INFORMATION ON DOCTORAL DISSERTATION

Dissertation title: ***"Research on the construction of a shipping system in supplying imported coal for Vietnam's thermal power plants"***

Major: Fleet Operation & Management

Code: 62.84.01.03

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Training institution: Vietnam Maritime University

1. Objective and research objects:

Based on the study of considering imported coal's transportation as a system, the experience of some countries in the world and the current practice of coal transportation for thermal power plants in Vietnam, the thesis aims to develop a model of imported coal transportation system with numbers of transportation options in accordance with the realities and conditions of Vietnam; to assist the stakeholders in the whole system to have a unified coordination and make reasonable decisions to achieve proper economic efficiency to the national economy.

The subject of research is the system of supplying imported coal for thermal power plants in Vietnam.

2. Research Method

The methodology of the thesis is mainly based on dialectical materialism and historical materialism. The thesis incorporates the methodology of logical systematization and comparative analysis, at the same time, inherits selective research results of some national and international scholars to clarify the content of the research.

In order to build an efficient coal transportation system for Vietnam's thermal power plants - after proposing an integrated transportation model with different transport options, to select transport options and to optimize the transfer of coal in order to achieve the economical efficiency of the transportation system, the author uses the optimal mathematical model with the relationships that determine the dependence of objects on their parameters. The analysis based on the inputs through mathematical modeling and optimal mathematical tools in selecting the optimal transport options in order to achieve economical efficiency for thermal power plants.

3. Main findings

The thesis has systematized the basic theories of the system, the technical elements that constitute the coal transport system as well as the methods of assessing the performance of the system.

The thesis has developed a model of imported coal transportation system with transport options that can be applied to thermal power plants in accordance with Vietnam's realities and conditions up to 2020, orienting to 2030.

According to the plans approved by the Government, the Northern area will take advantage of domestic coal while the area where many of Vietnam's thermal power plants have to import coal from abroad, such as Mekong Delta area. Coal demand for thermal power plants on this area will be plentiful, however, the source of supply is mainly imported, so the research scope of the thesis will focus on researching a systematic transportation system to import coal for the thermal power plants in the Mekong Delta area. After constructing a general model, the author has calculated the specific application of transport cost optimization for imported coal transportation system model for Vietnam Oil and Gas Group - Petrovietnam (PVN) .

The results of the thesis will be applied directly to Vietnam thermal power plants, coal import units (PVN, EVN, TKV, North East Corporation and other enterprises) to select the optimal coal transportation option contributing to the coal quality, coal price and supplying time, then, to meet the objective of stable

production, lower electricity production costs and to raise the competitiveness of the thermal power plants in electricity price competition period.

4. Scientific and practical signification

Based on the lessons learnt from the thermal coal transportation of Japan and China, the analysis of Vietnam's current situation of coal transportation, the author generally would like to construct an imported coal transportation system with a complete transportation model from loading, unloading, storage in line with resources and infrastructure in Vietnam until 2020 and orienting to 2030.

Based on the general model of coal transportation system provided for the thermal power plants and the analysis of inputs and outputs such as global coal mining and trading, signed orders, plants' production plans, sectoral development plans, port projects, the coal importers could utilize the mathematical model to calculate, evaluate and select the best coal transport options for coal demand serving the thermal power plants. The optimum result for the selected options will be the premise for Vietnam's shipping companies in planning to improve fleets (appropriate vessel type and vessel size) to complete the orders; port operators can invest in the construction of floating transshipment ports for the transportation of coal from large tonnage vessels to barges or bulk carriers in accordance with the draft, the capacity of thermal power terminal.

1st scientific supervisor	**Ph.D student**
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