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POWERING DEVELOPMENT IN CLIMATE VULNERABLE AREAS

*The Role of Decentralized Solar Solutions
in India*

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FOREWORD

The year 2020 marked five years since the signing of the Paris Agreement, which aims to limit global temperature rise by 1.5°C through aggressive mitigation action. India has been making steady progress toward its commitment of reducing energy sector emissions and has set a 450 GW target for renewable energy by 2030. India also made significant progress in improving electricity access for more than 500 million people over the last two decades.

Despite the significant increase in electrification of homes, electricity access continues to be a challenge for the rural health, education, and livelihood sectors. In India, according to National Health Mission statistics of 2018, 36 percent of public schools and 24 percent of public health centers remain unelectrified. Several of the electrified centers get only an intermittent and unreliable supply of electricity and are therefore compelled to rely on expensive diesel generators. Inequitable access to reliable electricity supply impacts the socioeconomic development of vulnerable communities, particularly in rural areas, as it disrupts schooling, medical services, and livelihoods.

The 14 case studies in this report, “Powering Development in Climate Vulnerable Areas: The Role of Decentralized Solar Solutions in India,” highlight how climate change affects electricity demand and debilitates the infrastructure that supplies electricity. The report is a timely analysis of the importance, and advantages, of deploying decentralized energy solutions to power remote and rural schools, healthcare, and livelihood facilities. The findings from this publication also indicate that effective decentralized energy solutions need to be climate proof and tailored to local conditions. For example, Assam, which is a flood-prone state, has developed unique solutions such as floating solar grids to reduce the risk to infrastructure during the monsoon. On the other hand, in lightning-prone areas of Jharkhand, implementers have installed lightning arresters to protect against such events. The localization and

customization of clean energy solutions are not limited to technology but also include operational and financial processes.

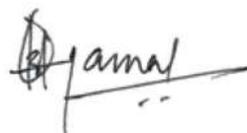
This report aims to be a roadmap for designing, implementing, and managing clean energy solutions—especially in climate vulnerable areas. It describes how implementers, vendors, and policymakers can come together to build resilient infrastructure that can support the country in achieving its Sustainable Development Goals and climate targets.

As a developing country, India enjoys the unique advantage of being able to pursue cleaner trajectories for infrastructure that is yet to be built. As the Indian government works toward ensuring sustainable, affordable, and reliable electricity for all, it needs to ensure that the new infrastructure is climate resilient to secure mitigation and development gains. Decentralized renewable energy solutions crafted to meet developmental needs are essential to lift people out of poverty and stay below 1.5°C.



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EXECUTIVE SUMMARY

Many of India's most impoverished and underserved people live in the country's climate vulnerable regions. With limited access to healthcare, education, and livelihoods, the poor are among the least equipped to cope with the climate change threat despite being overrepresented in climate vulnerable areas (Diwakar et al. 2019).