

Efficiency of Mining Investments. Models To Determine the Optimal Production Capacity By Dividing The Total Costs*

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Abstract

This paper intends to present different models for optimal production capacity in mining industry related to efficient mining investment process. After presenting a large literature review of the beginnings related to this issue, the article deals with models related to the calculation of optimal capacities by dividing the total production costs into its compounding elements. As such, in the beginning of this paper different components of production cost are introduced: depreciation cost, fixed cost, and variable cost. For each of these components, models to determine them depending on different production variants are given. Based on these individual models, an integrated model for the calculation of the total production cost is introduced. Moreover, starting from these assumptions, a model for total profit calculation is given, both without updated data and with taking in consideration a discounted factor. The second part of the paper presents some numerical examples of applying these models in order to demonstrate their validity in investment decision-making for two mining exploitations.

Keywords: mining industry, model, fixed cost, variable cost, depreciation cost, total production cost, reserves