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A quantitative method for selecting renewable energy projects in the mining industry based on sustainability

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Abstract:

Mining companies sponsor a range of non-core, corporate social responsibility projects to adhere to social and labour plans and environmental management prerequisites that form part of a mining licence application. Some companies go above and beyond such projects, sponsoring initiatives that generate renewable energy through solar power, wind energy, natural gas, etc. The challenge for the company is to choose between a variety of projects to ensure maximum value for the company, especially in times when the economic climate might be less favourable for such projects. The focus of this research was to analyse the concept of sustainability as it exists today, and to apply that to the triple bottom line accounting method in an attempt to quantify the sustainability of a project and compare it with another project. A case study was done on the methane burn-off project at Sibanye Gold's (previously Gold Fields') Beatrix Mine to establish how such projects are planned and financed in the industry, and what impact they have on the triple bottom line of a

company. The financial bottom line is by definition one that executives understand. A quantitative method of also defining the social and environmental bottom lines is now proposed. By considering the financial, social and environmental values obtained, a monetary value is established for a sustainable renewable energy project. This monetary value can be compared to similar values obtained for other sustainable renewable energy projects under consideration. Monetary value alone is not enough to base a sustainable decision on and qualitative measures are suggested for use in conjunction with quantitative methods. The proposed method will permit the board of a mining company to choose the most sustainable option and the project that will add the greatest value to the company across all three bottom lines. It will also provide increased justification for such renewable energy projects, even in periods of harsh or uncertain economic climates.

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