

ABSTRAK

PERENCANAAN STRATEGIS PENAMBAHAN TITIK LOKASI SPKLU UNTUK Mendukung TRANSISI MOBILITAS DI JAWA BARAT

Oleh

Ilham Kurniawan

NIM:21416226201249

Program Studi Teknik Industri

Pertumbuhan kendaraan listrik di Jawa Barat menunjukkan peningkatan signifikan dari 1.430 unit pada tahun 2023 menjadi 5.693 unit pada tahun 2024. Namun, infrastruktur Stasiun Pengisian Kendaraan Listrik Umum (SPKLU) belum mampu mengimbangi lonjakan tersebut secara merata. Penelitian ini bertujuan untuk merumuskan perencanaan strategis penambahan titik lokasi SPKLU di Jawa Barat guna mendukung transisi mobilitas berkelanjutan. Metode yang digunakan adalah *Analytical Hierarchy Process* (AHP) dan *Weighted Overlay*, dengan bantuan perangkat lunak ArcGIS. Melalui AHP, lima kriteria ditentukan yaitu pusat kota (PK), jalan utama (JU), kawasan industri (KI), keberadaan SPBU, dan lokasi PLN. Bobot tertinggi diperoleh oleh PK dan JU, masing-masing 0,31, menandakan peran strategis kedua variabel tersebut. Konsistensi hasil pembobotan divalidasi melalui nilai *Consistency Ratio* (CR) sebesar 0,036 ($< 0,1$). Proses *Weighted Overlay* menghasilkan pemetaan wilayah potensial dengan skor tertinggi di kota-kota padat dan kawasan industri seperti Bogor, Bandung, Bekasi, dan Karawang. Hasil ini memberikan rekomendasi lokasi strategis SPKLU yang berbasis data spasial dan analisis multikriteria. Diharapkan dapat menjadi acuan kebijakan pembangunan infrastruktur kendaraan listrik yang lebih merata dan efisien di Jawa Barat.

Kata Kunci: SPKLU, *Weighted Overlay*, *Analytical Hierarchy Process* (AHP)

ABSTRACT

STRATEGIC PLANNING FOR ADDING SPKLU LOCATION POINTS TO SUPPORT MOBILITY TRANSITION IN WEST JAVA

By

Ilham Kurniawan

NIM:21416226201249

Program Studi in Industrial Engineering

The growth of electric vehicles in West Java shows a significant increase from 1,430 units in 2023 to 5,693 units in 2024. However, the infrastructure of Public Electric Vehicle Charging Stations (SPKLU) has not been able to keep up with this surge evenly. This study aims to formulate a strategic plan for adding SPKLU locations in West Java to support the transition to sustainable mobility. The methods used are Analytical Hierarchy Process (AHP) and Weighted Overlay, with the assistance of ArcGIS software. Through AHP, five criteria are determined: city center (PK), main road (JU), industrial area (KI), presence of gas stations, and PLN location. The highest weights are obtained by PK and JU, each with 0.31, indicating the strategic role of both variables. The consistency of the weighting results is validated through the Consistency Ratio (CR) value of 0.036 (<0.1). The weighted overlay process produces a mapping of potential areas with the highest scores in dense cities and industrial areas such as Bogor, Bandung, Bekasi, and Karawang. These results provide recommendations for strategic locations for electric vehicle charging stations (SPKLU) based on spatial data and multi-criteria analysis. They are expected to serve as a policy reference for more equitable and efficient electric vehicle infrastructure development in West Java.

Keywords: SPKLU, Weighted Overlay, Analytical Hierarchy Process (AHP)