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Achieving successful community engagement in the evolving power system landscape: A case for micro- and mini-grids

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Off-grid mini and microgrid systems are increasingly recognized as a viable solution that can be implemented for extending energy access to the 760 million people around the globe who are currently not served by traditional grid infrastructure. In South Africa's rural and remote areas, the electricity utility company, Eskom, is leveraging microgrid technology and has three active sites. Eskom is also currently conducting feasibility studies for 40 sites, with plans to develop approximately 100 installations across the country. These projects hold great potential for extending reliable power to underprivileged communities. It also has the potential to increase efforts for a just energy transition. This paper underscores a critical aspect of micro- and mini-grid implementation that transcends technical and generic environmental considerations i.e. the pivotal role of community engagement and inclusion. While these systems are fundamentally technological solutions, their success hinges on their integration and understanding within the communities they are hosted in and supply. Furthermore, South Africa has very unique socioeconomic challenges that need to be considered when developing such projects in the country. Recognizing this, this paper explores the multifaceted nature of successful community engagement for micro- and mini-grid projects in the South African context. Successful and meaningful community engagement and inclusion is becoming progressively important as the globe grapples with the concept of the just energy transition. Drawing from both global best practices and the unique context of South Africa, this paper emphasizes the importance of involving local communities from the project's inception through to its operation and maintenance phases. Additionally, an understanding of what really is considered just will also be provided in this paper. It highlights the tangible benefits that such engagement can yield, including increased project acceptance, sustainability, and socio-economic development. Lastly, the paper presents a toolbox of effective community engagement strategies for micro- and mini-grid projects in South Africa which may be able to be used in other developing countries that have similar socio-economic challenges and experiences.