

## **ABSTRACT**

*The initial rollout of 5G networks started in 2019. 5G networks marked the start of a digital evolution and significant breakthroughs in terms of latency, data rates, mobility and the number of connected devices, unlike previous generations. Looking back at the evolution of mobile communications, it took about a decade from initial research concept to commercial deployment, while subsequent use lasted at least another 10 years. That is, when the previous generation of cellular networks entered the commercial phase, the next generation carried out concept research. Since 5G has already been successfully rolled out, now is the perfect time to launch research on a 5G successor.*

*In this research, the main focus is on power efficiency by using power management in 6G networks which are expected to be efficient. Along with this, related simulations are carried out and possibly a few solutions that can help in the formation of an efficient network. These are some of the solutions that can be offered for power efficiency on 6G green networks. From the simulation design using omnet++ which has been carried out ten times and got the best results in the fourth trial of 0.01497635 J and after being compared using the same parameters with 5G the best power efficiency is 64.49% and with an average value of 23.86%, for the results from a comparison of Residual Energy on 5G and 6G networks with a power management node start capacity of 0.25J getting an average efficiency of 36.2%, a power management node start capacity of 0.5J getting an average efficiency of 36.5%. With a power management node start capacity of 0.75J, an average efficiency of 36.49% is obtained, where of all the power management node start capacities, the most efficient value is found in the power management node start capacity of 0.5J with a value difference of 0.006%.*

*Keywords: 6G Green, Power Efficiency, Power Management.*