



**UNIVERSITY OF
CAMBRIDGE**

Department of Engineering

CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

Selection of Engineer, Procure, Construct (EPC) contracts for energy infrastructure using the Analytical Hierarchy Process (AHP)

Global investment in energy infrastructure exceeds \$400 billion per annum and efficient procurement is essential to ensure timely and cost-effective delivery. Much of this infrastructure will continue to be funded and delivered by the private sector, using engineer, procure and construct (EPC) contracts to provide certainty on cost, time and quality.

Selecting the form of contract is complex due to conflicting professional opinion and the specific circumstances of each project. Selecting an inappropriate form of contract can jeopardise the objectives of the project and increase the probability of commercial dispute. However, the literature identifies that the most common reasons for selecting the form of contract is simply familiarity, client preference and ease of understanding.

This research uses Analytical Hierarchy Process (AHP) to identify the optimum form of EPC contract for three individual energy infrastructure projects. AHP is a multi-criteria decision-making method which has been used extensively in research to transform expert opinion into an objective rational decision.

In this research, AHP is developed with legal professionals to determine the performance of EPC contracts with respect to their selection criteria. Three projects are reviewed to ascertain the optimum EPC contract according to AHP and these are compared to those chosen by the client and to explore the broader issues around the contract selection process. The research concludes that AHP is effective in establishing the priorities of the project, objectively assessing performance of contract forms and can aid in selecting the form of EPC contracts.

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