

ABSTRACT

With the large number of islands and population, there is a big problem in Indonesia, namely telecommunications. The main problem in the telecommunications sector in Indonesia is the difficulty of building wireless and cable network infrastructure so that it cannot reach all regions. The purpose of this study is to determine the efficiency of capex and opex related to the use of GEO satellites to integrate between BTS HUBs on Sapudi Island through link budget and techno economic analysis.

In the Link Budgeting analysis, it is based on the availability of the Base Station Controller (BSC) at the transmitter earth station located in Surabaya City and on the availability of the VSAT receiver, namely BTS located on Sapudi Island, both of which are connected to the GEO Nusantara Satu satellite. Techno economic analysis is carried out by adopting the Capital Budgeting analysis. The elements that make up Capital Budgeting include Capex consisting of RAN, MW, Power, VSAT and Tower on VSAT and FO. Opex consists of maintenance, NOC, Monthly Lease, Annual ISR and Drive Test also on VSAT and FO. Potential Revenue in this study is the value of income obtained from USO funds (operator involvement). Model simulations of both link budget and techno economic are validated by consulting the model with academic collaborators, namely the supervising lecturer

The results of the study show that technically, the application of GEO satellites on Sapudi Island has a low Carrier To Noise (C/N) value with a value of 13.90 dB so it is good to implement. In terms of economy, the application of GEO satellites on Sapudi Island has a positive NPV with an IRR value of 11% which means it is greater than the reference interest rate (6%) and the Net Benefit Cost Ratio (Net B/C) with a value of 2.301. So this business is feasible to implement because it has the ability to obtain a high rate of return

Keywords: GEO, Link Budget, Techno Economic