

**UNIVERSITY OF CRAIOVA**

**FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION**

**DOCTORAL THESIS**

**– ABSTRACT –**

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**THE MANAGEMENT OF INVESTMENT  
PROJECTS IN COAL ENERGETICS**

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Along with our country's accession within the European Union, through the Protocol of Accession, the necessity to align the economical policies to the standards of the Union was imposed, and also the achievement of the goals related to the durable development in energetic. If we refer to coal energetic, our objectives are related to: investments projects such as new executions and exploitation of the energetic capacities on coal; the rehabilitation investments projects and exploitation of the existing capacities; quickening the research and development activities and dissemination of the applicable research results; reducing the negative impact of energy sector operating on coal on the environment by limitating the developing of the pollutant vectors resulting from the burnt gases, etc. We can submit that at Romanian economic policy level, *the investment projects* in coal energetic are an important factor in the modernization process and economic development. "THE MANAGEMENT OF INVESTMENT PROJECTS IN COAL ENERGETICS" PhD Thesis taps the investment projects management issue such as new execution and exploitation of the thermoelectric blocks of **500MW** on coal, rehabilitation and exploitation of the thermoelectric blocks of **330MW** on coal, etc. Our tackling are

related to: the current phase and development tendencies in energy sector on coal in the context of the integration in the European Union; the quality of the project and the management system of the quality focused on the ISO Standards; the typology of the investment but also of the investment projects; the time line of the investment projects; approving the activities of a investment project; risk management in investment projects; the evaluation and indicators of the investment projects, based on case studies on coal energy.

The first axis of the research, INVESTMENT PROJECTS IN COAL ENERGY IN THE CONTEXT OF GLOBALIZATION presents the role of the investments in energetics, the current stage in energetics and tendencies for the development in the energy sector in the context of the integration in the European Union. Considering the current stage in the coal energy, the issue of producing electricity on coal was approached, the development of the energy markets in Romania, the thermoelectric blocks on coal of 330 MW, national companies integrated in the context of energetic security and economic efficiency.

The second axis of the research PRIORITIES OF ENERGETIC POLICY, THE MANAGEMENT OF THE CYCLE AND QUALITY OF THE SECTORIAL PROJECT presents priorities and development objectives in Romania, ways and means of achieving the development objectives in energetics, the development sheet of the financial resources for the development objectives of the energetic sector, the energetic security between the social impact and the environment issue. Also, the management of the project cycle is approached, objectives, the quality of the sectorial project, the quality management system based on the ISO Standards. Considering the energetic security, between the social impact and the environment issue, the issue related to the energetic security was approached- an essential element of the economic development, the action sheet concerning the reducing of the social impact, the issue of the environment in the energetic sector on coal. Considering the management of the project cycle, general considerations are presented concerning the sectorial projects, the objectives of the management of the sectorial project management, the phases of the sectorial project cycle, the objectives of the management of the sectorial project cycle, the phases of the sectorial project cycle, the quality of the sectorial project. Considering the quality management system based on ISO Standards, the principles of the quality system management are presented, based on ISO Standards, and the issue on the dissemination and implementation of the ISO Quality Management System is approached.

In the third axis of the research, THE INVESTMENT PROJECT, THE APPROVING OF THE REABILITATION AND EXPLOITATION PROJECTS, the typology of the investments and investments projects are approached, project life-cycle, driving the project, planning the investments projects, approving the activities of an investment project. Considering the investments and the investments projects, the typology of the investments and the typology of the investments projects are approached. Considering the planning of the investments projects, the necessity and the matter of the project planning are approached, and also the phases of the investments projects. In terms of the investments project, and as regards the project life-cycle, we can say that an investment project has the following phases: *the pre-investment phase, the investment phase and the exploitation phase (operational)*. Approving the activities of an investments project represents an important aspect in the management of the investments projects. That is why a case study was presented for the investments projects on thermoelectric blocks of 330MW, thermoelectric blocks existing on CE Turceni which present a technical and moral wear, already having a working life of about 25 years. In this way, are realized the approving of the activities of *the rehabilitation/exploitation projects on thermoelectric block no. 3 and no. 6, of 330MW*.

Fourth axis of the research, RISK MANAGEMENT IN COAL ENERGY presents general considerations regarding the risk management in projects, the phases of the risk management process, methods of analyzing risks. In this chapter, the accent is on the analyzing method of risks, which is based on reference *matrix: probability-consequences*, a relevant method for investments projects such as rehabilitation and exploitation of thermoelectric blocks of 330MW. The application on case study: *investment project such as exploitation thermoelectric block of 330MW, no. 3, CE Turceni*, determining *the reference matrix: probability-consequences* and correct positioning in the matrix plan of risks, offers information on the issue related to risk in this specific economic sector.

The analysis of the energetic sector, evaluation criteria/indicators, investment projects, cash flow elements of specific investment projects, modeling and numerical simulation of investment recovery period is approached in the last axis of research ECONOMIC ANALYSIS OF INVESTMENT PROJECTS, REQUIREMENT FOR A PERFORMANCE MANAGEMENT IN ENERGETIC SECTOR. The case study based on *the investment project execution/exploitation of thermoelectric block of 500 MW CE Craiova*, includes information concerning such kind of thermoelectric block of 500 MW, cash-flow elements, evaluation indicators, specific to the thermoelectric block of

500 MW, long-term at CE Craiova. The case study based on the investment project: rehabilitation/exploitation of the thermoelectric block 330MW, from Turceni, contains cash-flow elements, modeling and numerical simulation of the investment recovery period, and important indicators for a performance management in the long-term investment projects and of high complexity. Modeling and numerical simulation is based on the software pack MATLAB for modeling, simulation and system analysis.

We can say that the general objective in the energy sector represents satisfying the energy need, both in present but also on medium and long term, on a low price, proper for a modern market economy and to a civilised life-standard, in terms of quality, safety in input(supply), taking into account the principles of a durable development. Due to globalization of the problems related to the social and human activity, which is continuously pushing on human, on environment, the European Union had to implement three objectives which are related of reducing the impact on environment, increasing competitiveness in energy domain, increasing security in energy supplying. That actuated the necessity of the sector approaches (sector programs), approach which aims the extension of the results impact of a program or project beyond the immediate aim on an financing organisation.

The failure of few programs and projects concerning the beneficees on long term delivered to the beneficiaries, can be explained through the fact that the success critical factors have been ignored. The quality, one of the most important critical factors, should not be punctually taken into account, ordinarily before ending a project, but through its entire time. SR EN ISO 9001/2008 contains the requirements for a Quality Management System (SMC) pre-scient the identification of the processes and the relationships between them, the documentation of the Quality management System through the ISO 9001 Quality Book, system procedures, procedures and work-instructions, establishing the elaboration methods, checking and approving the documents, the distribution conditions or withdrawl of the documents, establishing rules whereby the data and documents are modified; establishing rules concerning the external documents. The rehabilitation and exploitation projects are considered the projects which lead to costs reducing, improving plant efficiency, reducing specific consumption of operators from energetic sector, or specific engineering and environmental protection, which lead to reduction or even cancellation of industrial pollutants. Such project could be the rehabilitation end exploitation of thermoelectric block of 330MW, no. 3 from Turceni. *Planification* represents one of the attributes of management, generally speaking, and implicit, of the project management. We can say that planification represents a base project

within project unfolding. A planification and quest of the planned objectives can ensure the success of the projects. Approving the activities of the investment project, especially those from coal energy, which are distinguished through large periods and large financial resources in the investment process, is a managerial process very important in the activity of the managerial team. The case study on investment projects: rehabilitation and exploitation of the thermoelectric block no. 3 from Turceni and rehabilitation and exploitation of thermoelectric block no. 6 from Turceni allowed the approach of the approval on investment project phases after foregoing method through upstream ranging.

Risk management in the managerial act specific to investments projects from coal energetics has a particular importance. In this context, the importance of *the analisys method* based on *the reference method* should be seen: *probability-consequences*. This is relevant for investment projects such as rehabilitation and exploitation of thermoelectric blocks of 330 MW. The application on case study: *investment project such as exploitation of thermoelectric block of 330MW, no. 3 from Turceni*, is based on *the reference matrix: probability-consequences*, positioning in matrix plan of risks, allows the procurance of important information on the issue of risk.

*The evaluation criteria* of economic efficiency specific to investment projects form coal energetic are analisys tools wherewith is seeked the comparison in the efficiency of different kinds of versions for the achievement of the investment project, followed by the selection of the optimal solution, estimating economic efficiency of investment project. In case of investment projects, precisely the execution projects, (rehabilitation) and exploitation of thermoelectric blocks on coal, we deal with cash-flow elements, with a number of specific evaluation indicators, which were reflected in the case studies presented in this essay. In this way, we have the case study concerning the investment project such as execution/exploitation of thermoelectric block of 500MW from CE Craiova. From this case study, the investment project: rehabilitation and exploitation of thermoelectric block of 330MW, no. 3 from CE Turceni, models of numerical simulation are accomplished, which are important for a performance management in an economic sector very important. “THE MANAGEMENT OF THE INVESTMENT PROJECTS IN COAL ENERGETICS” PhD Thesis makes contribution in the investment projects management domain form coal energetic, concretely approaching the issue of investment projects management concerning the coal energy in our country.