POWER FOR ALL FACT SHEET

Decentralized Renewables: Supporting Climate Resilience and Adaptation

9%

SHARE OF TOTAL WATER CONSUMPTION IN INDIA FROM POWER GENERATION BY 2050 IN BAU SCENARIO

95%

PERCENTAGE OF BERMUDAN INFRASTRUCTURE AND HOUSING DESTROYED BY HURRICANE IRMA

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DRE can help communities to adapt to a fast changing global climate and become more resilient in the face of such disasters

Impacts of climate change directly threaten water supply around the world through droughts and changing weather patterns, which can have a severe impact on electricity generation and supply.

» Brazil and Zambia--both countries that rely heavily on large hydropower--experienced constraints on electricity supply due to severe droughts[1] in 2015. The problem is not restricted to hydropower since thermal-electric power plants also consume large amounts of water for generation.[2]
» In 2012, heat waves and monsoon season delay were responsible for major blackouts in India.[3] India faces a particularly acute problem as business-as-usual scenarios predict that by 2050 almost 9% of national water consumption (water removed from source and not returned to water cycle) will be through power generation.[4]
» DRE technology that does not rely on large scale water consumption can help local and national communities adapt to such changing weather patterns.[5]
» IRENA research found that a combination of higher share of renewable energy and higher efficiency of cooling technologies in India could reduce water withdrawal intensity (amount of water removed from source) by 84% and water consumption by 25%, in comparison to baseline scenarios.[6]

Natural disasters of increasing frequency and devastation threaten communities. DRE technology offers a more resilient and cost-effective alternative for many local and national communities.

» Caribbean island nations are no longer strangers to mega-weather events that rip through infrastructure. Hurricane Irma of 2017 destroyed 95% of homes and infrastructure on Bermuda and Puerto Rico is still struggling to get its electricity grid back on a stable footing.[7]
» The traditional grid's transmission and distribution network is highly vulnerable to extreme weather events.[8] Grid disruption, in turn, can bring other critical infrastructure components such as transportation and health services to a halt.
» By disconnecting from the larger grid when needed and eliminating the need for fuel, DRE technology can add resiliency to electricity supply. Turks and Caicos, for example, reported uninterrupted operation of the island's PV mini-grids even as Hurricane Irma swept through the country in 2017.[9]

POWER FOR ALL RESEARCH SUMMARY

Decentralized Renewables: Supporting Climate Resilience and Adaptation

By the Numbers:

9%

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» Also, many of the most vulnerable island communities face high electricity costs of around USD 0.20-0.50/kWh due to their geographic restrictions.[10] Transition to DRE technologies can reduce costs for these communities

Business-as-usual approaches to electricity supply are insufficient in the face of climate change. Join Power for All to share the following messages:

» Climate change threatens global water supply, a problem that can is compounded by the large water needs of conventional power generation technology. DRE can help reduce the burden to the planet's water supply.

» The traditional grid is vulnerable to increasingly extreme weather events. DRE can help create more resilient means of electricity supply in a cost-effective way.

Sources:

1. IEA (2015), Making the Energy Sector More Resilient to Climate Change, 4
2. IEA, 4
3. IEA, 4
4. IRENA (2018), Water Use in India's Power Generation: Impact of Renewables and Improved Cooling Technologies to 2030, 1.
5. IEA, 5
6. IRENA, 9.
7. RMI, "Rebuilding the Caribbean for a Resilient and Renewable Future", 9/15/2017.
8. IEA, 3.
9. RMI.
10. RMI