

Model Bangunan Underground Gas Insulated Substation Berkelanjutan di DKI Jakarta = The Sustainable Building Model of Underground Gas Insulated Substation in DKI Jakarta

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Abstrak

Even though the Underground Gas Insulated Substation (GIS) building presents an opportunity to overcome land limitations in the development of electricity infrastructure in DKI Jakarta, there are several environmental, social and economic issues that must be analyzed concerning underground locations: the effect of perceived comfort and safety knowledge on work behavior, investment feasibility, the proportion of Green Open Space (RTH), and how the sustainable building model of Underground GIS can be applied. The purpose of this research is to achieve a model of Underground GIS building in DKI Jakarta. The quantitative approach is carried out by a combination of quantitative and qualitative research methods. The social parameters obtained during this research process can be used as guidelines for the implementation of the basement design. With an area of approximately 1700 m², the proportion of green space is predicted to reach 34%. The feasibility of building investment is influenced by physical investment costs, land use mechanisms, and the valuation of environmental and social benefits. The Sustainable building model of Underground GIS can be fulfilled if investment feasibility that accommodates social and environmental aspects is achieved.

Meskipun bangunan Underground Gas Insulated Substation (GIS) menghadirkan peluang mengatasi keterbatasan lahan didalam pengembangan infrastruktur ketenagalistrikan di DKI Jakarta, namun terdapat beberapa permasalahan lingkungan, sosial, dan ekonomi yang harus dikaji terkait lokasi di bawah tanah, yaitu: pengaruh persepsi kenyamanan dan pengetahuan keselamatan pada perilaku kerja, kelayakan investasi, proporsi Ruang Terbuka Hijau (RTH), dan bagaimana model bangunan Underground GIS dapat diterapkan secara berkelanjutan. Tujuan riset ini adalah menghasilkan model bangunan Underground GIS di DKI Jakarta. Pendekatan kuantitatif dilakukan dengan metode riset gabungan kuantitatif dan kualitatif. Parameter sosial yang didapat selama proses riset ini, dapat dijadikan pedoman pelaksanaan desain ruang bawah tanah. Dengan luas lahan kurang lebih sebesar 1700 m², proporsi RTH diprediksi dapat mencapai 34%. Kelayakan investasi bangunan dipengaruhi oleh biaya investasi fisik, mekanisme penggunaan lahan, dan nilai manfaat sosial lingkungan. Model bangunan Underground GIS berkelanjutan dapat terpenuhi jika kelayakan investasi yang mengakomodasi aspek sosial dan lingkungan tercapai.