

NONPROFIT PARTNERSHIP “SCIENTIFIC AND TECHNICAL COUNCIL OF UNIFIED ENERGY SYSTEM” (NP “STC UPS”)



The nonprofit partnership “Scientific and Technical Center of Unified Energy System” (hereinafter “Partnership”) is a suc-

cessor of the Scientific and Technical Council of RAO “UES of Russia”, as it came to existence as a result of the RAO “UES of Russia” restructuring.

The Scientific and Technical Council is the key body in analyzing the most essential power industry’s projects and objectives and coming up with relevant decisions. The Council has been in operation for over 70 years, since 1943.

The Council’s work has been present on all of the development stages of Russia’s energy industry, including the WWII, the postwar recovery, development of hydroelectric power, development of AC/DC power grids, creation of the USSR Unified Energy System (hereinafter UES), gradual move towards high and supercritical steam-parameters in the heat power industry, and in the last years – adoption of the modern gas-turbine and steam-gas technologies, and much more.

In the last 10 years, more than 500 important power engineering projects were reviewed and given recommendations.

The Partnership’s main objective is to assist its members in creating scien-

tifically grounded policies concerning the Unified energy system of Russia.

The partnership is involved in reviewing and making decisions on the most crucial issues regarding operation of UES and its subjects; inspecting various projects and works; analytics; UES development concepts and strategies; new equipment and technologies; key industry trends; R&D; technical regulation and standardization, publishing and more.

Partnership also contributes to the following areas: institutional issues of the power industry, general principles of UES operation and its legislative and normative technical framework, electric-power systems, heat power industry, hydropower industry, nuclear power industry, renewable and unconventional energy, power grids, district heating, centralization of control, automatic dispatcher control systems, power-system protection, automated process management systems, telemechanics and communications

within the UES, automated electricity metering and consumption control, geospatial technologies, environmental and energy-preservation issues, construction and assemblage technologies, fuel cells, etc.

The Partnership’s objectives include:

- organizing and conducting plenary and breakout sessions of the Scientific and Technical Council in order to review the most pressing scientific and technical issues regarding the work of the Partnership’s members as well as the UES in general;
- conducting analysis and developing general strategy for managing and developing UES in the context of Russia’s market economy;
- policymaking for both UES and its subjects regarding the restructuring and technical-and-economic transformations within the energy industry, improve-

DAN EXCERPT FROM THE 2014 “STC UES” SCIENTIFIC AND TECHNICAL BOARD ACTIVITY PLAN

Section on strategies for ensuring development, reliability and security in power industry (together with the section on technical regulations in the power industry)

| Title | Performed by | Advised by | Date and place |
|---|--|---|---|
| “Requirements towards security and reliability of energy systems”, results of a public debate on a government standards project | “SO UES” OJSC, Krzhizhanovsky Power Engineering Institute, “Energosetproject Institute” OJSC | Melentiev Energy Systems Institute Siberian Branch of The Russian Academy of Sciences | 4 th quarter, “Melentiev Energy Systems Institute” |

Section on thermal power plants

Subsection on thermal and mechanical equipment.

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|--|------------------|------------------------|-----------------------|
| Issues of maintaining house load of CCGT 450 when disconnected from the grid | “Energokor” OJSC | “Interavtomatika” CJSC | September, “VTI” OJSC |
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Section on Hydropower Plants and hydraulic engineering structures (together with the Scientific and Technical Cooperation Council of “RusHydro” OJSC)

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|---|------------------|-----------------|--|
| Results of developing project documents on a comprehensive reconstruction and renovation of the #2 in the series of Kuban Hydroelectric Power plants. | “Energokor” OJSC | “RusHydro” OJSC | 3 rd quarter, “RusHydro” OJSC |
|---|------------------|-----------------|--|

- developing normative and technical documents and providing legislative and regulatory support for the operation of UES and of its elements;
- analyzing and contributing to the investment policies of the UES and its subjects. Increasing the energy production efficiency, stimulating technical progress, implementing the latest domestic as well as foreign innovations in science and technology;
- rational deployment and development of power facilities in Russia;
- economically justified, mutually beneficial use of fuel and hydropower resources based on a regional and interstate cooperation; effective use of power resources in the energy industry, in manufacturing and for the needs of the population;
- developing Unified energy system in Russia, with economically justified deployment of effective power resources and with the use of various types of energy transportation;
- finding a balance between market- and state regulation of the energy industry; technical re-equipment of the energy facilities with the goal of improving production, economic and environmental aspects of their operations;
- reviewing and assessing draft regulations, national standards, company standards, sets of rules and other documents in order to provide legislative support for the UES operation;
- reviewing and assessing draft specifications and technical documentation for designing, building and operating energy facilities as well as decommissioning and waste management;
- reviewing technical proposals and draft projects of new technologies and equipment for the energy sector;
- implementing modern techniques and tools allowing for automated control of technology processes and facilities in the energy sector;
- improving the technology of building and repair, construction and repair industry in the energy industry;
- effective, economically acceptable solutions for minimizing environmental effects of the energy facilities by implementing clean

INFORMATION

LIST OF SECTIONS AND SUBSECTIONS:

- Strategies for ensuring development, reliability and security in power industry.
- Thermal power plants (with subsections on thermal and mechanical equipment, water treatment and water-chemistry conditions).
- Hydropower Plants and hydraulic engineering structures.
- Maintenance and technical re-equipment of power grids.
- Electrical facilities.
- Power sector economics.
- Managing conditions of energy systems; Power system protection.
- Information technologies.
- Automated process control systems.
- Automated electric power metering and power management.
- Issues of reliability and effectiveness of protection relay and automated system management tools in the UES of Russia.
- Energy efficiency and environmental concerns in power industry.
- Small-scale and non-traditional generation.
- Construction and assemblage techniques.

technologies and integrated use of the production waste for the benefit of the economy;

- developing energy production techniques involving the use of unconventional and renewable energy sources, while determining the acceptable proportions of the renewable energy use;
- comprehensive use of the hydroelectric power potential to produce electricity for the benefit of the population, the regions' economy and the whole country;
- assessing justifications for the UES members to take part in international and regional projects; reviewing questions of developing external electric connections and operating in parallel with energy systems of CIS and other countries; managing cooperation with international energy companies;
- reviewing propositions by research and design institutes, Partnership members and other organizations, on giving government and other awards for conducting research and implementing projects of industry-wide importance for effective development and operation of the fuel and energy complex;
- organizing and conducting technical audits upon requests of UES members;
- reviewing draft projects of constructing new and re-equipping the existing energy facilities and connecting them to the UES;
- examining power-engineering aspect of

draft projects aimed at constructing new and re-equipping the existing energy-consuming facilities in manufacturing, agriculture, transportation and social area;

- conducting analysis and providing recommendations regarding the overall reliability and the reliability of power supplies to the electricity consumers in the provinces and in the Russia's UES in general;
- conducting analysis and providing recommendations regarding the efficiency of fuel use in the thermal power production, heating supply and consumers' power appliances;
- conducting analysis and providing recommendations on reducing energy and power loss in the consumers' backbone and distribution power grids;
- conducting analysis and providing recommendations on reducing energy industry's environmental impact in the regions and throughout Russia's UES in general;
- conducting analysis and providing recommendations regarding energy conservation in Russia's provinces;
- conducting analysis of domestic and foreign advancements in creating new power-sector equipment and technologies and developing recommendation on adopting them in Russia;
- taking part in developing concepts, strategies and programmes of long-term development of energy industry in Russia together

INFORMATION

BASED ON THE DECISION BY THE PARTNERSHIP'S SUPERVISORY BOARD AND SUCCESSFUL PAYMENT OF THE MEMBERSHIP FEE, THE PARTNERSHIP NOW INCLUDES THE FOLLOWING 23 MEMBERS:

- with the "Energy Forecasting Agency", CJSC and other organizations; conducting research of Russia's energy industry's general questions and issues together with the Russian Academy of Sciences;
- conducting joint energy research of regional and global importance together with international energy companies;
- developing and managing data bases on domestic and foreign research in the area of power engineering including the accompanying expert opinions and recommendations;
- preparing and publishing materials regarding Scientific and Technical Council's work in periodicals; publishing the Council's works and proceedings;
- creating the operating plan for UES's Scientific and Technical Council as well as its sections and regional offices.

Among the Council's members are Russia's leading power engineers, distinguished specialists who are well-known and respected both in Russia and abroad; that includes globally renowned members of Russian Academy of Science.

The Scientific and Technical Panel consists of 14 sections with subsections dedicated to specific topics, covering the whole range of issues regarding operational and developmental aspects of power industry. Over 730 highly qualified power engineers are involved in the sections' work.

Foundation meeting of the "STC UES" Partnership was held on May 20th, 2008

in Moscow. A corresponding member of the Russian Academy of Sciences, Anatoly Dyakov, Doctor of Engineering was appointed as its President.

During the Partnership's Annual General Meeting on June 14th, 2013, the following members were elected to the Supervisory Board:

- **Sergei Shmatko**, Chairman of the Board of Directors of "Rosseti" OJSC (Chairman of the Supervisory Board);
- **Sergey Arkhipov**, Deputy Director General – Technical Director of "Rosseti" OJSC;
- **Vladimir Asmolov**, First Deputy General Director, "Rosenergoatom" OJSC;
- **Roman Berdnikov**, First Deputy General Director of "Rosseti" OJSC;
- **Anatoly Dyakov**, president of "STC UES" Partnership-Chairman of Scientific and Technical board;
- **Andrey Zenzin**, General Director, "Eurocontract", LLC;
- **Anatoly Kopsov**, president, "GazEnergoStroy – Gas Turbine Technologies", LLC;
- **Sergey Tolstoguzov**, Director General, "RAO Energy System of East", OJSC;
- **Mikhail Fedorov**, director of production. "Gazprom energoholding", LLC;
- **Rasim Magsumovich**, head of Technical Policy and Development, "RusHydro", OJSC;
- **Andrey Cherezov**, Deputy Energy Minister, Russia;
- **Nikolai Shvets**, deputy chairman, "FGC UES" OJSC;
- **Nikolai Shulginov**, First Deputy Chairman, "SO UES", OJSC (Deputy Chairman of the Supervisory Board).

- "RusHydro", OJSC;
- "FGC UES", OJSC;
- "SO UES", OJSC;
- "Rosseti", OJSC;
- "IDGC of Siberia", OJSC;
- "IDGC of the South", OJSC;
- "IDGC of the Volga", OJSC;
- "IDGC of the North-West";
- "IDGC of Center and Volga Region", OJSC;
- "MUEGC" OJSC;
- "Yantarenergo" OJSC;
- "Tyumenenergo", OJSC;
- "Lenenergo" OJSC;
- "Irkutskenergo", OJSC;
- "RAO Energy System of East", OJSC;
- "MOEK", OJSC;
- "Centerenergyholding", OJSC;
- "GlavInEnergoStroy", OJSC;
- "Energy Research and Development Center of Siberia", CJSC;
- "Concern Rosenergoatom", OJSC;
- "Eurocontract", LLC;
- "Elektrozavod", OJSC;
- "Sweco Soyuz Engineering", CJSC.