**ABSTRACT**

Traditional macro-cell networks are experienced an increase of data traffic and small-cells are deployed help to offload the traffic from macro-cells. The Energy Aware Traffic Offloading for Green Heterogeneous Networks (EATOG) approach is analyzed on grid power saving by offloading traffic for green heterogeneous networks to increase the efficient utilization of harvested energy for on-grid power saving while satisfying the Quality of Service (QoS) requirement. The EATOG is mainly intends to of energy-aware traffic offloading for HCN with multiple Small cell Base Station (SBS) powered by diverse energy sources which reduces the on-grid network power consumption while satisfying the QoS requirement in terms of rate outage probability. The performance of energy consumption is degraded due to the Overlapped Small Cell Based Stations. An optimal deploying low power node within macrocell coverage area is proposed in this paper to improve the system utility while minimizing the installation cost. The proposed Optimized Energy Aware Traffic Offloading for Green Heterogeneous Networks (OEATOG) approach is considers the inter-cell interference and the configuration of Almost Blank Sub-frames (ABS) when maximizing the system utility. The proposed paper deals with the placement of Pico Base Station within the macro cell in LTE (Long Term Evolution) heterogeneous networks. A Pico Cell is a small cellular Base Station (BS) which supports low power nodes and offers greater capacity and coverage areas. Furthermore the heuristic algorithm is introduced too efficiently solve the formulated problem and obtain the optimal picocell placement. The simulation results indicate that the proposed algorithm is to improve the utility of the network, especially in regions with high traffic density, while maintaining the installation cost at a reasonable level.