**A MODEL FOR DETERMINING THE INFLUENCE OF IRREGULAR POWER SUPPLY ON PRODUCTION INDUSTRY IN DEVELOPING ECONOMY.**

**\*A.F.Owa1 B Kareem2 and F.Adesina 3**

1 Materials and Metallurgical Department, Federal University Oye-Ekiti, Ekiti State, Nigeria.

2 Mechanical Engineering Department, Federal University of Technology, Akure, Ondo State, Nigeria.

3 Mechanical Engineering Technology Department, Rufus Giwa Polytechnic, P.M.B. 1019, Owo, Ondo State, Nigeria.

\*E-mail: adebayo.owa@fuoye.edu.ng

**ABSTRACT.**

In this paper, profit is maximized ( or production cost is minimized ) by developing an Integer programming ( IP ) model to determine, at a given respective unit cost, optimal numbers of outputs obtainable per production cycle (time) using public electricity generated from national grids and alternate electricity from generators subject to production output capacity or demand constraint. The results obtained showed that production cycle time has a great impact in the determination of optimal outputs for the respective conditions. Also increase in cost of public electricity per unit product has an upper limit beyond which it has negative effect on the profitability. The results served as determinant factors for production industry in establishing the level of outputs that sustained the profitability by providing optimal cost of public electricity to operate without having any effect on the profit, at a given cycle time.

**Keywords:** cycle time, constraint, deregulation, integer programming, optimal number, output.