IMPLEMENTASI METODE AHP – ELECTRE UNTUK PENGAMBILAN KEPUTUSAN DALAM PENENTUAN LOKASI PLT-NUKLIR DITINJAU DARI ASPEK SOSIAL

SKRIPSI

Diajukan untuk memenuhi syarat untuk memperoleh gelar Sarjana Teknik Elektro
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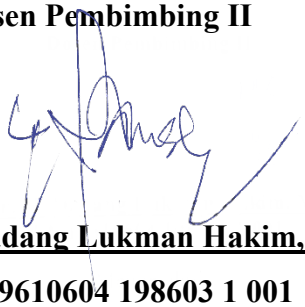

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ABSTRAK

Krisis bahan bakar fosil menyebabkan dibutuhkan pembangkit listrik lain yang menggunakan bahan bakar alternatif di Indonesia. Penelitian ini bertujuan untuk menentukan lokasi optimal untuk pembangunan Pembangkit Listrik Tenaga Nuklir (PLTN) di pulau Kalimantan dengan menggunakan metode *Analitic Hierarchy Process* (AHP) dan *Elimination and Choice Translating Reality* (ELECTRE). Terpilih 7 kriteria yang digunakan pada aspek sosial yang paling banyak digunakan para ahli. Metode AHP digunakan dalam tahap awal untuk mempertimbangkan preferensi antar kriteria dan menentukan urutan prioritas kriteria berdasarkan bobotnya. Hasil perhitungan AHP menunjukkan bahwa *Security* (SO7) adalah kriteria yang paling penting, diikuti oleh *Transportation Network* (SO4) dan *Legal Consideration* (SO3). Metode ELECTRE digunakan untuk membandingkan dua kandidat alternatif yaitu Provinsi Kalimantan Barat dan Provinsi Kalimantan Timur berdasarkan 7 kriteria yang telah dipilih. Penilaian alternatif berdasarkan kriteria dilakukan dengan menggunakan skala yang telah ditentukan. Hasil perhitungan ELECTRE menunjukkan bahwa Kalimantan Barat adalah lokasi yang lebih unggul daripada Kalimantan Timur untuk pembangunan PLTN dengan *Aggregate Dominance Matrix* yang lebih tinggi. Penelitian ini dapat mengatasi permasalahan dalam penentuan lokasi PLTN dengan metode MCDM (*Multi Criteria Decision Making*). Kombinasi AHP dan ELECTRE membantu memberikan informasi yang lebih objektif dan dapat digunakan sebagai panduan dalam pengambilan keputusan. Penelitian ini berpotensi menjadi sumber referensi dan pilihan yang relevan bagi para konsultan *engineering* dalam mengatasi masalah MCDM. Studi ini memberikan kontribusi dalam menentukan lokasi yang tepat untuk pembangunan PLTN di Indonesia dengan mempertimbangkan aspek sosial.

Kata Kunci : Pemilihan Lokasi, Pembangkit Listrik Tenaga Nuklir, AHP, ELECTRE

ABSTRACT

The The fossil fuel crisis has led to the need for other power plants that use alternative fuels in Indonesia. The research aims to determine the optimal location for the construction of Nuclear Power Plant (PLTN) on the island of Kalimantan using the method of Analitic Hierarchy Process (AHP) and Elimination and Choice Translating Reality. (ELECTRE). We have selected 7 criteria that are used on the social aspects most used by experts. The AHP method is used in the early stages to consider preferences between criteria and determine the priority sequence of criteria based on their weight. AHP calculations show that Security (SO7) is the most important criterion, followed by Transportation Network (SO4) and Legal Consideration. (SO3). The ELECTRE method is used to compare two alternative candidates namely the West Kalimantan Province and the East Kalimantan Province based on 7 criteria that have been selected. Alternative assessment based on criteria is carried out using a specified scale. The results of ELECTRE calculations show that Western Kalimantan is a superior location than Eastern Kalimantan for the development of PLTNs with a higher Aggregate Dominance Matrix. This research can solve problems in determining PLTN locations with the MCDM method (Multi Criteria Decision Making). The combination of AHP and ELECTRE helps provide more objective information and can be used as a guide in decision-making. This research is potentially a source of reference and a relevant choice for engineering consultants in addressing MCDM problems. This study contributes to determining the right location for the development of PLTN in Indonesia by considering social aspects.

Keywords : *Site Selection, Nuclear Power Plant, AHP, ELECTRE*

DAFTAR ISI

DAFTAR TABEL

DAFTAR GAMBAR

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