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Application of real options valuation for analysing the impact of public R&D financing on renewable energy projects: A company's perspective

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ABSTRACT

This paper contrasts the financial benefit of grants given to research and development projects with the reduction in managerial flexibility they impose, which implies a loss in the value of the project. To quantify this loss of value, real options analysis has been adopted as the most suitable framework to assess and quantify managerial flexibility. This idea is illustrated by the case of a research and development project in renewable energy, specifically Concentrated Solar Power. Our results show that the value added by the grants is less than the nominal incentives received as a result of the loss of flexibility for managers; they cannot apply certain options such as deferral, nor can they abandon the project. Therefore, a break-even grant is proposed that equals the financial incentive with the loss of managerial flexibility. Under this break-even point, the grant should be rejected. This paper will create awareness for both policy makers and private companies regarding a more accurate assessment of grants to research and development funding as well as provide insights to improve grant schemes without increasing the amount of public funds.