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## **A CASE STUDY ON COST-BENEFIT ANALYSIS TO ASSESS THE PROFITABILITY OF INSTALLING SOLAR PANELS AT THE IRRIGATION DEPARTMENT HEAD OFFICE IN COLOMBO**

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**Abstract:** This paper presents a cost-benefit analysis of installing solar panels at the irrigation department head office in Sri Lanka. The objective is to reduce the electricity costs, which currently amount to approximately 2.3 million monthly. The analysis includes a comprehensive assessment of the Net Present Value (NPV) of 108,006,371.67, Internal Rate of Return (IRR) of 38%, Payback Period of 2.57 years, and Return on Investment (ROI) of 38.06%. Results indicate that the solar panel installation would not only achieve substantial cost savings but also contribute to sustainability efforts by reducing carbon emissions. The study concludes with a recommendation to proceed with the installation based on the positive financial and environmental outcomes. This project demonstrates a sustainable approach to energy management and cost reduction.

**Keywords:** Cost Benefit Analysis, Internal Rate of Return, Net Present Value, Return on Investment, Solar Panel.