About the Contributors

Pandian Vasant is a senior lecturer at Department of Fundamental and Applied Sciences, Universiti Teknologi PETRONAS in Malaysia. His research interests include Soft Computing, Hybrid Optimization, Holistic Optimization and Applications. He has co-authored research papers and articles in national journals, international journals, conference proceedings, conference paper presentation, and special issues lead guest editor, lead guest editor for book chapters’ project, conference abstracts, edited books and book chapters. In the year 2009, P. Vasant was awarded top reviewer for the journal Applied Soft Computing (Elsevier). Currently his Editor-in-Chief of IJCO and IJEOE and Editor of GJTO.

Nikolai I. Voropai is director of the Energy Systems Institute (Siberian Energy Institute until 1997) of the Russian Academy of Science, Irkutsk, Russia. He was born in Belarus in 1943. He graduated from the Leningrad (St. Petersburg) Polytechnic Institute in 1966. N. I. Voropai received his degrees of Candidate of Technical Sciences at the Leningrad Polytechnic Institute in 1974 and Doctor of Technical Sciences at the Siberian Energy Institute in 1990. His research interests include: modeling of power systems, operation and dynamics performance of large power grids; reliability and security of power systems; development of national, international and intercontinental power grids; liberalization of power industry. He is the Chairman of the International Workshop on Reliability Problems of Energy Systems, CIGRE Member, IEEE Fellow Member.

* * *

Nureize Arbaiy is currently with Software Engineering Department at the Faculty of Computer Science and Information Technology, University Tun Hussein Onn Malaysia (UTHM). She received her Dr. of Engineering on ‘Satisficing-based Formulation of Fuzzy Random Multi-Criteria Programming Models and Production Applications’ from the Graduate School of Information, Production and Systems at Waseda University, Japan. She received her B.S degree from University of Technology Malaysia in 2001 and M.S degree from University Utara of Malaysia in 2004. Her research interests are on multi-criteria decision making, fuzzy logic, expert system, fuzzy regression analysis, and possibilistic theory.

Evgeny Barakhtenko was born on December 19th, 1982 in Russia. He graduated from Irkutsk State Technical University in 2005. Evgeny Barakhtenko received his degree of Candidate of Technical Sciences at Irkutsk State Technical University, Irkutsk, Russia in 2011. He is Senior Researcher at Melentiev Energy Systems Institute of Siberian Branch of the Russian Academy of Sciences, Irkutsk, Russia. Scientific interests area: mathematical models and methods for solving the problems of devel-
opment and operation control of pipeline systems, study of integrated intelligent energy systems, smart grid technologies, information and intelligence technologies for research into energy pipeline systems, cloud and concurrent computing for energy system research. Evgeny Barakhtenko is the author and the coauthor of more than 40 scientific papers.

**Vo Ngoc Dieu** received his B.Eng. and M.Eng. degrees in electrical engineering from Ho Chi Minh City University of Technology, Ho Chi Minh city, Vietnam, in 1995 and 2000, respectively and his D.Eng. degree in energy from Asian Institute of Technology (AIT), Pathumthani, Thailand in 2007. He is Research Associate at Energy Field of Study, AIT and lecturer at Department of Power Systems, Faculty of Electrical and Electronic Engineering, Ho Chi Minh City University of Technology, Ho Chi Minh city, Vietnam. His interests are applications of AI in power system optimization, power system operation and control, power system analysis, and power systems under deregulation.

**Susanta Dutta** was born in 1976 at Bankura, West Bengal, India. He received the BE degree in Electrical Engineering from Dr. B C Roy Engineering College, Durgapur, Burdwan, India in 2004; ME degree from NIT Durgapur, India in 2007. Presently he is working as Assistant Professor in the department of Electrical Engineering, Dr. B. C. Roy Engineering College, Durgapur, India. His field of research interest includes Economic Load Dispatch, Optimal Power flow, FACTS, Automatic Generation Control, Evolutionary computing techniques.

**Alibek Issakhov** received the BSc, MSc and Ph.D. degree in mathematical and computer modelling specialization in Mechanics and Mathematics faculty from al-Farabi Kazakh National University, Almaty, Kazakhstan, in 2008, 2010 and 2013, respectively. He is a current associated professor in Mathematical and computer modelling department at al-Farabi Kazakh National University. Dr. A. Issakhov has published over 70 peer-reviewed journal and conference paper.

**Vikram Kumar Kamboj** is presently working as Assistant Professor and Department Coordinator in Electrical Engineering in DAV University, Jalandhar (Punjab), INDIA. He has completed his B.E. (Instrumentation & Control) with Honours from Maharishi Dayanand University, Rohtak and M.Tech (Power System Engineering) with Honours from Rajasthan Technical University, Kota and Ph.D (Electrical Engineering) from Punjab Technical University, Jalandhar. His area of research includes Power System Planning and Optimization, Economic Load Dispatch and Unit Commitment Problem of Electrical Power System.

**Saifullah Khalid** was born in India. He received his B.E. degree in Electronics & Telecommunication Engineering from SESCOE, Dhule in 2001, M.Tech Degree in Electrical Engineering from MMMEC, Gorakhpur, in 2003 and PhD Degree in 2014 respectively. He worked as a faculty in various engineering colleges from 2003 to 2008. He has been author/co-author of more than 60 papers and 04 books. In 2008, he has joined Airports Authority of India as Air Traffic Control Officer. His current research Interests includes aircraft system, AI Technique and application of optimization algorithms in power quality improvement. He is a member of IEEE, IAENG, IACSIT and the Cleveland engineering society.
Oleg V. Khamisov graduated from mathematical department of Irkutsk State University in 1985. He received the Ph.D. degree in mathematics in 1993 and the Habil. degree in 2011. At present time he is head of mathematical department of Energy Systems Institute. His scientific interests are: global optimization, stochastic programming, and operations research. He has about 70 scientific papers published, including one book.

K. Vinoth Kumar received his B.E. degree in Electrical and Electronics Engineering from Anna University, Chennai, Tamil Nadu, India. He obtained M.Tech in Power Electronics and Drives from VIT University, Vellore, Tamil Nadu, India. Presently he is working as an Assistant Professor in the School of Electrical Science, Karunya Institute of Technology and Sciences (Karunya University), Coimbatore, Tamil Nadu, India. He is pursuing PhD degree in Karunya University, Coimbatore, India. His present research interests are Condition Monitoring of Industrial Drives, Neural Networks and Fuzzy Logic, Special machines, Application of Soft Computing Technique. He has published various papers in international journals and conferences and also published four textbooks. He is a member of IEEE (USA), MISTE and also in International association of Electrical Engineers (IAENG).

R. Saravana Kumar received his B.E. Degree in Electrical and Electronics Engineering from Thiagarajar College of Engineering, Madurai, and Tamilnadu, India. He obtained M.E., in Power Electronics and Drives from College of Engineering Guindy, Chennai, Tamilnadu, India. He received his PhD degree from the VIT University Vellore, Tamilnadu, India. Presently he is working as a Associate Professor in the School of Electrical Engineering at the VIT University, Vellore. He has published technical and research paper in three international journals and 10 national and 12 international conferences. He has written four books in the area of Special machines and control, Power electronics with Matlab/Simulink, Fuzzy logic and Neural Network, Basic Electrical and Electronics Engineering .His present research interests are Condition Monitoring of Industrial Drives, Real Time control of Electrical systems using LabVIEW &Matlab/dSPACE, Modeling and simulation of Electrical system, Multilevel Inverter, Matrix converter, Special machines, Application of Soft computing Technique, Power Quality.

S. Suresh Kumar received his B.E. degree in Electrical and Electronics Engineering from Bharathiar University, Coimbatore, Tamil Nadu, India. He has obtained M.E. from Bharathiar University, Coimbatore, Tamil Nadu, India. He has received doctoral degree from Bharathiar University, Coimbatore, Tamil Nadu, India in 2007. Presently he is working as a Professor and Head of the Department for Electronics and Communication Engineering in Dr.N.G.P.Institute of Technology, Coimbatore, Tamil Nadu, India. He is having 18 years of teaching experience from PSG College of technology. His present research interests are Electrical Machines and Power Quality. He has already published 107 papers in international journals and international conferences. He is a member of IEEE (USA), ASE, ISCA, MCSI, and MISTE and also in International association of Electrical Engineers.

Pei-Chun Lin received B.Sc. degree in the department of mathematics from National Kaohsiung Normal University, Kaohsiung, Taiwan and received M.Sc. degree in the department of mathematical sciences from National Chengchi University, Taipei, Taiwan. Moreover, she received Ph.D degree from Graduate School of Information, Production and Systems (IPS), Waseda University, Fukuoka, Japan. She is currently an adjunct researcher in the Graduate school of IPS, Waseda University. Her research interests include soft computing, intelligent knowledge, fuzzy statistic analysis and management engineering.
About the Contributors

Debashis Nandi received his B.E. degree in Electronics and Communication Engineering from R. E. College, Durgapur (University of Burdwan), India, in 1994 and M. Tech. Degree from Burdwan University on Microwave Engineering in 1997. He received his Ph.D degree from IIT, Kharagpur, India on Medical Imaging Technology in 2012. His area of research includes Computer security and cryptography, Secure chaotic communication, Image processing, Medical imaging, Video coding optimization etc. He has published more than 25 research papers in national and international journals and two patents. He is an Associate Professor in the Department of Information Technology, National Institute of Technology, Durgapur, India.

Weerakorn Ongsakul obtained B.Eng. (Electrical Eng.) in 1988 from Chulalongkorn University, Thailand; M.S. and Ph.D. (Electrical Eng.) from Texas A&M University, USA in 1991 and 1994, respectively. He is currently an Associate Professor of Energy and former Dean of School of Environment, Resources and Development, Asian Institute of Technology. His research interests are in power system operation, artificial intelligence applications to power systems, smart grid and renewable energy. He has conducted projects sponsored by Sida, EC-ASEAN Energy Facility/ACE and EU-Thailand Economic Co-operation Small Project Facility, and projects sponsored by Energy Conservation and Promotion Fund and Electricity Generating Authority of Thailand (EGAT), Provincial Electricity Authority (PEA) with a combined funding of US$3.0 million. Based on his research work, he has published more than 180 international refereed journal and conference proceedings paper. He served as an Energy Specialist, Energy Standing Committee, Senate of Thailand during 2008-2011. He served as a consultant of Asian Development Bank Institute (ADBI) in 2011-2012. He has been serving as a Secretary General of the Greater Mekong Subregion Academic and Research Network (GMSARN) since 2006. He co-authored one book entitled Artificial Intelligence in Power System Optimization, published by CRC Press/Taylor & Francis in March 2013.

Tamara Oshchepkova was born on September, 13th, 1943 in Russia. She graduated from Kazan State University in 1965. Tamara Oshchepkova received her degree of Candidate of Technical Sciences at Sobolev Institute of Mathematics of the Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia in 1983. She is senior researcher at the Energy Systems Institute of the Siberian Branch of the Russian Academy of Sciences, Irkutsk, Russia. Her research interests include: methodical bases and software for solving the problems of optimal development and reconstruction of pipeline systems. Dr. Oshchepkova is the coauthor of several monographs and more than 100 scientific papers.

Sourav Paul was born in 1987 at Dhanbad, Jharkhand, India. He completed his B-Tech in Electrical Engineering from Dr. B. C. Roy Engineering College, Durgapur, West Bengal, India in 2009; M-Tech in Power Systems from Dr. B. C. Roy Engineering College, Durgapur, West Bengal, India in 2012. Presently he is working as Assistant Professor of Electrical Engineering at Dr. B. C. Roy Engineering College, Durgapur, West Bengal, India. His field of interest includes Power System Stabilizer, Automatic Generation Control and Soft computing Techniques.
Andrey V. Penkovskii was born on April 7th, 1982 in Russia. He graduated from Irkutsk State Technical University in 2004. He is Researcher at Melentiev Energy Systems Institute of Siberian Branch of the Russian Academy of Sciences, Irkutsk, Russia. His research interests include: development of methods of mathematical modeling and optimization heat supply system in conditions of the market. Penkovskii is the author and the coauthor of more than 37 scientific papers.

Ivan V. Postnikov was born on January 27th, 1982 in the Irkutsk region of Russia. He is graduated from Irkutsk State Technical University in 2004. Ivan is the heat-power engineer and Senior Researcher at Melentiev Energy Systems Institute of Siberian Branch of the Russian Academy of Sciences. In 2013 defended his thesis on “Methodological support of a comprehensive research of heating reliability”. His research interests include: researches in the field of reliability of a heat supply, working out of methods and mathematical models for analysis and synthesis of heat supply systems. Ivan is the co-author of a several monographs and more than 20 scientific papers.

Provas Kumar Roy was born in 1973 at Mejia, Bankura, West Bengal, India. He Received the B.E Degree in Electrical Engineering from R. E. College, Durgapur, Burdwan, India in 1997; M.E Degree in Electrical Machine from Jadavpur University, Kolkata, India in 2001 and Ph.D from NIT Durgapur in 2011. Presently he is working as Associate Professor in the department of Electrical Engineering, Jalpaiguri Government Engineering College, Jalpaiguri, West Bengal, India. His field of research interest includes Economic Load Dispatch, Optimal Power flow, FACTS, Unit Commitment, Automatic Generation Control, Power System Stabilizer, Radial Distribution System, State Estimation and Evolutionary computing techniques.

A. Immanuel Selvakumar received his doctoral degree from Anna University, Chennai, Tamil Nadu, India. Presently he is working as a Professor and Head of the department for Electrical and Electronics Engineering in Karunya Institute of Technology and Sciences (Karunya University), Coimbatore, Tamil Nadu, India. He is having 15 years of teaching experience. His present research interests are Power Quality. He has published several papers in international journals and international conferences. He is a member of IEEE (USA).

Dmitry Sokolov was born in December 7th, 1984 in Irkutsk. He defended PhD thesis in 2013. Dmitry is the senior researcher in Department of Pipeline Energy Systems in Energy Systems Institute. His scientific interests: methods of mathematical modeling and optimization of heat supply systems, development of high-speed algorithms, application of concurrent computing in power engineering, modern software development methodology. Dmitry Sokolov is the co-author of more than 30 scientific papers.

Nikolay Stennikov was born on August 25th, 1983 in Russia. He graduated from Irkutsk State Technical University in 2005. Nikolay Stennikov received his degree of Candidate of Technical Sciences at Melentiev Energy Systems Institute of Siberian Branch of the Russian Academy of Sciences, Irkutsk, Russia in 2009. He is Leading engineer at Melentiev Energy Systems Institute of Siberian Branch of the Russian Academy of Sciences. His research interests include: optimization of structure and functioning of heat supply systems, methods and models for the organization of work of heatsources on the general thermal networks. Nikolay Stennikov is the author and the coauthor of more than 20 scientific papers. or more than 100 scientific papers.


Valery Stennikov was born on July 9th, 1954 in Russia, PhD, Professor, Doctor of Science. He is the Deputy director of Melentiev Energy Systems Institute of Siberian Branch of the Russian Academy of Sciences, Irkutsk, Russia. Valery Stennikov received his degree of Candidate of Technical Sciences at Energy Systems Institute (Irkutsk) in 1985 and Doctor of Technical Sciences at Melentiev Energy Systems Institute of Siberian Branch of the Russian Academy of Sciences (Irkutsk) in 2002. His research interests include: The methodology, mathematical models and methods for a development substantiation heat supply systems taking into account reliability and controllability requirements; basic tendencies and laws of development of heat supply system, power effective technologies and the equipment; energy saving; methods and algorithms of calculation of economically well-founded differentiated tariffs for thermal energy. Professor Stennikov is the author and co-author of more than 270 scientific papers.

Igor I. Tyukhov is currently Deputy Chair Holder of the UNESCO Chair “Renewable energy sources and rural electrification” at the All-Russian Research Institute for Electrification of Agriculture (VIESH) from 1997 up to now. He has been affiliated with the Moscow Power Engineering Institute for more than 35 years teaching various physics disciplines (from general physics to solid state physics, photovoltaics and semiconductor lasers) and conducting research work on solar energy, solar concentrators, optical metrology, semiconductor physics and technology, solar cells, renewable energy cooperating with the All-Russian Electrotechnical Research Institute. He worked as invited Prof. at the George Mason University (1999-2000), the Oregon State University (2002-2003), and the Oregon Technological Institute (2003). He is Assoc. Editor of Solar Energy Journal. I. Tyukhov is visiting Prof. at Mari El State University and teaches students at the Russian State Agrarian University - Moscow Timiryazev Agricultural Academy (part time). He is the author of more than 300 papers, patents, and book chapters.

Junzo Watada received the B.Sc. and M.Sc. degrees in electrical engineering from Osaka City University, and the Ph.D. degree from Osaka Prefecture University, Osaka, Japan. Currently, he is a Professor of management engineering, knowledge engineering, and soft computing at the Graduate School of Information, Production and Systems, Waseda University, Fukuoka, Japan. His research interests include soft computing, tracking system, knowledge engineering, and management engineering.

Sergey V. Zharkov was born on April 17, 1963 in Russia, PhD. He graduated from Irkutsk State Technical University in 1986. Sergey Zharkov received his degree of Candidate of Technical Sciences at Energy Systems Institute (Irkutsk) in 1996. He is senior researcher at Melentiev Energy Systems Institute of Siberian Branch of the Russian Academy of Sciences, Irkutsk, Russia. His research interests include: technologies of renewable energy sources, thermal power plants and energy supply systems. He has about 70 scientific papers, including 10 invention patents.