

Exploring a Net-Metering Policy Towards Solar Energy Technology Adoption and Sustainability

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Abstract : Numerous studies have established that solar energy is the second most prevalent form of alternative renewable energy globally, particularly in regions with abundant sunlight. The adoption and ongoing sustainability of solar technology are pivotal for the transition to renewable energy sources. However, the literature indicates that some countries, especially in the developing world, may impede this transition. Despite various policy initiatives aimed at supporting the adoption of solar technology, the long-term effectiveness of these policies remains uncertain. This study investigates the current policy drivers influencing the success or failure of solar energy technology adoption and sustainability. It employs a qualitative review approach to compare strategies for implementing the net-metering policy incentive in both developing and developed countries, identifying successful and unsuccessful strategies and drawing conclusions on the lessons learned. The study's findings reveal that the effective implementation of net metering depends on regional variations in solar radiation and differing levels of electricity demand across regions. Further, the study found that the implementation of net metering has faced challenges in some countries due to regulatory barriers and bottlenecks that hinder private sector involvement and business sustainability. Economic stability also significantly impacts net metering implementation. This study concludes that governments should strive to balance benefit-sharing to attract more private-sector investment in solar technology while ensuring the viability of government energy regulatory bodies.

Keywords : solar energy technology, adoption, sustainability, net-metering

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