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Maestría en

ENERGÍAS RENOVABLES

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Estudio comparativo solar de una comunidad en Quito para una demanda térmica de 555 MW-h/año y una demanda fotovoltaica de 111,5 MW-h/año.

RESUMEN

Este documento tiene como enfoque el análisis técnico y económico de dos proyectos de energía solar en la ciudad de Quito, ubicados en la Urbanización El Manantial. El primer proyecto tiene como finalidad la reducción del consumo eléctrico en un 20% dentro de la Urbanización. El segundo proyecto tiene como objetivo cubrir el 100% de la demanda térmica, incluyendo el suministro de agua caliente sanitaria y la climatización. Cabe destacar que se considera la existencia de un respaldo de Gas Licuado de Petróleo (GLP) para garantizar la continuidad del suministro en caso de condiciones adversas.

ABSTRACT

The present document focuses on the technical and economic analysis of two solar energy projects in the city of Quito, located in El Manantial residential area. The first project aims to reduce electrical consumption by 20%. The second project's objective is to meet 100% of the thermal demand, including the supply of sanitary hot water and heating/cooling. It is worth noting that the existence of Liquefied Petroleum Gas (LPG) backup is considered to ensure a continuous supply in adverse conditions.

Keywords:

Solar Energy: The capture and conversion of solar radiation into electricity or heat for its use.

Energy Generation: The process of electricity production from energy sources, such as solar energy, for distribution and utilization.

Solar Panels: Devices that convert solar energy into electricity through photovoltaic cells.

Photovoltaic Systems: A set of components that capture solar energy and convert it into electricity.

Energy Efficiency: The rational use of energy to maximize useful energy production and minimize losses.

Electric Consumption: The amount of electricity used by a specific system, building, or area.

Energy Demand: The amount of energy required to meet the needs of a system or location.

System Design: Planning and configuration of solar systems for optimal performance.

Energy Savings: The reduction in the amount of energy consumed without compromising quality of life or production.

Energy Backup: Alternative sources or systems, such as Liquefied Petroleum Gas (LPG), ensuring the continuity of energy supply in case of interruptions.