

ABSTRACT

Estimation of operating cost for a mining project is essential to find out the feasibility of a new project and for conducting an economic analysis of a complete mining project. This report outlines a framework for the estimation of operating costs in surface coal mining projects. The cost estimation process makes use of the first-principles approach and is developed by breaking the mining operation into different activities. From this, a framework is developed for estimating costs against each activity or component.

Using the framework and this cost estimation approach a cost model was developed for the truck and shovel activities on surface coal mines. The model has been further explained, elaborated and verified by estimating operating costs for an example mine. The framework is validated using the Delphi method by engaging experts and incorporating their opinions and inputs to refine the model.

The research provides a new perspective on estimating operating costs for surface mining projects considering the unique variables of the project and determining the different cost components in detail to obtain the overall mine operating costs. This research also generates the cost estimation in an Excel format that can be used for cost estimation purposes and provides an opportunity to conduct a sensitivity analysis for key mining variables.