

# Renewable Energy & Emerging Technologies

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## ENABLING THE RURAL COMMUNITY THROUGH SOLAR INTERVENTIONS

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The access to electricity and potable water are amongst the major issues worldwide, which need to be addressed on priority. The focus will be on the design methodology and various associated factors in designing micro grids with aim of enabling the community, for domestically and commercially productive applications. Grassroots and Rural Innovative Development (GRID) innovative solar RO-UV technology will be especially elaborated. This technology is fundamentally designed to cater the needs of rural communities that are deprived of energy security and access to clean drinking water. The technology maximizes the utility of PV installations and brings affordable and accessible clean drinking water to every door step in the rural communities. Through the deployment of this technology, purified water can be sold at a rate as low as USD 0.03 for five liter. The current design supplies 20,000 liters of clean drinking water every day to a population of around 6000; however, it can be optimized to match the specific requirements of the location.

Further the technological and economic advantages of utilizing solar power for this endeavor and its function in making it a more reliable and pragmatic approach in countries like India, which are marked by extreme scarcity of clean drinking water, will be discussed. The challenges in designing micro grid applications for rural landscapes are unique due to prevalent uncertainties. To maximize utility and impact, rural micro grid design must account for various technological, geographical, economic and logistical factors such as procurement of replacements, increased dust effect and optimization of design for reliable operation with varying and uncertain load requirements. The design, operations and maintenance model for this plant take into consideration all such factors. Through smart designs, GRID's solar RO technology, the photovoltaic technology has a potential to impact thousands of lives not only on environmental front but also on social and economic front.

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