

Survey Research Assessment for Renewable Energy Integration into the Mining Industry

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Abstract : Mining operations are energy intensive, and the share of energy costs in total costs is often quoted in the range of 40 %. Saving on energy costs is, therefore, a key element of any mine operator. With the improving reliability and security of renewable energy (RE) sources, and requirements to reduce carbon dioxide emissions, perspectives for using RE in mining operations emerge. These aspects are stimulating the mining companies to search for ways to substitute fossil energy with RE. Hereby, the main purpose of this study is to present the survey research assessment in matter of finding out the key issues related to the integration of RE into mining activities, based on the mining and renewable energy experts' opinion. The purpose of the paper is to present the outcomes of a survey conducted among mining and renewable energy experts about the feasibility of RE in mining operations. The survey research has been developed taking into consideration the following categories: first of all, the mining and renewable energy experts were chosen based on the specific criteria. Secondly, they were offered a questionnaire to gather their knowledge and opinions on incentives for mining operators to turn to RE, barriers and challenges to be expected, environmental effects, appropriate business models and the overall impact of RE on mining operations. The outcomes of the survey allow for the identification of factors which favor and disfavor decision-making on the use of RE in mining operations. It concludes with a set of recommendations for further study. One of them relates to a deeper analysis of benefits for mining operators when using RE, and another one suggests that appropriate business models considering economic and environmental issues need to be studied and developed. The results of the paper will be used for developing a hybrid optimized model which might be adopted at mines according to their operation processes as well as economic and environmental perspectives.

Keywords : carbon dioxide emissions, mining industry, photovoltaic, renewable energy, survey research, wind generation

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