

Mikhail Davidson, Ph.D.

Date of birth	25/02/1968
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CARANA Corp., Russia

03/2001 – present time, Project manager

Responsibilities and tasks

- Development of transition period and target model for competitive electric energy and capacity markets in Russia
- Personal responsibility for development and implementation of locational marginal pricing system on the wholesale electricity market in Russia
- Implementation of the system for computing prices and output volumes for the day-ahead and balancing markets, model development and implementation of the unit commitment procedure
- Developing methodology and managing projects on energy market forecasting
- Providing key consultations in energy market competitive pricing

Projects

RAO UES

- Energy market liberalization concept design and market model development
 - Transition period model (5-15%)
 - Target model
- Development of mathematical model for the day-ahead and balancing markets
- Concept and mathematical model development of transforming the system of centralized annual planning of generator outputs into the system of bilateral contracts with regulated price based on “take-or-pay” principle.
- Model design and implementation of participating exporters and importers in the day-ahead market
- Monitoring and supervision of the day-ahead and balancing markets. Analysis of outcomes, providing key consultations.
- Conducting pre-market tests of locational marginal pricing concept and economic dispatch in Urals energy region
- Training seminar for RAO UES subsidiaries (SO- UES and CDR FOREM) on LMP concept and economic dispatch at the liberalized energy market

Administrator of Trade System (ATS) & System Operator (SO- UES)

- Project management, consultancy and supervision of implementation of the projects:
 - day-ahead market software in ATS
 - balancing market software in SO-UES
 - unit commitment software in SO-UES
- Consultancy and supervision in conducting pre-market imitation trades in ATS

AO-energос & territorial generation companies (Urals region, North-West region)

- Development of wholesale electricity market forecasts (including long-term) covering
 - LMP forecast
 - Plant output forecast
 - Capacity price forecast

Hydro wholesale generation company

- Competitive potential of pump-storage plants in the energy market; analysis of mid-term market trends and position of pump-storage plants in various sectors of the wholesale electricity market, such as energy market, capacity market, ancillary service market
- Economic analysis of alternative schemes of connecting Boguchansk hydro plant to “back-bone” HV grid of Siberian energy region

Moscow State University, Faculty of Computational Mathematics and Cybernetics

1995-present, Assistant Professor

Reading lecture courses in Numerical Optimization

Education & Training

	<i>Professional educational programs:</i> <ul style="list-style-type: none"> • Study of electric energy market of Australia; organized by RAO UES, Australia, 2005 • Study of electric energy markets of North-East US, organized by RAO UES and BDR Inc., USA, 2004 • Financial analysis and Security Trading, Academy of National Economy, Moscow, Russia, 1998
	<i>Trainings:</i> <ul style="list-style-type: none"> • Trier University, Trier, Germany, 1997-1998, postdoctoral fellow • Institute for Applied Systems Analysis, Vienna, Austria, participant in project “Optimization under Uncertainty”, 1996 • Weizmann Institute of Science, Rehovot, Israel, scientific summer school participant, 1994
1992-1995	<i>Postgraduate study:</i> <ul style="list-style-type: none"> • Moscow State University, Faculty of Computational Mathematics and Cybernetics • PhD in math. & phys. sciences, 1995
1985-1992	<i>Graduate study:</i> <ul style="list-style-type: none"> • Moscow State University, Faculty of Computational Mathematics and Cybernetics, specialization: operations research, game theory, mathematical economics • MS in applied math., honors degree

Awards and Grants

- Euler Grant of the German Mathematical Society, International Science Foundation Award

Publications

- More than 20 papers, 7 reports at the international conferences

Languages

	Speaking	Reading	Writing
Russian	Fluent	Fluent	Fluent
English	Fluent	Fluent	Fluent

Selected publications:

1. Davidson M. R., Seleznev A. V. Mathematical Model for the Unit Commitment Problem in the Russian Competitive Electricity Market. *J. of Computer and Systems Sciences International*. 2014; 53(3), pp. 359-368.
2. Bogdanov I., Davidson M., Determining maximum active power injections at nodes of an AC system, *Vestnik of the Moscow State University, Series 15*, 2011, No. 2 pp. 25-31 [in Russian]
3. Davidson, M.R., Dogadushkina, Yu. V., Kreines, E. M., Novikova, N. M., Udaltsov, Yu. A. , and Shiryaeva, L. V. Mathematical Model of the Competitive Wholesale Power Market In Russia. *J. of computer and Systems Sciences International*. 2004; 43(3), pp. 72-83.
4. Davidson M.R., Primal-Dual Constraint Aggregation with Application to Stochastic Programming, *Annals of Operations Research*, 99 pp. 41-58, 2000
5. Davidson M.R., Stability of the extreme points set of a polyhedron, *Journal of Optimization Theory and Applications*, 90, pp. 357-380, 1996.