

Energy Enterprise Information System for Strategic Decision-Making

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Abstract : Natural gas (NG) is a local energy resource that exists in certain countries, and most NG producers operate within unstable governments. Moreover, about 90% of the liquefied natural gas (LNG) market is governed by a small number of international oil companies (IOCs) and national oil companies (NOCs), market entry of second movers is extremely limited. To overcome these barriers, project viability should be assessed based on limited information at the project screening perspective. However, there have been difficulties at the early stages of projects as follows: (1) What factors should be considered? (2) How many experts are needed to make a decision? and (3) How to make an optimal decision with limited information? To answer these questions, this research suggests a LNG project viability assessment model based on the Dempster-Shafer theory (DST). Total of 11 indices for the gas field analysis and 23 indices for the market environment analysis are identified that reflect unique characteristics of LNG industry. Moreover, the proposed model evaluates LNG projects based on questionnaire survey and it provides not only quantified results but also uncertainty level of results based on DST. Consequently, the proposed model as a systematic framework can support the decision-making process from the gas field projects using quantitative results, and it is developed to a stand-alone system to enhance the practical usability. It is expected to improve the decision-making quality and opportunity in LNG projects for enterprise through informed decision.

Keywords : project viability, LNG project, enterprise information system, Dempster-Shafer Theory, strategic decision-making

Conference Title : ICEISE 2016 : International Conference on Enterprise Information Systems and Engineering

Conference Location : Paris, France

Conference Dates : December 29-30, 2016