian Electrotechnical Institute"	1998
6.	Vladimir Semenov	Central Dispatch Administration of the Unified Energy System of Russia	1998
7.	Vladimir Khudyakov	Federal State Unitary Enterprise "All-Russian Electrotechnical Institute"	1998
8.	Anatoly Dyakov	Science and Engineering Board of United Energy System of Russia	2000
9.	Victor Kovalev	Federal State Unitary Enterprise "All-Russian Electrotechnical Institute"	2000
10.	Victor Nadtochy	All-Union Electric Power Research Institute	2000
11.	Vladimir Shkaptsov	Cable manufacturing plant Opten	2002
12.	Vladimir Stroyev	Moscow Power Engineering Institute	2002
13.	Yuri Vinnitsky	General Electric Russia	2002
14.	Georgy Alexandrov	Saint-Petersburg State Polytechnical University	2004
15.	Vladimir Miroslubov	JSC Engineering Center UES	2004
16.	Dmitry Savvaitov	All-Union Electric Power Research Institute	2004
17.	Aleksandr Bondarenko	JSC "System Operator of United Power System"	2010
18.	Aleksandr Drobyshevskiy	JSC "Scientific and Technical Center of United Power System"	2010
19.	Mikhail Shuvalov	JSC "All-Russian Research and Development Institute for Cable Industry"	2010
20.	Grigory Tsfasman	Federal State Unitary Enterprise "All-Russian Electrotechnical Institute"	2012
21.	Lev Koshcheev	HVDC Power Transmission Research Institute	2012
22.	Anatoly Panibratets	Federal State Unitary Enterprise "All-Russian Electrotechnical Institute"	2012
23.	Vladimir Varivodov	Federal State Unitary Enterprise "All-Russian Electrotechnical Institute"	2012
24.	Yuri Shakaryan	JSC "Scientific and Technical Center of United Power System"	2012

In January 2014 in accordance with the regulations and rules CIGRE Central Office sent National Committees a proposal to submit candidates to award the title "Distinguished Member" in 2014. The deadline for submitting the list of candidates and information about them has been set up to February 15, 2014.

Nomination of candidates is the exclusive right of CIGRE National Committees. The main criteria for the submission of candidates for the title are long-term (10 years or more) work experience in CIGRE and their activity in Study Committees, Working Groups, and National Committees.

The corresponding issue was considered at CIGRE RNC Presidium meeting (02/13/2014 protocol 1/6). The Presidium decided to promote the following members to the title of "Distinguished Member" in 2014:

Number	First name, Surname	Company, Official capacity	Reason
1	Yuri Kucherov, Doctor of Engineering Sciences, professor	JSC "System Operator of United Power System", Head of the Department of Technical Regulation	For long and productive collaboration with CIGRE, active involvement in Study Committees and Working Groups activities
2	Goda Nudelman, Candidate of Technical Sciences, professor	Russian Relay Engineering Research Institute, Chairman of the Board, First Deputy Director General - Director for Technology and Development, Chairman of the Scientific and Technical Council	For long and productive collaboration with CIGRE, a significant contribution to the work of CIGRE Russian National Committee

Nominations were confirmed by CIGRE Central Office, and in August 2014 as part of the 45th session of CIGRE it was officially announced that professor Yuri Kucherov and professor Goda Nudelman were awarded the title of "Distinguished Member". Awarding of the title "Distinguished Member» is the recognition of the merits of the recipients and increases the prestige of Russian scientists in the international professional community.



Two new items were added to a list of CIGRE awards in 2014. It is planned to conduct the selection and to submit CIGRE RNC candidates to award in 2015-2016.

5. Title "CIGRE Fellow Award".

It is awarded every two years. Not more than five awards for active participation in the technical work of the Study Committees and leading role in this

work (head of the Working Group, a member of the Study Committee or Working Group who made significant technical contributions).

6. "Thesis Award"

Awarded to students and postgraduates for the report prepared on the basis of their master's or candidate's dissertation research.

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Inquiry on the matter of the preparation of Regulation on awards, distinctions and commendations of CIGRE RNC

In accordance with Partnership Charter (paragraph 13.5), preparation and presentation to CIGRE RNC Presidium of regulations and proposals for the types of incentives, awards, prizes and titles for contribution and achievements in the development of electrical power engineering sphere and related industries, the criteria and procedures of awarding are the duty of CIGRE RNC Honorary Chairman.

In accordance with Partnership Charter (paragraph 10.4.9), approval of the regulations about the awards, distinctions and commendations is the responsibility of CIGRE RNC Presidium.

Based on the results of the General Meeting (6th Assembly) of CIGRE RNC 10/10/2013, among the major scheduled activities of the Partnership for 2014-2015 it was decided to develop and adopt the Regulation on the awards, distinctions and commendations in CIGRE RNC, which deals with the following:

- types of awards, distinctions, commendations;
- category of be awarded / encouraged persons and the reasons of rewarding;
- procedure for sponsors and third parties encouraging that support CIGRE RNC;
- distribution of awarding powers and responsibilities between the Partnership Governing Bodies.

The corresponding instructions are provided by the decision of CIGRE RNC Presidium (11/15/2013 Protocol 4, paragraph 1.2.7). At the moment the order is in the implementation stage.

4. Assistance in scientific and technical exchange in Russia

4.1. General remarks on scientific support of the industry

At present, the scientific support of Russian electrical power engineering sphere is characterized by the disappearance of large state research-and-development centers which existed in Soviet times, the tendency to a significant reduction in educational and scientific competence of specialized technical higher education institutions, as well as the lack of long-term programs to construct innovative equipment implemented with the financial support of the state, like in the USA, Japan, and the European Union, for example powerful gas and steam turbines with supercritical steam parameters, which are on the market today.

Russian electrical power engineering companies, including manufacturers of high-tech electrical equipment alone fix the current shortcomings of the system only partially because their own design offices, laboratories, experimental areas, and other scientific and technological divisions are focused on the development of technical solutions, models and industrial designs for a specific project but do not have the material, human, time and other resources to do fundamental theoretical research necessary for leading-edge and breakthrough innovative technologies.

In these circumstances, the need for high-tech electrical equipment in the Russian market is increasingly being met by foreign manufacturers and it is more and more difficult for national companies to maintain their leading positions in the global market, including the traditional cooperation in electrical power engineering sphere with such countries as Brazil, Egypt, India, China and others.

Since the reformation of RJSC "UES of Russia", major national electrical power engineering companies, primarily state-owned, are not only positioned as manufacturing units with their own design offices, laboratories and bench base for applied research, but also increasingly act as all-Russian centers of industry research and development. However, they have to face complex system-wide issues related to the creation, maintenance, lifecycle management, repair of generating and network equipment, technical functioning and prospective development of electrical power engineering systems and subsystems, market and information and communication technology infrastructure of electrical power engineering sphere, as well as many other issues which are the subject area of scientific and technical activity of CIGRE RNC.



4.2. Foundation and development of CIGRE RNC Study Committees activity

In order to coordinate and increase the efficiency of scientific and technical activity of CIGRE RNC members, to mobilize the available potential to meet the challenges of scientific support for the national electrical power engineering sector it was decided in April 2014 to found and develop CIGRE RNC Study Committee at the premises of leading Russian electrical power engineering companies in the corresponding spheres.

CIGRE RNC Study Committees are permanent collegial working bodies of the Partnership created by the Technical Activities Committee and placed under the responsibility of it, and are associations of individual and collective members of CIGRE RNC with common professional (scientific, information, engineering and manufacturing, research and other) interests of the thematic areas of CIGRE RNC.



Card of the scientific and technical work of CIGRE RNC. The role of Study Committees

Number	Bodies of CIGRE RNC	Areas and forms of CIGRE RNC work	
		International scientific and technical exchange	Scientific and technical exchange in Russia
1	Technical Activities Committee	CIGRE Sessions: Preparation, participation, work with materials*	<ul style="list-style-type: none"> – Connections in a professional electrical power engineering community* – CIGRE RNC Working Groups on topics affecting the subject area of two or more Study Committees*
2	Technical Activities Committee Study Committees	<ul style="list-style-type: none"> – Participation in CIGRE Study Committees (SC) / Working Groups (WG) – Participation in CIGRE events – Bilateral direct working contacts with foreign experts, universities, research centers 	<ul style="list-style-type: none"> – Carrying out activities of scientific and technical exchanges on the initiative of CIGRE RNC and supporting of activities initiated by other persons – Monitoring of events held without the participation of CIGRE RNC – Coordination and monitoring of individual scientific and technical activity of the members of the Partnership – Organization of the Partnership members work on individual jobs, assignments, orders of Study Committee – Development of Russian technical higher education institutions competences by placing orders for scientific research with the financial support of electrical power engineering benchmark companies. – Creation and organizing the activities of the CIGRE RNC Working Groups
3	Youth Section Steering Committee	Student exchange and internship in relevant foreign universities (according to co-operation programs of leading Russian universities)	CIGRE RNC Youth Section events (Charitable foundation «Reliable Rising Generation» is the organizer of the program) 

* CIGRE RNC Study Committees work on issues, materials, prepare Technical Activities Committee meetings, carry out tasks and instructions of Technical Activities Committee Chairman, organize and ensure the implementation of decisions taken by the Governing Bodies

The general rules of CIGRE RNC members' participation in scientific and technical activities of the Partnership are listed below:

1) members of CIGRE RNC participate in scientific and technical activities of the Partnership through Study Committees activities;

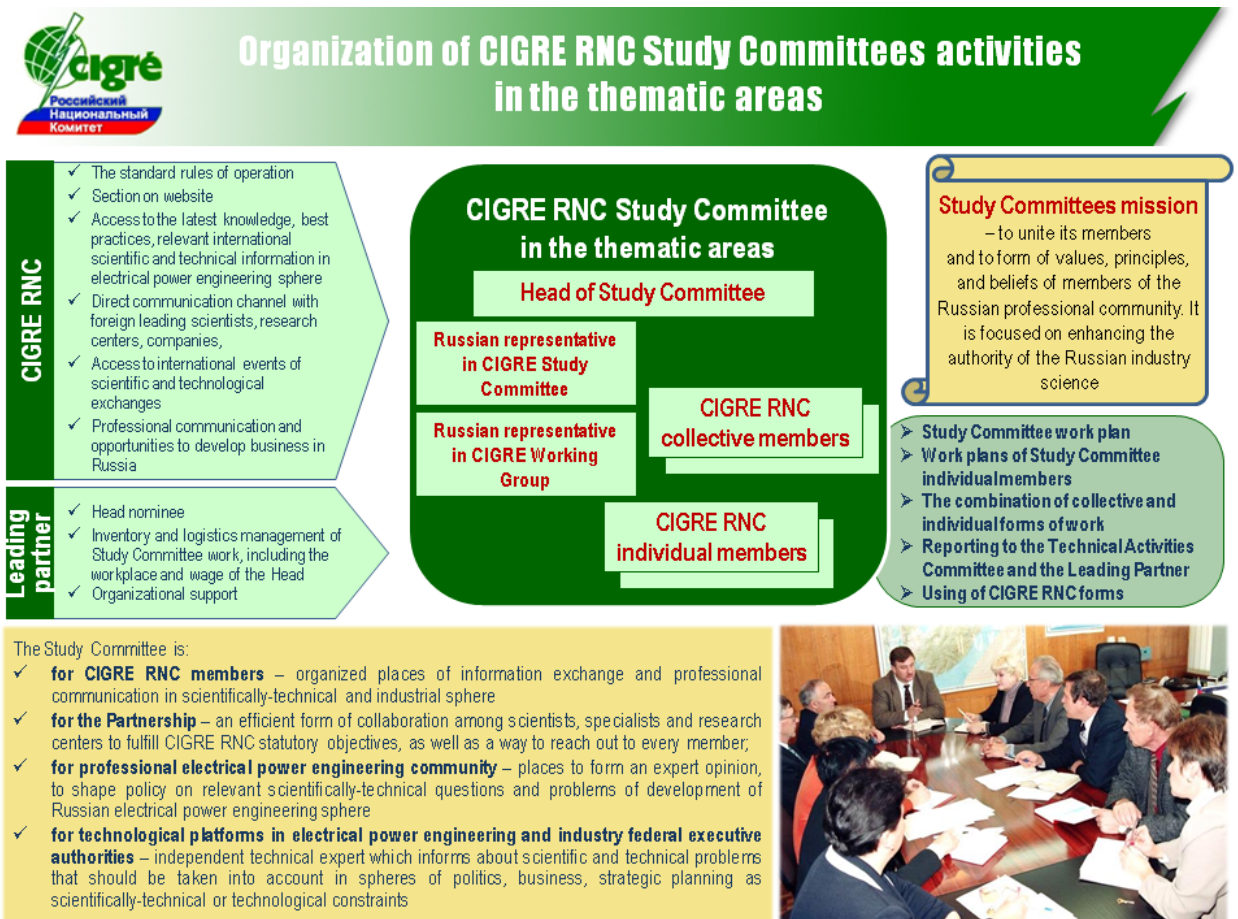
2) each member of CIGRE RNC chooses for themselves a Study Committee and participates in the scientific and technical activities of the Partnership

voluntarily, guided by their scientific, research, information, engineering and manufacturing and other professional interests;

3) participation in scientific and technical activities of the Partnership through the Study Committee supposes that a member of the Partnership:

- plans their scientific and technical activity in collaboration with the Study Committee, is involved in various activities, projects and/or conducts their own research and prepares publications;
- provides reporting information about their scientific and technical activities to the Study Committee and thus informs the professional community about their activity, results and achievements;

4) If there is no Study Committee on a particular thematic area in CIGRE RNC or it is temporarily not functioning, the interested member of CIGRE RNC participates in scientific and technical activities of the Partnership directly through Technical Activities Committee.



The general functions of Study Committees are:

- search in Russia for individuals and legal entities working under a specific area, their involvement in the activities of CIGRE Study Committee / Working Group, participation in CIGRE international events and events in Russia held by CIGRE RNC;
- assistance in scientific and technical exchange in a specified thematic area;
- participation in scientific and technical activities of CIGRE RNC in their thematic areas;

- ensuring the implementation by CIGRE RNC Governing Bodies of their powers in the areas of scientific and technical activities, and the organizational work with the members of the Partnership.

To ensure the activities of CIGRE RNC Study Committees in the thematic areas, an internal regulatory framework for the foundation of Study Committees was developed and approved by CIGRE RNC Presidium on April 25, 2014 (Protocol 3/8), which includes [Regulations on the organization of CIGRE RNC Study Committees activities in the thematic areas](#) with Annexes:

- 1 [Model regulations on CIGRE RNC Study Committee in the thematic area](#);
- 2 [Model agreement on granting the status of "Leading scientific and technical partner of CIGRE RNC"](#);
- 3 [Model Treaty to provide services for the foundation and activities organization of CIGRE RNC problem working group and disclosure of the results of its work](#) (set of documents);
- 4 [The shape of individual plans of cooperation](#) (for CIGRE RNC collective members);
- 5 [Logotype "Leading scientific and technical partner of CIGRE RNC"](#).

Information about CIGRE RNC Study Committees founded in 2014

Thematic area	Decision of foundation	Base organization, deadline	Supervisor	Contacts
B4 HVDC and Power Electronics	protocol 3, 05/29/2014	JSC "Scientific and Technical Center of United Power System" 05/30/2019	Olga Suslova, Candidate of Technical Sciences, Senior Research Scientist of DC department of HVDC Power Transmission Research Institute	Ph. +7 (812) 292-94-53, suslova@niipt.ru Aleksy Gerasimov, Deputy Director General of JSC "Scientific and Technical Center of United Power System" (HVDC Power Transmission Research Institute), ph. +7 (812) 292-94-65, gerasimov@ntcees.ru
D2 Information Systems and Telecommunication	protocol 4, 7/11/2014	CJSC "RTSoft", 6/30/2019	Olga Sinenko, Candidate of Technical Sciences, General Director of CJSC "RTSoft"	Ph. +7 (495) 967-15-05, ext. 22-55, sinenko_ov@rtsoft.msk.ru Andrey Verigo, Candidate of Technical Sciences, Chief of the automated systems of process management group, ph. +7 (495) 967-15-05, ext. 1407, verigo_ar@rtsoft.msk.ru
C6 Distribution Systems and Dispersed Generation	protocol 5, 8/21/2014	CJSC "Technical Inspection UES" 8/25/2019	Pavel Ilyushin, Candidate of Technical Sciences, Director of technical control and audit of CJSC "Technical Inspection UES";	Ph. +7 (499) 727-38-76, ext. 21-10, Ilyushin-PV@ti-ees.ru Dmitry Ivanovsky, Chief Specialist of the operative control of power facilities department of CJSC "Technical Inspection UES", ph. +7 (499) 727-38-76, ext. 20-82, Ivanovskiy-DA@ti-ees.ru

Thematic area	Decision of foundation	Base organization, deadline	Supervisor	Contacts
B5 Relay Protection and Automation	protocol 5, 8/21/2014	JSC "System Operator of United Power System" 8/25/2019	Andrey Zhukov, Candidate of Technical Sciences, Deputy Director of United Power System mode control of JSC "System Operator of United Power System"	Ph. +7 (495) 627-83-06, zhukov@so-ups.ru Anton Rasshcheplyaev, leading specialist of relay protection and automation service of JSC "System Operator of United Power System", ph. +7 (499) 788-15-38, air@so-ups.ru
C2 System Operation and Control	protocol 5, 8/21/2014	JSC "System Operator of United Power System" 8/25/2019	Vladimir Diachkov, Candidate of Technical Sciences, deputy chief regimes dispatcher of JSC "System Operator of United Power System"	Ph. +7 (495) 627-95-74, dyach@so-ups.ru Dmitry Atamankin, leading specialist of development and modernization of JSC "System Operator of United Power System", ph. +7 (499) 788-18-10, atamankin-dv@so-ups.ru

Study Committees are established and operate at the premises of organizations – collective members of CIGRE RNC with granting these organizations the status of "Leading scientific and technical partner of CIGRE RNC."



Reports which disclose information about the work are regularly published on the CIGRE RNC website:

- [B4 Study Committee plans and reports;](#)
- [B5 Study Committee plans and reports;](#)
- [C6 Study Committee plans and reports;](#)
- [D2 Study Committee plans and reports;](#)

4.3. Scientific and technical exchange in Russia, conducted by CIGRE RNC

CIGRE RNC is the initiator and organizer of scientific and technical exchange in Russia: conferences, seminars, round table discussions, joint meetings of research councils, working groups, open scientific debates and others. It contributes to the development of communications in Russian professional community on important scientifically-technical issues of functioning and development of the national electrical power engineering sphere.

The main feature of CIGRE RNC events is that they focus the attention of scientists, technologists, managers, investors, and experts on the scientific support of engineering and manufacturing activities of Russian electrical power engineering companies. The discussions deal with complex scientific and technical issues of functioning and development of the global and national electrical power engineering sphere, which must be known and taken into account in the investment policy, business, strategic planning, legal and technical regulation, production and project activities as scientific, technical or technological limitations.

The list of activities of scientific and technical exchange in Russia held by CIGRE RNC or with its participation and support in the reporting period

Thematic area	Activities / event details		Report materials
	Name	Dates and venue	
Part I. The scientific and technical activities under C6 thematic in Russia			
A1 – D2	4th International Youth Scientifically-Technical Conference " Youth Visioning for Electrical power industry "	October 14-18, 2013 at the premises of South-Russian State Polytechnic University (Novocherkassk)	Report materials are available on CIGRE RNC website in the section of the conference . Among them: 1) Public Information Notice; 2) Conference schedule; 3) Book of reports; 4) Collection of presentations; 5) Conference photos
C6	Regular meetings of the Open Scientific and Technical Seminar C6 " Problems of grid connection and operation of dispersed generation " at the premises of Department of Automated Electric Power Systems of Ural Power Engineering Institute of Ural Federal University	October 24, 2013, December 06, 2013, February 13, 2014, March 20, 2014, May 22, 2014, July 03, 2014, September 25, 2014, November 20, 2014, Yekaterinburg, The State Institute of Culture of Ural Federal University, room E-217	Report materials are available on Seminar website . Among them: 1) Report presentations; 2) Protocols of seminar meetings with Annexes; 3) Publications in magazines 4) Reports at conferences, seminars, forums, etc.
C6	C6 CIGRE RNC round table discussions " Integration of dispersed generation to Electrical Power Engineering System " under the forum "Russia Power	March 05, 2014, Moscow, Krasnopresnenskaya embankment, 14, Expocentre, Pavilion 8,	Report materials are available in section " General activities " of C6 Study Committee on CIGRE RNC website. Among them: 1) Call for papers;

Thematic area	Activities / event details		Report materials
	Name	Dates and venue	
	2014"	Conference Hall	2) Report presentations; 3) Final thesis 4) Public Information Notice; 5) Article in Electric Power Transmission and Distribution magazine, issue 3 (24), May-June 2014
B5	22nd All-Russian conference " Relay Protection and Automation for Electric Power Systems ", the organizers are JSC "System Operator of United Power System" and JSC "Federal Grid Company of the United Energy System"	May 27-29, 2014, Moscow, All-Russian Exhibition Centre, pavilion 55 "Electrification"	Book of reports, ISBN 978-5-9903581-4-0 // 649 pages, PDF file, 43.4 MB is available on CIGRE RNC website
B4	Meetings of the third section "Mode control, automation and the use of automatic control in electric networks" of Science and Engineering Board of JSC "Rosseti"	June 26, 2014, Moscow, Belovezhskaya street, 4, JSC "Rosseti"	Discussion of JSC "MOESK" report on "Limiting fault currents in the Moscow electric power system, including using DC links"
D2		December 11, 2014, Moscow, Belovezhskaya street, 4, JSC "Rosseti"	Report of CJSC "RTSoft" on "Normative cybersecurity".
A1 – D2	5th International Youth Scientifically-Technical Conference " Youth Visioning for Electrical power industry "	November 10-14, 2014, at the premises of National Research Tomsk Polytechnic University (Tomsk)	Report materials, including book of reports are available in PDF file (39.1 Mb) in special sections on CIGRE RNC and National Research Tomsk Polytechnic University websites.
D1	Research and practice conference: " The control of technical condition of electrical power engineering equipment " under international specialized exhibition "Electrical Networks of Russia - 2014"	December 02-05, 2014 Moscow, All-Russian Exhibition Centre, pavilion 75 "MosEXPO", CJSC "Electrical Networks"	Conference schedule
A1 – D2	Joint meeting of Russian Academy of Sciences Scientific Council on the problems of reliability and safety of large-scale electrical power systems, scientific-technical board of non-profit partnership "Science and Engineering Board of United Energy System of Russia" and CIGRE RNC Technical Activities Committee	December 10, 2014, Moscow, Vorontsov lane, 2, non-profit partnership "Science and Engineering Board of United Energy System of Russia"	Reports and presentations are available on CIGRE RNC website



Thematic area	Activities / event details		Report materials
	Name	Dates and venue	
B4	B4 Seminar at the premises of HVDC Power Transmission Research Institute "DC transmissions, FACTS and transformative equipment for improving the properties of the electric power system"	December 18, 2014, St. Petersburg, JSC "Scientific and Technical Center of United Power System"	Reports of participants are available on CIGRE RNC website
B3	The open scientific discussion B3 on "New design of open high power switch gears" (on article of M. Safyan)	March - December 2014 CIGRE RNC website	Materials are available in section B3 " CIGRE RNC open tribune "
C1	Publication of the results of weekly monitoring of events that have a significant impact on the operation and development of the world's electric power system	March 2014 – present, CIGRE RNC website	Monitoring data are provided by JSC "System Operator of United Power System" and published in Section C1 on CIGRE RNC website

4.4. Participation of CIGRE RNC Study Committees representatives with presentations in seminars, working groups, business meetings, technical forums, exhibitions and other events in Russia




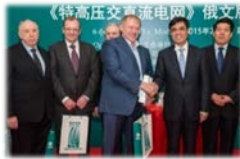
Along with activities initiated and conducted directly by CIGRE RNC or with its participation and support, the members of CIGRE RNC independently participate in the activities of scientific and technical exchange and industry professional communication, organized by the federal executive authorities, leading Russian electrical power engineering companies, industry research centers and others.

CIGRE RNC has a rule that the Partnership members who participated in some event write an overview or analysis report with attached proceedings. Such reports are published openly on the CIGRE RNC website.

The list of activities of scientific and technical exchange in Russia in the reporting period in which representatives of CIGRE RNC participated

Date, place // Organizers	Activity // CIGRE RNC participation	Report document
 09/22-24/2014, Village Tervolovo, Leningrad region // Training range of JSC Lenenergo	International Exhibition-Forum "Modern trends of the distribution grid complex" // Report "Energy storage system based on Li-Ion batteries"	Presentation ,  PDF file Author Yuri Kucherov

Date, place // Organizers	Activity // CIGRE RNC participation	Report document
 <p>КРЫМСКИЙ ЭНЕРГЕТИЧЕСКИЙ ФОРУМ</p>	<p>10/10/2014, Sevastopol, Crimea // Ministry of Energy of the Russian Federation</p>	<p>Crimean Power Industry Forum "Crimean Power Engineering. Renaissance and development." The offsite meeting of the Scientific Expert Council under the working group of Federation Council to monitor the practice of the Federal Law "Energy Saving" // Report "Analysis of national experience in the implementation of distributed generation, problems and solutions"</p> <p>Presentattion, PDF file </p> <p>Author Pavel Ilyushin</p>
 <p>RUGRIDS ELECTRO</p>	<p>10/15-17/2014, Moscow // JSC "Rosseti"</p>	<p>First International Electrical Power Engineering Forum «Rugrids-Electro-2014" // C6 CIGRE RNC round table discussions in conjunction with Rosstandart TC 016 "Development of regulatory and technical support of Electrical Power Engineering Industry"</p> <p>Presentation, PDF file </p> <p>Author Pavel Ilyushin</p>
 <p>УЧЕБНЫЙ ЦЕНТР НП «СОВЕТ РЫНКА» Автоматическая торговая организация</p>	<p>10/16/2014, Moscow // Market Council training center</p>	<p>Seminar for managers and specialists of PJSC SIBUR Holding // Report "The ability to ensure reliable power supply to consumers through the introduction of dispersed generation. Approaches to the assessment, performance analysis"</p> <p>Author Pavel Ilyushin</p>
	<p>11/7/2014, Moscow // Rosstandart</p>	<p>The meeting of Rosstandart TC 016 "Electrical Power Engineering" // Report "The creation of the Study Committee-5 "Distributed generation (including renewable energy)" on the basis of CJSC "Technical Inspection UES""</p> <p>Presentattion, PDF file </p> <p>Author Pavel Ilyushin</p>
 <p>ТР ЭК АВ</p>	<p>11/11-12/2014, Moscow // International Association «TRAVEK»</p>	<p>20th Conference "Intelligent Electrical Power Engineering, automation, high voltage controllable and switching equipment" //</p> <p>More than half of the reports at the conference were presented by members of CIGRE RNC</p> <p>Conference schedule</p>
	<p>11/20/2014, Moscow, Exhibition of Achievements of National Economy, pavilion 75 // Ministry of Energy of the Russian Federation</p>	<p>5th All-Russian personnel Conference of fuel and energy complex "The role of human capital and social policies in the energy strategy of Russia" // Ministry of Energy of the Russian Federation awarded a diploma for the successful implementation of the project "Youth section"</p> <p>Press release, 11/20/2014 is available on CIGRE RNC website</p>
 <p>MOSCOW ENES EXPO 2014</p>	<p>11/22/2014, Moscow, Gostiny Dvor //</p>	<p>3rd Forum on Energy Efficiency and Saving "ENES - 2014" // The winners of the Youth section participated in the meeting with the Minister of Energy Aleksandr Novak</p> <p>Press release is available on CIGRE RNC website</p>

Date, place // Organizers	Activity // CIGRE RNC participation	Report document
	<p>12/02-05/2014, Moscow, Exhibition of Achievements of National Economy // JSC "Federal Grid Company of the United Energy System"</p> <p>International specialized exhibition "Electrical Networks of Russia - 2014" // More than a third of reports at the conference were presented by members of CIGRE RNC</p> <p>Research and practice conference: "The control of technical condition of electrical power engineering equipment"</p>	<p>Conference schedule</p>
	<p>12/9/2014, Moscow // Design center of CJSC "RTSoft"</p> <p>Seminar and opening of laboratory "Internet of things" - the joint project of Intel and CJSC "RTSoft"</p>	<p>Press release, 1/30/2015 is available on CIGRE RNC website</p>
	<p>12/25/2014, Moscow // United Institute of High Temperatures of Russian Academy of Sciences</p> <p>Seminar "Basic and engineering problems of electrochemical power engineering" // Reports:</p> <ul style="list-style-type: none"> - Yuri Kucherov "Generalization of global trends of engineering and technology (based on the results of the 45th Session of CIGRE, the 78th Session of IEC 2014)"; - Pavel Ilyushin "Scientific and technical aspects of the integration of distributed generation in the United Power System of Russia" 	<p>Press release, 12/25/2015 is available on CIGRE RNC website, Study Committee B4</p>
	<p>2/6/2015, Moscow // Electric Power Transmission and Distribution magazine</p> <p>Presentation of the Russian edition of "AC and DC Electric Networks of ultra-high voltage" book, prepared in 2013 by specialists from the State Grid Corporation of China // Participation in translation</p>	<p>Press release 02/06/2015 on websites:</p> <ul style="list-style-type: none"> - Electric Power Transmission and Distribution magazine; - Study Committee B4 CIGRE RNC

5. Development of educational competences of Russian technical higher education institutions

Participation in the development and implementation of projects and programs for the preservation and development of educational and research capacity of relevant Russian technical higher education institutions is treated as an important area of CIGRE RNC activity.

The basic mechanism of this activity is the placement of orders for the development of educational competences of the Russian technical higher education institutions by performing scientific research on the subject and with the financial support of leading electrical power engineering companies. The corresponding internal regulatory framework was approved by CIGRE RNC Presidium decision at 01/25/2013, number 1 (available on CIGRE RNC website: [Regulations](#) with Annexes, [Presentation](#)).

Projects fulfilled during the reporting period

Number	Dates	Name of project	Participating higher education institutions
1	September 2013 – September 2014	<p>«Research into steady-state load characteristic»</p> <p>The formation of new research teams in higher education institutions to carry out research of steady-state load characteristic of industrial consumers and nodes of the complex load, affecting the mode of United Power System of Russia (under the order of JSC "System Operator of United Power System")</p>	<ol style="list-style-type: none"> 1) National Research Tomsk Polytechnic University (Tomsk) 2) Ivanovo State Power Engineering University (Ivanovo) 3) South-Russian State Polytechnic University (Novocherkassk) 4) Saint-Petersburg State Polytechnical University (St. Petersburg) 5) Samara State Technical University (Samara) 6) Ural Federal University (Yekaterinburg)
2	November 2013 – June 2014	<p>"Development of teaching materials for a special course <i>Underfrequency islanding system</i>"</p> <p>Development of teaching materials for discipline "Organization of the automatic limitation of frequency reducing in case of deficit of active power in United Power System of Russia. Underfrequency islanding system" for Masters degree of "Electrical Power Engineering and Electrical Engineering" (area 140400.68 (13.04.02)) (under the order of JSC "System Operator of United Power System")</p>	<ol style="list-style-type: none"> 1) Ural Federal University (Yekaterinburg) 2) National Research Tomsk Polytechnic University (Tomsk)

«Research into steady-state load characteristic»

In the period from September 2013 to September 2014 research projects "[Investigation of steady-state load characteristic of industrial consumers and nodes of the complex loads in 6 - 110 kV networks](#)" were organized for energy facilities in operational zones of the branches of JSC "System Operator of United Power System" Interregional Distribution Grid Companies of Siberia, North-West, Centre and South. The work was fulfilled under the order of JSC "System Operator of United Power System", the contract 09/16/2013, number 2996.

An organizational result of the research was that new research teams were created at the premises of National Research Tomsk Polytechnic University (Tomsk), Ivanovo State Power Engineering University (Ivanovo), South-Russian State Polytechnic University (Novocherkassk), Samara State Technical University (Samara). The teams were then recommended for further steady-state load characteristic research by the orders of the "System Operator";

Information about research teams is provided below.

1. National Research Tomsk Polytechnic University, Tomsk (Interregional Distribution Grid Companies of Siberia) Department of University – Energy Institute, Department of Electrical Networks and Electrical Engineering. Participants of the research team:

Number	First name, Surname	Scientific degree	Official capacity	Role	Contacts (ph., e-mail)
1.	Vladimir Polischuk	Candidate of Technical Sciences	Associate Professor of Electrical Networks and Electrical Engineering department	Leading scientist, team leader	+7 (3822) 56-37-63, +7 (913) 860-62-39, polischukvi@tpu.ru
2.	Natalia Batseva	Candidate of Technical Sciences	Associate Professor of Electrical Networks and Electrical Engineering department	Deputy team leader	+7 (961) 095-41-47, DAVEK-19K@yandex.ru
3.	Ilya Katz	Candidate of Technical Sciences	Associate Professor of Electrical Networks and Electrical Engineering department	Team member	+7 (905) 991-51-68 liay_katz@bk.ru
4.	Aleksey Pankratov	Candidate of Technical Sciences	Assistant of Electrical Networks and Electrical Engineering department	Team member	Pank@tpu.ru Ph. +7 (913) 858-24-32
5.	Galina Klimova	Candidate of Technical Sciences	Associate Professor of Industrial Power Supply department	Team member	gariki@tpu.ru

2. Samara State Technical University, Samara (Interregional Distribution Grid Companies of mid-Volga Region and North-West). Department of University – Electrical Power Engineering faculty, Electric Power Plants department
Participants of the research team:

Number	First name, Surname	Scientific degree	Official capacity	Role	Contacts (ph., e-mail)
1.	Aleksandr Vedernikov	Candidate of Technical Sciences	Dean of the Electric Power Engineering faculty, Head of Electric Power Plants department, Associate Professor	Head of the Expert Group - Chief expert	Ph. +7 (846) 278-44-93. vedernikovas@rambler.ru
2.	Anton Gudkov	Candidate of Technical Sciences	Associate Professor of Automated Electric Power Engineering Systems department	Deputy Head of the Expert Group	Ph. +7 (846) 278-44-96. gydkov_av@rambler.ru
3.	Valery Goldstein	Doctor of Engineering Sciences	Professor of Automated Electric Power Engineering Systems department	Expert	Ph. +7 (846) 278-44-96. vgg41@yandex.ru
4.	Evgeny Krotkov	Candidate of Technical Sciences	Associate Professor of Automated Electric Power Engineering Systems department	Expert	Ph. +7 (846) 278-44-96. krotkov@samgtu.ru
5.	Evgeny Shishkov		Assistant of Electric Power Plants department	Expert	Ph. +7 (846) 242-37-89. shishkov@smpt.ru
6.	Aleksey Dobrosotnikov		Senior lecturer of Electric Power Plants department	Assistant	Ph. +7 (846) 242-37-89. es@samgtu.ru
7.	Aleksandr Gneyshev		Senior lecturer of Electric Power Plants department	Assistant	Ph. +7 (846) 242-37-89. as-78@mail.ru
8.	Mikhail Skripachev		Senior lecturer of Electric Power Plants department	Assistant	Ph. +7 (846) 242-37-89. michael-ss@yandex.ru

3. Ivanovo State Power Engineering University, Ivanovo (Interregional Distribution Grid Companies of Centre). Department of University – Electric Systems department
Participants of the research team:

Number	First name, Surname	Scientific degree	Official capacity	Role	Contacts (ph., e-mail)
1.	Andrey Murzin	Candidate of Technical Sciences	Head of Electric Systems department, Associate Professor	Leading scientist, team leader	+7 (4932) 26-99-21, +7 (4932) 26-99-33, zav_es@es.ispu.ru
2.	Andrey Shulpin	Candidate of Technical Sciences	Associate Professor of Electric Systems department	Executive in charge	+7 (4932) 26-99-21,
3.	Olga Bushueva	Candidate of Technical Sciences	Professor of Electrical Systems department, Associate Professor	Academic adviser	+7 (4932) 26-99-21,

Number	First name, Surname	Scientific degree	Official capacity	Role	Contacts (ph., e-mail)
4.	Anatoly Kuleshov	Candidate of Technical Sciences	Associate Professor of Electric Systems department	Academic adviser	+7 (4932) 26-99-21,
5.	Sergey Baldov	-	Senior lecturer of Electric Power Plants department	Team member	+7 (4932) 26-99-21,
6.	Denis Polkoshnikov	-	Senior lecturer of Electric Power Plants department	Team member	+7 (4932) 26-99-21,
7.	Ilya Moskvina	-	Assistant of Electric Systems department	Team member	+7 (4932) 26-99-21,
8.	Julia Meshkova	-	Engineer of Electric Systems department	Team member	+7 (4932) 26-99-21,
9.	Ekaterina Ponomareva	-	Engineer of Electric Systems department	Team member	+7 (4932) 26-99-21,
10	Dmitry Kormilicyn	-	Engineer of Electric Systems department	Team member	+7 (4932) 26-99-21,
11	Sergey Litvinov	-	Engineer of Electric Systems department	Team member	+7 (4932) 26-99-21,

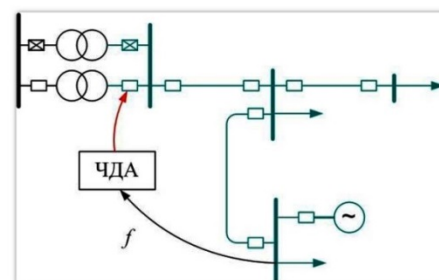
4. South-Russian State Polytechnic University, Novocherkassk (Interregional Distribution Grid Companies of South). Department of University – Power Engineering faculty, Electric Stations and Electric Power Systems department. Participants of the research team:

Number	First name, Surname	Scientific degree	Official capacity	Role	Contacts (ph., e-mail)
1.	Vladimir Nagai	Doctor of Engineering Sciences, Professor, International Energy Agency academician	Head of Electric Stations and Electric Power Systems department, Associate Professor	Leading scientist, team leader	+7 (8635) 255-211 +7 (8635) 251-568 nagai@novoch.ru
2.	Boris Zoloev	Candidate of Technical Sciences	Associate Professor of Electric Stations and Electric Power Systems department	Team member	+7 (8635) 255-211 zoloev@mail.ru
3.	Ivan Burakov	Candidate of Technical Sciences	Associate Professor of Electric Stations and Electric Power Systems department	Team member	+7 (8635) 255-611
4	Pavel Vasilyev	Candidate of Technical Sciences	Associate Professor of Electric Stations and Electric Power Systems department	Team member	+7 (8635) 255-611

Number	First name, Surname	Scientific degree	Official capacity	Role	Contacts (ph., e-mail)
5	Natalia Kalinina		Assistant of Electric Stations and Electric Power Systems department	Team member	+7 (8635) 255-211
6	Sergey Kostinsky		Assistant of Power Supply of Industrial Enterprises and Cities department	Team member	+7 (8635) 255-650
7	Vasily Kravchenko	Candidate of Technical Sciences	Associate Professor of Electric Stations and Electric Power Systems department	Team member	+7 (8635) 255-611
8	Aleksandr Morkhov	Candidate of Technical Sciences	Associate Professor of Power Supply of Industrial Enterprises and Cities department	Team member	+7 (8635) 255-650

"Development of teaching materials for a special course *Underfrequency islanding system*"

Teaching materials for the discipline "Organization of the automatic limitation of frequency reducing in case of deficit of active power in United Power System of Russia. Underfrequency islanding system" were developed in the period from November 2013 to June 2014. The materials are to be used in a course required for a Masters' degree in Electrical Engineering. The work was implemented under the order of JSC "System Operator of United Power System".





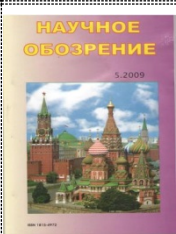



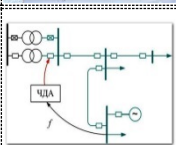

This discipline will be included in an MS-level program in Ural Federal University (Yekaterinburg), National Research Tomsk Polytechnic University (Tomsk), Samara State Technical University (Samara), South-Russian State Polytechnic University (Novocherkassk), and Ivanovo State Power Engineering University (Ivanovo) in 2015-2017. These universities implement specialized training programs for MS students in agreement with JSC "System Operator of United Power System". The discipline will also be included in MS-level programs in other leading Russian technical universities till 2020.

Teaching materials were developed by the Automated Electrical Systems department of Ural Power Engineering Institute of Ural Federal University (Yekaterinburg):

- Andrey Pazderin, Doctor of Engineering Sciences, Professor, Head of department;
- Valery Taschilin, engineer, postgraduate student;
- Pavel Chusovitin, Candidate of Technical Sciences, Associate Professor;
- Grigory Shabalin, engineer, postgraduate student.

The work was carried out in cooperation with representatives of Electrical Networks and Electrical Engineering department of National Research Tomsk Polytechnic University (Tomsk) and the production and processing units of the branch of JSC "System Operator of United Power System" Interregional Distribution Grid Companies of Urals who acted as experts.

Information about the new discipline is described in the following publications:

	<p>Development of teaching materials for discipline "Organization of the automatic limitation of frequency reducing. Underfrequency islanding system". // Proceedings of 5th International Youth Scientifically-Technical Conference "Youth Visioning for Electrical Power Industry", 11/10-14/2014, Tomsk.</p>	 924 KB
	<p>Calculation of frequency dynamic characteristics of the electric power system using generalized expressions. // Science Review. – 2014. – Issue 8. pp.604-612.</p>	 1,29 MB
	<p>Determination of the power system frequency response in case of active power deficiency. // New in Russian Electrical Power-Engineering. – 2014. – Issue 10. pp.5-17.</p>	 1,75 MB
	<p>Report presentation "Organization of the automatic limitation of frequency reducing. Underfrequency islanding system"./ Author - Pavel Chusovitin</p>	 1,05 MB

Urgency. Creating a new special course is aimed at providing a system of operational dispatch management of professional staff with the knowledge and skills related to using modern means and methods of automatic control and emergency modes control in electrical power engineering systems.

The problem is so urgent because at present the training of specialists in the field of automatic underfrequency protection in case of a deficit of active power is carried out only at workplace, directly within the system of operational dispatch management.

Results of analysis of MS programs in area 140400.68 "Electrical Power Engineering and Electrical Engineering" in all industry specific Russian technical higher education institutions in 2010-2013 showed absence of corresponding academic discipline. Also, the organization of automatic underfrequency protection is

not reflected properly in teaching materials on related disciplines included in the Master's program in the area 140400.68 (13.04.02) "Electrical Power Engineering and Electrical Engineering":

- "Automation of Electric Power Systems";
- "Automated Control Systems in Electric Power Systems";
- "Computer Technologies in Science and Production";
- "Special Issues of Electric Power Systems";
- "Reliability of Electric Power Systems" and others.

The developed new special course opens up the possibility in 2015-2017 and for the period up to 2020 to provide young professionals in Russian universities with solid knowledge, abilities and skills in the application of automatic underfrequency protection.

The innovative value of the performed work is the development of basic educational competencies of electric power engineering departments of Russian technical higher education institutions, and strengthening ties with strategic electrical power engineering companies.

6. Participation in the development and implementation of state youth policy in electrical power engineering industry, the formation of qualified workforce for leading companies

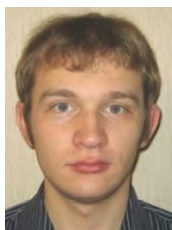
6.1. The program "CIGRE RNC Youth Section" implemented in 2013-2016 with the support of JSC "System Operator of United Power System"

The decision on the implementation of the program was adopted by the Board of Directors of JSC "System Operator of United Power System" on 06/25/2013 (protocol 142/4). Student contests on scientific and technical work (essays, reports, translations, etc.), competitions, quizzes, conferences and other activities are held in Russian leading technical universities aimed at identifying, supporting, and promoting educational activities of young people and their achievements in professional education, scientific and technical development and creativity.

The program has an international status, is supported by the Ministry of Energy and the Ministry of Education and Science of the Russian Federation and is being implemented in 12 leading Russian technical universities, which train bachelors and masters in electrical power engineering. Winners of events:

- are considered as candidates for further training in specialized master's programs, implemented by universities in collaboration with the leading electrical power engineering companies;
- are submitted to the heads of electrical power engineering companies to be put on a list of qualified workforce considered for future employment;
- receive support in educational, scientific and technical activities, assistance in the implementation of their innovative potential.

The Russian delegation at the 45th session of CIGRE, held on August 24-29, 2014 in Paris included 8 young CIGRE RNC representatives:



Pavel Bannih, postgraduate student of Automated Electrical Systems department of Ural Power Engineering Institute of Ural Federal University (Yekaterinburg)



Anna Sapunova, postgraduate student of Electric Systems department of Moscow Power Engineering Institute (Moscow)



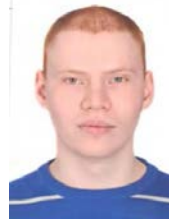
Julia Zaiganova, Master's student of Electrical Networks and Electrical Engineering department of Power Engineering Institute of National Research Tomsk Polytechnic University (Tomsk)



Timofey Shadrikov, postgraduate student of High Voltage Power Engineering, Electrical Engineering and Electrophysics department of Ivanovo State Power Engineering University (Ivanovo)



Anton Kudryavtsev, Master's student of Automated Electrical Systems department of Electrical Power Engineering faculty of Samara State Technical University (Samara)



Mikhail Khmelik, student of High-Voltage Engineering and Electrophysics department of Novosibirsk State Technical University (Novosibirsk)



Alla Logacheva, postgraduate student of Industrial Power Supply department of Kazan State Power Engineering University, engineer of SCADA system of LLC "TatAISEnergo" (Kazan)



Andrey Yablokov, postgraduate student and engineer of Electric Power Systems Automatic Control department of Ivanovo State Power Engineering University (Ivanovo)

All the young representatives of CIGRE RNC participated in the 45th CIGRE Session without paying the registration fee. This privilege was granted by CIGRE headquarters to Russia for the first time in recognition of the contribution of CIGRE RNC in the development of forms and methods of work with young people as well as encouragement of the activity of those who selected electrical power engineering sphere for their profession.

A Youth Forum under CIGRE Sessions was held for the first time, and representatives from 12 countries participated in it. The most numerous youth delegations were presented by Russia, Germany, United Kingdom, Australia, Japan, and Belgium.

Youth Program, presented by the Russian National Committee of CIGRE, was recognized as the most successful youth industry practice among others submitted by national committees of other countries.



CIGRE RNC youth delegation with CIGRE RNC Chairman Boris Ayuev, Palais des Congrès, Paris, 08/25/2014

The criteria by which Russian program was recognized as the best:

- selected forms and methods of work and their effectiveness;
- reliance on higher education institutions, cooperation with higher education teaching personnel of the basic departments, as well as cooperation with leading electrical power engineering companies and communication with industry research centers in order to form the personnel pool;
- the number of participants in the program;
- availability of strategy revealing the concept of activities and internal regulatory framework;
- organizational, administrative and methodological unity, the presence of symbols and other attributes that identify the program;

– nationwide scale, openness and accessibility of the program for young people who selected electrical power engineering sphere for their profession;

– integration into industry youth policy, combination with other youth projects, programs and initiatives;

– information and publishing activities, the disclosure of the program.



CIGRE RNC representatives at a meeting of youth associations leaders under CIGRE Sessions, Paris, 08/26/2014

Experience of CIGRE RNC Youth Section has drawn a considerable international interest, and since 2015 a number of national committees of other countries have adopted the forms and methods of work with youth proposed by Russia.



The Ministry of Energy of the Russian Federation awarded CIGRE RNC a diploma for the successful implementation of the project "Youth section", fruitful work in the development of the younger generation, the formation of industry youth policy and contribution to the human capital development of Russian fuel and energy complex on November 20, 2014. The ceremony took place under the 5th All-Russian personnel Conference on fuel and energy complex "The role of human capital and social policies in the energy strategy of Russia". CIGRE RNC Honorary Chairman

Anatoly Dyakov was awarded the diploma by the State Secretary - Deputy Minister of Energy of Russia Yuri Senturin.

It was noted that at that time the Youth section of CIGRE RNC was a unique program, which had no analogies in Russia in its effectiveness because it focuses on the development of personal professional skills of every young person. The program focuses on the identification, promotion, and support of educational activity of the youth and its achievements in scientific and technical development and creativity, to provide opportunities for young people to express themselves, to realize their innovative potential and to receive the recognition in Russia.



Reports on the activities of CIGRE RNC "Youth section" program are regularly published on the website of CIGRE RNC:

- [2013 report](#);
- [2014 report](#);

The program is developing successfully, as confirmed by statistics.

The dynamics of CIGRE RNC Youth Section development in 2013-2014.

Number	Program Development Indicators	2013	2014
1	The number of the events under the program	15	28
	including international ones	1	3
2	Number of participants - students, postgraduate students and young scientists	2,000	2,100
3	The number of awarded participants	193	304
4	The number of universities participated in events	20	29
5	The geographic areas of universities, participated in events	Russia, the Baltics and the CIS	Russia, the Baltics and the CIS, France, Germany
6	Number of teachers of basic departments who prepared and carried out events	40	46

6.2. CIGRE International Youth and Student communication

Along with the work with Russian technical universities, CIGRE RNC supports international youth contacts:

- continued participation in the CIGRE working group on the introduction of membership category «Student Members» (September 2013 - December 2014);
- continued participation in the regular meetings of heads of CIGRE youth organizations of Australia, Canada, the Netherlands, New Zealand, France, Germany, Russia, the United Kingdom and the United States;
- in collaboration with the Embassy of France [the scholarship programs of the Government of France](#) are launched in Russia for Russian students;
- in conjunction with National Research Tomsk Polytechnic University [international student exchange program](#) was continued in which Master's students of JSC "System Operator of United Power System" are taught in leading foreign universities;
- an agreement was reached on participation in student power engineering summits in Germany, Canada, France, in 2015. Russian students took part in the international student summit [PESS - 2015](#) in January 2015.



Young Member Stand World Map



Detailed information on international youth relations of CIGRE RNC is disclosed in [2014 report](#) on the activities of CIGRE RNC Youth section program.

6.3. Joint activities with the Fund "Reliable Rising Generation" and JSC "System Operator of United Power System"

CIGRE RNC is involved in the preparation and conduction of the following youth events on an annual basis:

- [Interregional Summer Educational Forum "Energy of youth"](#): the project is part of a unique training system for the electrical power engineering industry "school - college - enterprise", implemented since 2007 by fund "Reliable Rising Generation";
- [Russian Championship on solving engineering cases \(Electrical Power Engineering League\)](#): engineering and practice-oriented educational project realized by fund "Reliable Rising Generation" from 2013. The project aims are identifying and supporting the most promising students of the electrical power engineering profile, their professional orientation and practical training, as well as building a pool of qualified workforce for fuel and energy complex.

Detailed information on the events is disclosed in [2014 report](#) on the activities of CIGRE RNC Youth section program.



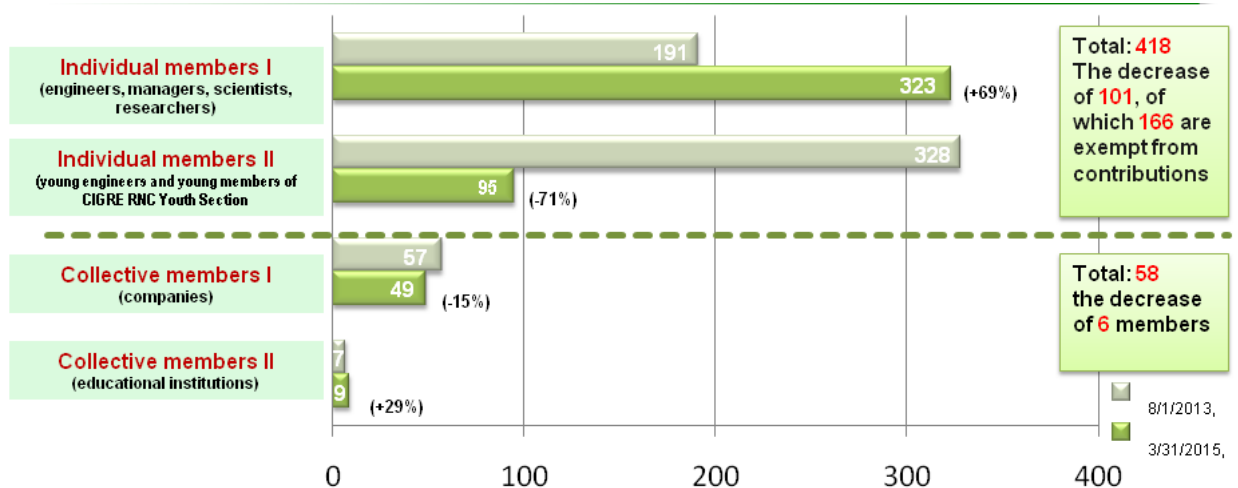
7. Intraorganizational work

7.1. CIGRE RNC membership

In the reporting period the balance of CIGRE RNC membership of different categories improved.

For comparison, we use data for the beginning of the reporting period, corresponding to 08/01/2013, and those for the end of the reporting period, taking into account updates on the list of members corresponding to 03/31/2015.

Changes in the structure of membership in CIGRE RNC from 08/01/2013 to 03/31/2015



This diagram represents a significant increase of membership in the category "Individual members I" and a significant decrease in the category "Individual Members II".

The Changes are due to the fact that 294 members were admitted to the Partnership in 2012-2013 through CIGRE RNC Youth Section and as of December 31, 2014 a period of privileged membership under the category "Individual Members II" (exemption from membership fees) ended.

Some of those exempt from the fee - 101 people, most of whom are winners of the events of CIGRE RNC Youth section - expressed their desire to continue their membership and transfer to the category "Individual members I", and this was a major factor in the growth of this category membership.

Another part of them - 193 people - voluntarily resigned from the Partnership in connection with the termination of the agreement for privileged membership.

The reduction in the membership in the "Individual members II" category was balanced by admitting new winners of CIGRE RNC Youth Section events in the period of 2013-2014 (76 people) at the end of 2014.

In the category "Collective members I" (Companies) during the reporting period some organizations voluntarily resigned from the Partnership and a number of organizations was excluded by a decision of CIGRE RNC Presidium due to an actual loss of contacts with the Partnership and the fact that they did not participate

in its activities. At the same time an intensive work on attraction of new electrical power engineering companies interested in cooperation with CIGRE RNC was done. As a result the quality of CIGRE RNC collective members was improved as confirmed by an increase in their activity in Study Committees work and events, as well as high membership fees payment discipline.

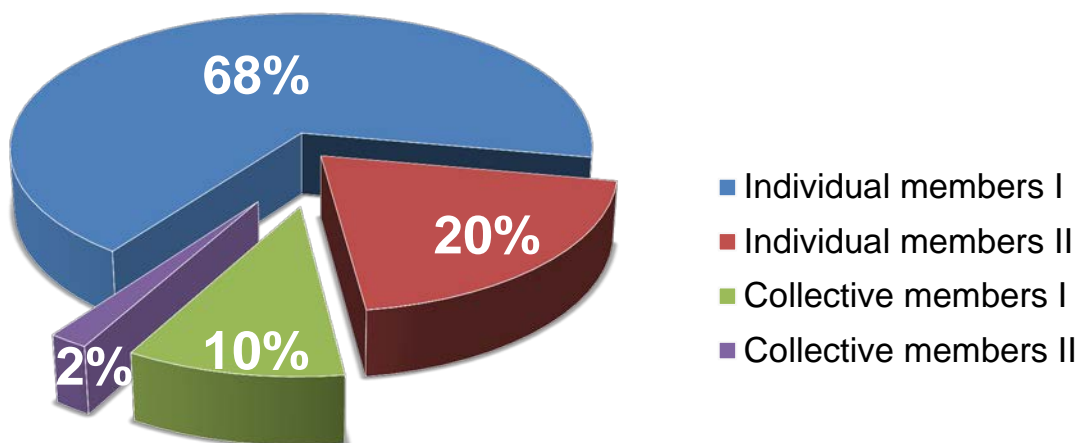
The category "Collective members II" (educational institutions) was supplemented by two leading Russian universities that train young specialists for electrical power engineering sphere - Samara State Technical University (Samara) and National Research Tomsk Polytechnic University (Tomsk). As a result CIGRE RNC is in the top three world leaders of CIGRE National Committees by the number of this category members.

Changes in CIGRE RNC membership categories in 2013-2014 have balanced the relation between members of different categories to the overall indices of the majority of CIGRE National Committees of other countries:

Selection scope \ Category	Individual members I	Individual members II	Collective members I	Collective members II
Worldwide, in 2013 (according to CIGRE statistics)	71%	16%	11%	2%
CIGRE RNC, 03/31/2015	68%	20%	10%	2%
For comparison:				
CIGRE RNC, 8/1/2013	33%	56%	10%	1%

The distribution of the CIGRE RNC membership categories as of 03/31/2015 can also be represented by the diagram below:

The current ratio of CIGRE RNC members



7.2. Re-issue of documents for CIGRE RNC membership

In accordance with the new edition of CIGRE RNC Charter, approved by CIGRE RNC General Meeting (6th Assembly) (10/10/2013 protocol 3/13), registered in the Ministry of Justice of the Russian Federation 01/11/2013, a work on re-issue of documents confirming CIGRE RNC membership in the reporting period was organized:

CIGRE RNC Presidium approved (04/25/2014 protocol 3/8) the new forms of the documents used for admitting of members, including model treaty for collective members;

CIGRE RNC Presidium approved (09/06/2014 protocol 4/9) forms of CIGRE RNC membership certificates;

in the period from July to October 2014 the Executive Office of the Partnership ensured renewal of contracts for CIGRE RNC membership and started to hand out new approved types of membership certificates.



7.3. Corporate governance

8 meetings of CIGRE RNC Presidium, and 8 meetings of the Technical Activities Committee were held and the necessary internal regulations were issued in the period from 2013 to 1st quarter of 2015.

Extracts from the protocols of CIGRE RNC Governing Bodies meetings are available on the website of the Partnership in the section "Documents": <http://www.cigre.ru/rnk/docs/>

7.4. Organizational and technical support

CIGRE RNC own server was put into trial operation on December 20, 2014 which provides:

- secure storage of materials of the Partnership on a network drive, located in Russia;
- increase of disk space to 3000 GB (previously - 1 GB);
- possibility of interleaving operation of users;
- regular backups and other advantages.

In the second quarter of 2015 the transfer of CIGRE RNC website (domain names cigre.ru and cigrэ.рф) to a new server and commissioning of a network storage device are scheduled.

8. Information and publishing activities.

8.1. Publishing activities

Bulletin of CIGRE RNC	
	<p>Issue 1</p> <p>Proceedings of report contest in CIGRE areas under 8th International Conference "Energiya-2013", April 23-25, 2013, Ivanovo State Power Engineering University (Ivanovo), circulation - 300 copies.</p> <p>http://www.cigre.ru/publications/701/</p>
	<p>Issue 2</p> <p>Proceedings of 1st International Youth Forum "Smart Grids", October 21-25, 2013, National Research Tomsk Polytechnic University (Tomsk). In 2 volumes, circulation - 300 copies.</p> <p>http://cigre.ru/publications/758/</p>
	<p>Issue 3</p> <p>Proceedings of report contest in CIGRE areas under 8th Open youth scientific and practical conference "Dispatching and management of electrical power engineering systems", November 28-29, 2013, Kazan State Power Engineering University (Kazan), circulation - 500 copies.</p> <p>http://www.cigre.ru/publications/763/</p>
	<p>Issue 4</p> <p>Proceedings of report contest in CIGRE areas under 9th International Conference "Energiya-2014", April 15-17, 2013, Ivanovo State Power Engineering University (Ivanovo), in 2 volumes, circulation - 300 copies.</p> <p>http://www.cigre.ru/publications/875/</p>
	<p>Issue 5</p> <p>Proceedings of the International Olympiad on Theoretical and General Electrical Engineering "Electrical Engineering - 2014", April 22-24, 2014, Ivanovo State Power Engineering University (Ivanovo), a special issue for the 45th session of CIGRE, in the English and Russian languages, circulation - 100 copies.</p> <p>http://www.cigre.ru/publications/876/</p>
	<p>Issue 6</p> <p>Proceedings of report contest in CIGRE areas under 9th Open youth scientific and practical conference "Dispatching and management of electrical power engineering systems", November 19-21, 2014, Kazan State Power Engineering University (Kazan), circulation - 100 copies.</p>

In addition to the publication "Bulletin of CIGRE RNC," the following publications are prepared and published with the support of CIGRE RNC in the reporting period:

	<p>Proceedings of 4th International Youth Scientifically-Technical Conference "Youth Visioning for Electrical Power Industry", October 14-18, 2013, South-Russian State Polytechnic University (Novocherkask), in 2 volumes, circulation - 300 copies. http://cigre.ru/rnk/youth/egm/egm_4/reports.php</p>
	<p>Proceedings of 2nd All-Russian School-Seminar of students, postgraduate students and young scientists "The commercialization of science and technology in electrical power engineering sphere", December 04-06, 2013, at the premises of healthcare center "Reshma" and Ivanovo State Power Engineering University (Ivanovo), circulation - 100 copies.</p>
	<p>Proceedings of 44th CIGRE session 2012 are published in "Energy abroad" journal (issues 1-2, 2014 supplement to the magazine "Energetic") in Russian</p>
	<p>The collection of competitive reports on electrical power engineering and electrical engineering topics under the 20th International scientifically-technical conference of students and postgraduate students "Radio Electronics, Electrical Engineering and Power Engineering" (Volume 4), February 27-28, 2014, Moscow Power Engineering Institute (Moscow), circulation - 370 copies.</p>
	<p>In conjunction with the magazine "Electric Power. Transmission and distribution" a special issue to the 45th session of CIGRE was prepared in the English language, July-August 2014.</p>
	<p>Proceedings of 5th International Youth Scientifically-Technical Conference "Youth Visioning for Electrical Power Industry", November 10-14, 2014, National Research Tomsk Polytechnic University (Tomsk), in 2 volumes, circulation - 70 copies. http://cigre.ru/rnk/youth/egm/egm_5/</p>
	<p>Proceedings of 45th CIGRE session, 2014 are published in "Energy abroad" journal (issues 1-2, 2015 supplement to the magazine "Energetic") in Russian language</p>

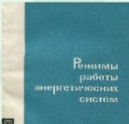






A new section "[Unique archive documents of CIGRE RNC](#)" was opened on the CIGRE RNC website on November 26, 2014. The collection contains rare and unique documents from the archives about the history of Russian participation in CIGRE since 1923, stages of formation and development of



the national electrical power engineering industry, activity of the Soviet National Committee of CIGRE in 1957-1992 and CIGRE RNC since 1993 to the present.

The Executive Office of CIGRE RNC expresses gratitude to CIGRE RNC collective and individual members, who provided the most interesting documents and materials from their archives for publication on the website.

Архив уникальных документов РНК СИГРЭ

	<p>1970 год. "Режимы работы энергетических систем. Переводы докладов XXIII сессии Международной конференции по большим электрическим системам (СИГРЭ), 1970". Под ред. В.А. Веникова. М., "Энергия", 1972 г. 184 с. с илл. Тираж - 6 000 экз. Экземпляр из частного архива А.В. Украинцева.</p>	 <p>Файл PDF 10,7 МБ</p>
	<p>1974 год. "Подстанции переменного тока. Международная конференция по большим электрическим системам (СИГРЭ-72)". Под ред. Ю.А. Якуба. М., "Энергия", 1974 г. 144 с. с илл. Тираж - 5 000 экз. Экземпляр из частного архива А.В. Гофмана.</p>	 <p>Файл PDF 36,5 МБ</p>
	<p>1986 год. Отчет о результатах командирования советских специалистов на 31-ю Сессию CIGRE, 25.08-06.09.1986, подготовлен СНК СИГРЭ в 1986 году. Из архива ВНИИЭ, на базе которого действовал Советский национальный комитет СИГРЭ. Экземпляр единственный, предоставлен ОАО "НТЦ ФСК ЕЭС".</p>	 <p>Файл PDF 24,2 МБ</p>
	<p>1987 год. Отчет о командировании советской делегации на заседание Административного совета СИГРЭ и региональную конференцию стран Латинской Америки, 07.06-21.06.1987 (Бразилия, Аргентина). Из архива ВНИИЭ, на базе которого действовал Советский национальный комитет СИГРЭ. Экземпляр единственный, предоставлен ОАО "НТЦ ФСК ЕЭС".</p>	 <p>Файл PDF 15,8 МБ</p>
	<p>2001 год. Отчет о результатах командирования специалистов России на 38-ю сессию CIGRE</p>	 <p>Файл PDF 44,0 МБ</p>

CIGRE RNC appeals to all interested parties with a request: If you have literature on the activities of CIGRE, published before 2002, or archival documents and materials related to the history and development of the national electrical power engineering industry, or have information about archives containing such documents and materials, please send such materials and information to the Executive Office of CIGRE RNC. We appreciate everybody for the respect for our history and common values, conservation of which is a common duty.

8.2. CIGRE RNC Media Partners

CIGRE RNC assists its members in the publication of articles and materials on thematic areas of CIGRE RNC in specialized industry magazines and journals. The most interesting articles are posted on the CIGRE RNC website in the "[Publications](#)" section.

Traditional cooperation with major media partners continued in the reporting period:

- Publishing house "Energoprogress" (journals "Energetic", "[Electric Stations](#)")
- LLC «Kabel» (journal "[Electric Power. Transmission and distribution](#)").

Cooperation with Industry Media:

- Newspaper "[Power Engineering and Industry of Russia](#)";
- Electronic Journal "[Digital Substation](#)": the latest technology in the area of secondary systems of electric power facilities;

- Business magazine "[Energopolis](#)" about Russian electrical power engineering sphere;
- [Internet portal RusCable.Ru](#) – a project of the media holding "RusKabel."

8.3. CIGRE RNC website

Trouble-free functioning of the official website of CIGRE RNC www.cigre.ru was ensured during the reporting period.

Both the design and structure were improved, relevant materials and information posting was organized.

Information about all important events of the Partnership is regularly published on the main page in the section "CIGRE RNC News".

Web pages of founded CIGRE RNC Study Committees B4, C6, D2, B5 were created on a step-by-step basis in the period from June to November 2014. Now they are being filled with content.



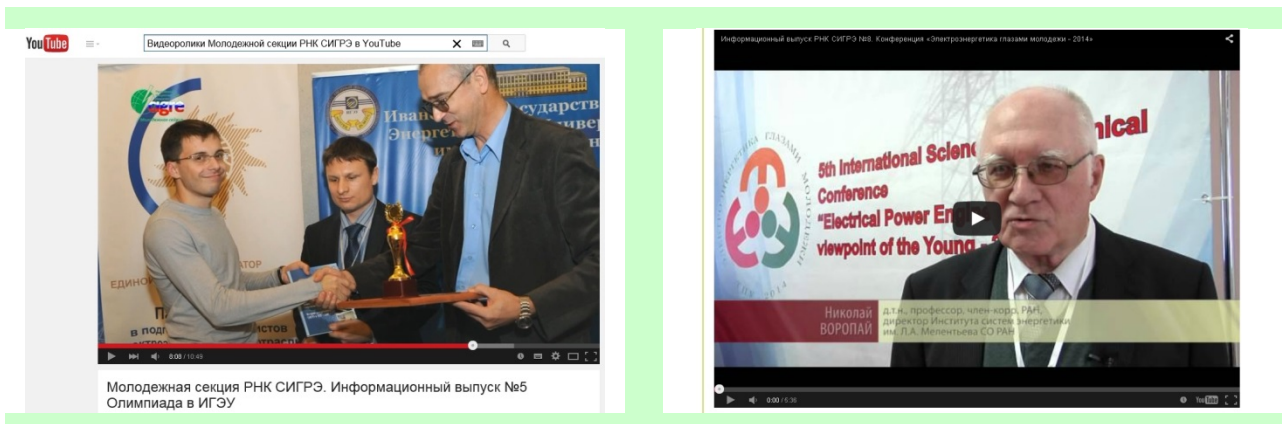
Special sections on the most important events were created such as:

- preparation and participation of the Russian delegation in the [45th CIGRE Session](#);
- [Open seminar based on 45th CIGRE session proceedings](#), March 30, 2015, at the premises of JSC "System Operator of United Power System", Moscow;
- [5th International scientifically-technical conference](#) "Actual trends in development of Power System Relay Protection and Automation", June 01-05, 2015, Sochi;
- Regular meetings of the Open Scientific and Technical Seminar C6 "[Problems of grid connection and operation of dispersed generation](#)" at the premises of the Department of Automated Electric Power Systems of Ural Power Engineering Institute of Ural Federal University, Yekaterinburg

8.4. Other publishing activities

The practice of creating videos and video reports on the activities of CIGRE RNC Youth section was continued:

- [Information issue 5](#), January 2014
International Student Competition in Ivanovo State Power Engineering University, Ivanovo, November 12-14, 2013
- [Information issue 6](#), April 2014
Quiz "Do you know the history of electrical power engineering industry?" , Ivanovo State Power Engineering University, Ivanovo, February 26, 2014
- [Video report](#) of 2nd International student competition on theoretical and general electrical engineering, Ivanovo State Power Engineering University, Ivanovo, April 22-24, 2014
- [Youth Section of the CIGRE RNC](#) . Informational Series. Part 2. Special issue in English for the 45th CIGRE session, April 2014
- [Information issue 7](#), June 2014
All-Russian Student Competition "Electrical Power Systems - 2014", National Research Tomsk Polytechnic University, Tomsk, Russia, May 21-25, 2014
- [Information issue 8](#), November 2014
5th International Youth Scientifically-Technical Conference "Youth Visioning for Electrical Power Industry", National Research Tomsk Polytechnic University, Tomsk, November 10-14, 2014.
- [Video report on awarding the winners of](#) 9th Open youth scientific and practical conference "Dispatching and management of electrical power engineering systems", Kazan State Power Engineering University, Kazan, November 19-21, 2014.



9. Major results in the reporting period

- 1) Access to CIGRE knowledge in Russia was expanded.

More active publishing activity of CIGRE RNC members on the results of participation in projects and independent research. CIGRE RNC members prepare and publish reports on their participation in international events, as well as perform translations of the most interesting materials. All the information is in open access and is available on the CIGRE RNC website and printed publications.

- 2) Conferences, seminars, round-table discussions on thematic areas are being organized, and other forms of communications in Russian professional community are being developed.

CIGRE RNC is strengthening its authority in Russian professional electrical power engineering community and begins to play ever-prominent part. CIGRE RNC representatives are invited to report on all relevant industry forums organized by federal executive authorities and leading electrical power engineering companies, to act as experts and engage in scientifically-technical agencies (councils, collegia, etc.) activities. It is now possible to found a unique business communication center at the premises of CIGRE RNC.

- 3) Internal mechanisms and all the necessary conditions for the successful completion of a CIGRE RNC mission in Russian professional electrical power engineering community in 2015-2020 are created.

Five Study Committees were founded on thematic areas under the guidance of CIGRE RNC Technical Activities Committee. The status of "Leading scientific and technical partner of CIGRE RNC" was granted to basic organizations.

- 4) The contribution of CIGRE RNC to the formation of industry youth policy and preparation of qualified workforce was marked at the level of federal executive authorities.

State Secretary - Deputy Minister of Energy of Russia Yuri Senturin awarded CIGRE RNC a diploma for the successful implementation of the project "Youth section", fruitful work in the development of the younger generation, the formation of the youth policy in industry and contribution to the human capital development of the Russian fuel and energy sector at the 5th All-Russian personnel Conference on fuel and energy complex "The role of human capital and social policies in the energy strategy of Russia", November 20, 2014.

- 5) CIGRE RNC representation in CIGRE regulatory bodies was preserved.

Russia preserved membership in the CIGRE Administrative Council and Steering Committee (Anatoly Dyakov). CIGRE RNC has the 6th largest number of votes, after Brazil, China, Japan, the USA and the UK. A certain number of CIGRE RNC members is maintained, and the work to increase this number to ensure a guaranteed entry of a Russian representative to CIGRE Governing Bodies in future is managed.