



XVII Baikal International School-Seminar
METHODS OF OPTIMIZATION
AND THEIR APPLICATIONS

Abstracts



July 31 – August 6, 2017
Maksimikha, Buryatia

Melentiev Energy Systems Institute SB RAS
Russian Foundation for Basic Research
Laboratory of Algorithms and Technologies for Networks Analysis,
Higher School of Economics, Nizhny Novgorod

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This volume contains abstracts of the talks devoted to theory and methods of linear, convex, nonlinear programming, discrete and global optimization, multicriteria optimization and game theory, as well as to software and software packages for solving various mathematical programming problems.

For researchers specializing in corresponding fields of applied mathematics.

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XVII Байкальская международная школа-семинар

МЕТОДЫ ОПТИМИЗАЦИИ
И ИХ ПРИЛОЖЕНИЯ

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В данном томе представлены работы, посвященные теории и методам линейного, выпуклого, нелинейного программирования, дискретной и глобальной оптимизации, многокритериальной оптимизации и теории игр, а также программам и программным комплексам для решения различных задач математического программирования.

Для научных работников, студентов и аспирантов, специализирующихся в соответствующих областях прикладной математики.

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Risks in the energy sector: analysis the practices of management (for example, vertically integrated companies)

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Energy security is today one of the most discussed in international economic relations, the Russian political and business community, the regions and all consumers. It is being actively discussed by European governments, leading international organizations. But it should be noted that currently no universal definition of energy security is simply not there. In addition to the lack of such a universal definition, analysis of decisions in this area, one notices the lack of attention to such phenomena as risks in the energy sector, especially in the management of investment projects in the industry.

Risk analysis, in our opinion, a multifactorial phenomenon. First of all, it takes some refinement of the concept of "risk". In the study, the correlation of uncertainty, risk and loss.

Uncertainty	→	Risks	→	Loss
Incompleteness or inaccuracy of information about conditions of realization of the project		Possibility of losses due to the uncertainty		Damage loss in connection with the occurrence of the risk event under uncertainty (loss of funds working time, loss of profits, rising costs, environmental damage, etc.)

Risk assessments should consider individual risk tolerance, which is described by curves of indifference or utility. Therefore, it is recommended to describe the risk of the above three parameters:

$$Risk = \{P * L * Y\}$$

Analysis of project risks is based on risk assessments, which are to identify the magnitude (degree) of risk. But first we need to have an understanding of the risks, i.e. to know their classification, classification of risks in business and system factors influencing the level of risk IE.

Risk analysis is conducted from the point of view:

- sources, causes of this type of risk;
- the likely adverse consequences resulting from a possible implementation of this type of risk;
- specific projected activities, minimize risk to consider.

Risk management is a specific area of management that requires expertise in the field of the theory of an industry, company, insurance, analysis of economic activities of the enterprise, mathematical optimization techniques, economic problems, etc.

World experience shows that there is no one right organizational structure. You need to choose the governance structure that is adequate to the current economic conditions of functioning of the company and allows it to achieve its goals. In any structure, you can focus on decentralization of powers, allowing the managers of lower levels to make decisions. The decentralized structure is recommended if the company has access to dynamic markets, diversified production, competitors and rapidly changing technology. Methods of project risk management in the electric power industry can and should become a means of effective implementation of projects at all levels of government – Federal, regional, and local. It is hoped that the problem of minimizing the risks in the energy sector will be reflected.