

# Capital Budgeting Models for Investing the Utilization of Lithium Battery Products (Case Study: UNS Battery Factory)

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## Abstract

Through Presidential Regulation Number 55 of 2019, the government plans to develop environmentally friendly renewable energy-based technology. Therefore, the company is trying to take advantage of these opportunities by continuing to develop the use of lithium batteries for various existing technologies. Some of the products that are in the process of being developed include the use of lithium battery packs for electric motors, conversion electric motors, drones, and dry batteries. The next step is to carry out the capital budgeting process related to the four projects that are being carried out by the company. Furthermore, the problems that have been mapped will be solved with a linear programming approach and goal programming. In this study, the capital budgeting process is carried out in stages with increasing complexity using four model scenarios. Scenario model 1 is capital budgeting carried out on independent projects; scenario model 2 is capital budgeting which is carried out if the electric motor battery pack project is dependent on the battery pack electric motor conversion project; scenario 3 is capital budgeting carried out if the company's capital sources are divided into three, namely own capital, loans and shares with different rate of return values; scenario 4, namely capital budgeting if there is a tax holiday facility from the government to automotive producers investing in batteries and electric motors. Based on the calculation of scenario model 1, the optimal combination of projects is the electric motor battery pack project and the electric motor conversion battery pack project. Based on the calculation of scenario model 2, the optimal combination of projects is the electric motor battery pack project and the electric motor conversion battery pack project. Based on the results of the calculation of scenario model 3, the optimal project combination is the electric motor conversion battery pack project and the drone pack battery project. Based on the calculation of scenario model 4, the optimal project is the electric motor battery pack project.

## Keywords

Capital budgeting, Lithium battery pack, Electric motor, Electric motor conversion, Drone, Dry battery, Linear programming, Goal programming

## Biographies

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