

ABSTRACT

LTE is a further evolution of 3G that will be much more efficient, where LTE is able to download and upload from cellular phones at hundreds of Mbps with more efficient spectrum usage, greater network capacity, good handover and can integrate with various network. Indosat is one of the 4G LTE operators technology developers using 1800Mhz frequency in Indonesia. Banyumas Regency has a very rapid development with the progress in knowledge education. The development of Banyumas Regency, it is also necessary to improve the telecommunication service that is feasible.

To plan for the implementation of LTE technology in Banyumas Regency requires consideration in technological and economic aspects. Planning is using atoll software with reference to downlink, uplink and volume requirement of data needed by considering demography factor and projection of user in Banyumas Regency. The design is based on capacity approach and coverage area. In the economic section Cost benefit analysis includes calculation of CAPEX (Capital Expenditure), OPEX (Operational Expenditure) and NPV (Net present Value).

LTE technology deployment scheme based on Banyumas Regency area coverage requires 124 sites, while calculation based on capacity needs 92 sites in 2016. Simulation result using atoll software shows average RSRP value -80.9dBm and SINR value 0.64dB. While on the economic side CAPEX cost includes eNodeB device costs, license, Installation and loan capital. OPEX cost includes Operational & Maintenance, Rental backhaul, HR cost, Interconnection fee, marketing fee, general administration fee & Frequency BHP. Depression assumption for 10 years. The funding structure is the assumption of 60% loan & 40% own capital. The loan interest rate is 7.5% per annum with the assumption of a 5 year loan repayment. Annual tax of 25%. WACC of 12.5%. Cost benefit calculation yields -7,98% IRR and NPV Rp-9,603,625,283.90. So the design of LTE deployment in Banyumas Regency is categorized as inappropriate.

Keywords : *LTE, Atoll, RSRP, SINR, CAPEX, OPEX, WACC, IRR, NPV, payback period.*