

Application of Multipurpose Cadastre to Evaluate Energy Security of Land Parcel (Case Study: Gedung A and Gedung B, Institut Teknologi Sumatera)

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SUMMARY

Energy security has one of its dimensions: Short-term energy security which focuses on the ability of the energy system to react promptly to sudden changes within the supply-demand balance. Non-energy components (such as land parcel) that comprise an energy system are analysed comprehensively with other component to measure energy security related to energy supply. Multipurpose cadastre which is an integrated land information system containing legal, physical, and cultural is used to evaluate energy (electrical energy) security of land parcel.

The fundamental component of multipurpose cadastre used to evaluate energy security is attribute data which is the value of land parcel facilities. Other fundamental components (geographic control data, base map data, cadastral data) are used as position information and provide weight in room (part of land parcel) valuation. High value-room means the room is comfortable and/or used productively by its occupant. The method of valuation is by comparing one facility to other facilities. Facilities included in room valuation are relatively static items (such as chair, desk, and cabinet) except lamps and other electronic devices. The room value and number of electronic devices which consume electrical energy are correlated with each other. Consumption of electrical energy of electronic devices in the room with average value remains constant while consumption in other room needs to be evaluated to save the energy.

The result of this research shows that room value correlate weakly with number of electronic device in corresponding room. It shows excess energy consumed in low- value room. Although numbers of electronic devices do not always mean the consumption of electrical energy and there are plenty electronic devices, it is recommended for occupant to be careful in utilizing electronic devices in low-value room to minimize energy consumption.

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