ABSTRACT

In electrical planning, an electrical load is needed as a reference for planning. The electricity projection on a small island has a limitation, namely the island area itself. Therefore, the projection of electricity demand based on small islands such as Regit Island requires a spatial approach. In this approach, the parameter used is land use or land use.

The spatial-based projection method or spatial demand forecasting uses data from the Regional Spatial Plan (RTRW) of Rengit island. Qualitative data on the RTRW will be processed into quantitative data to observe the island's growth for five years. The data is processed with the help of Geographic Information System software to map locations that require electricity as well as Microsoft Excel and Crystal Ball software to perform Monte Carlo simulations that will test the uncertainty factor in the projected electrical load.

This research produces a projected electrical load on the island of Rengit in a range of load values with a confidence level of 98% for five with the last year projected electrical load of 859149 Watt. In addition, the projected load from this study also results in the option of selecting a transformer installation according to the load each year for a period of five years. These results can be used for electrical planning in various options.

Keyword: *electrical planning, projection, electrical load, spatial demand forecasting, Monte Carlo simulation.*