



Ural-Siberian Smart Energy

CONFERENCE

13-15 NOVEMBER, 2021

13 NOVEMBER

THE OPENING CEREMONY

10:00 MOSCOW TIME

- Welcome speech from the **Anastaia Rusina**, D.Sc., Dean of the Energy Faculty of Novosibirsk State Technical University

10:15 – 10:35

- Invited speaker: **Zagdkhorol Bayasgalan**, Ph.D., Associate professor at Power Engineering School, Mongolian University of Science and Technology. Security assessment and flexibility in the Energy System

10:35 – 10:55

- Invited speaker: **Stanislav Eroshenko**, Ph.D., Ural Federal University, CIGRE NGN Executive Committee Vice-Chair
Machine Learning for Solar energy forecasting

11:00 MOSCOW TIME

SECTION I: AUTOMATED ELECTRICAL SYSTEMS

11:00 – 11:15

- Research of the Number and Installed Capacity of Solar & Wind Power Plants in Interregional and Regional Power Systems in the Russian UPS. **Alena Savosina (ID 3517)**

11:15 – 11:30

- The Georgian Power System Hydro Power Plants Install Capacity Review. **Olga Pichugova (ID 3513)**

11:30 – 11:45

- Methods for Formation and Tuning of Group Prognostic Controller of Hydrogenerators Rotors' Rotational Frequency. **Konstantin Suslov (ID 3412)**

11:45 – 12:00

- Collaborative Control of Hydroelectric and Thermal Power Plants Units During Emergency Departures of Frequency. **Maksim Elaev (ID 3369)**

12:00 – 12:15

- N-1 Based Multiobjective Optimization of Static Var Compensator Placement Using Heuristic Methods. **Danil Ignatev (ID 3500)**

12:15 – 12:30

- Improving The Algorithm Of Power Station Unloading Automation In Case Of Fault. **Anatoly Osintsev (ID 3475)**

12:30 – 12:45

- Automation of the Adaptive Heavy-Loaded Trajectory Identification Algorithm. **Vasiliy Sukhorukov (ID 3464)**

12:45 – 13:00

- Python - Alternative Tool for Calculating Electric Power Modes of IPS. **Alena Sidorova (ID 3456)**

13:00 – 13:15

- Application of Long Short-Term Memory for Energy Load Prediction in the Microgrid Using Python software. **Alexander Zhavoronkov (ID 3401)**

13:15 – 13:45

BREAK

CONTACT DETAILS

Conference Vice-Chairman:
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14:00 MOSCOW TIME

SECTION I: AUTOMATED ELECTRICAL SYSTEMS

- 13:45 – 14:00** ■ An Improved Method of Electric Braking for Power System Transient Stability in Severe Emergency Disturbances. **Anna Arestova (ID 3418)**
- 14:00 – 14:15** ■ Application of the “Worst Case” Method to Estimate the Spectrum and Power Measurement Error Caused by ADC Imperfection. **Andrey Serov (ID 3319)**
- 14:15– 14:30** ■ Renewable Energy Sources as Part of the Auxiliary Network of Small and Micro Hydropower Plants. **Andrey Achitaev (ID 3316)**
- 14:30 – 14:45** ■ Fundamentals of Multichannel Structural Analysis Of Electrical Signals. **Evgeny Vorobyev (ID 3302)**
- 14:45 – 15:00** ■ Analysis of Transient Processes in a Three-Phase Single-Machine System with a High-Temperature Superconducting Transformer. **Dmitriy Ivanov (ID 3285)**
- 15:00 – 15:15** ■ Application of Interpolating Polynomials for the Active Power Within a Given Frequency Band Measurement. **Andrey Serov (ID 3281)**
- 15:15 – 15:30** ■ Development of a Software Module of Intra-Plant Optimization for Short-Term Forecasting of Hydropower Plant Operating Conditions. **Anna Arestova (ID 3263)**

15:30 – 16:00

BREAK

16:20 MOSCOW TIME

SECTION II: POWER EQUIPMENT, ELECTRICAL MACHINES AND DRIVES

- 16:00 – 16:15** ■ Simulation and Analysis of Reactive Power Consumption of the Coal Mine Excavation Area. **Vyacheslav Voronin (ID 3488)**
- 16:15 – 16:30** ■ The Mathematical Model of Pulse Width Modulation Frequency Converter. **Bohirjon Sharifov (ID 3382)**
- 16:30 – 16:45** ■ Induction Heating of the Large-Size Installations. Part 1. Study on the Power Frequency Dependence of the Heating Efficiency. **Fedor Tarasov (ID 3535)**

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17:05 MOSCOW TIME

SECTION II: POWER EQUIPMENT, ELECTRICAL MACHINES AND DRIVES

- 16:45 – 17:00** ■ Induction Heating of the Large-Size Installations. Part 2. Study of the Power Supply Parameters. Fedor Tarasov (ID 3542)
- 17:00 – 17:15** ■ Influence of the Turbulence Scale of Gas Flows on the Heat Exchange Intensity in Channels with Different Cross Sections. Leonid Plotnikov (ID 3532)
- 17:15 – 17:30** ■ Long-term Wind Power Development in Morocco: Optimality Assessment using Bottom-up Modeling. Jabrane Slimani (ID 3431)
- 17:30 – 17:45** ■ Synchronization Digital Device Development for Generators Automatic Connection to the Network by Various Methods. Viktoriya Fyodorova (ID 3392)
- 17:45 – 18:00** ■ Study of the Dc-Dc Boost Converter Physical Model. Kamola Gulyamova (ID 3374)
- 18:00 – 18:15** ■ Hazard Assessment of Low-voltage Insulated Neutral Networks with Unstable Single-phase Fault. Darya Kugucheva (ID 3365)

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SECTION III: DIAGNOSTIC, PROGNOSTIC AND MAINTENANCE METHODS

- 08:30 MOSCOW TIME** ■ Distributed Optical Sensor System for Comprehensive Power System Equipment Monitoring. Igor Naumov (ID 3404)
- 08:45 – 09:00** ■ Development and Verification of an Advanced Method for Diagnosing Measuring Transformers. Alexandra Sidorova (ID 3339)
- 09:00 – 09:15** ■ Adaptive Single-End Fault Location Method. Aleksey Fedorov (ID 3293)
- 09:15 – 09:30** ■ Investigation of Energy Storage Systems - Improvement of Utilization by Use Case Combination. Lukas Böhning (ID 3537)
- 09:30 – 09:45** ■ Distributed Optical Sensor System for Comprehensive Power System Equipment Monitoring. Alexander Shapeev (ID 3558)

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09:30 MOSCOW TIME

SECTION IV: SMART GRIDS AND MICROGRIDS & INFORMATION AND COMMUNICATION TECHNOLOGIES

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|----------------------|--|
| 09:45 – 10:00 | <ul style="list-style-type: none"> ■ The Prospects of Distributed Generation in Russia. Andrey Bramm (ID 3528) |
| 10:00 – 10:15 | <ul style="list-style-type: none"> ■ A Secure IoT enabled Pure Sine Wave Inverter using Payload Encryption Of MQTT Protocol. Nasim Ahmed (ID 3526) |
| 10:15 – 10:30 | <ul style="list-style-type: none"> ■ Optimal Reconfiguration of Distribution Network with Solar Power Plants. Andrey Bramm (ID 3497) |
| 10:30 – 10:45 | <ul style="list-style-type: none"> ■ The Concept of Optimizing the Efficiency of the Calculation of the Electrical Loads of Kindergartens and Schools. Azat Akhmetshin (ID 3423) |
| 10:45 – 11:00 | <ul style="list-style-type: none"> ■ The Basic Tasks in the Development of the Smart Protection Device. Daria Stepanova (ID 3391) |
| 11:00 – 11:15 | <ul style="list-style-type: none"> ■ Adjusting the Requirements to the Allowable Current and Voltage Error in Active Power Systems. Konstantin Suslov (ID 3311) |
| 11:15 – 11:30 | <ul style="list-style-type: none"> ■ Management of Electrical Energy Consumption in Urban Residential Buildings. Irina Klavsuts (ID 3296) |
| 11:30 – 11:45 | <ul style="list-style-type: none"> ■ Model of Optimal Load Control for Electric Power Stations in a Hydrothermal Power System on the Basis of Maximization Profit Criteria. Tatyana Myateg (ID 3560) |
| 11:45 – 12:00 | <ul style="list-style-type: none"> ■ Development of Energy Management System Based on a Digital Platform. Fedor Nepsha (ID 3460) |
| 12:00 – 12:15 | <ul style="list-style-type: none"> ■ Recurrent and Ensemble Models for Short-Term Load Forecasting of Coal Mining Companies. Pavel Matrenin (ID 3321) |
| 12:15 – 12:30 | <ul style="list-style-type: none"> ■ IT Risk Assessment of Companies in the Energy Sector. Pavel Matrenin (ID 3552) |
| 12:30 – 12:45 | <ul style="list-style-type: none"> ■ Risks of Incorrect Quality Metrics of Machine Learning Models in the Energy Sector. Pavel Matrenin (ID 3553) |

BREAK

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14:00 MOSCOW TIME**SECTION VI: POWER ENGINEERING EDUCATION**

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|----------------------|---|
| 13:15 – 13:30 | <ul style="list-style-type: none"> ■ A Matrix Inversion-Based Algorithm for Economic Scheduling of Power Outputs of Thermal Units in an Electric Power System Without Losses. Surya Teja Surampudi (ID 3545) |
| 13:30 – 13:45 | <ul style="list-style-type: none"> ■ The energy companies reports study for the formation of maps and power and energy balances on the example of Lithuanian power system. Olga Pichugova (ID 3540) |
| 13:45 – 14:00 | <ul style="list-style-type: none"> ■ Formation of a Digital Educational Ecosystem For Lifelong Learning in the Area “Technosphere Safety”. Marina Legan (ID 3362) |
| 14:00 – 14:15 | <ul style="list-style-type: none"> ■ Power Industry Risk Assessment: Current Practices. Andrey Bramm (ID 3554) |
| 14:15 – 14:30 | <ul style="list-style-type: none"> ■ Role and Contribution of the Dispatch Control System of the Power Industry for City Status. Vladimir Griaznov (ID 3555) |

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