



## 7 AFFORDABLE AND CLEAN ENERGY



### MODERATORS

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The 17 Rooms initiative is convened by the Brookings Institution and The Rockefeller Foundation to stimulate near-term cooperative actions to advance the 17 Sustainable Development Goals (SDGs). This document summarizes insights and actions that emerged from the working group discussions in Room 7 during the 17 Rooms 2020 flagship process. The text was independently prepared by the Room's Moderators and participants, in response to the common question asked of all Rooms in 2020: "In light of recent crises linked to COVID-19, systemic racism, and other urgent challenges, what are 1 to 3 actionable priorities over the coming 12-18 months that address near term needs while also making a decisive contribution to protecting or advancing your Goal's 2030 results? What actions can members of your Room take to advance these priorities?" Corresponding documents prepared by all the other Rooms are available [here](#), alongside a synthesis report prepared by the 17 Rooms secretariat.

## Focus area

What are the biggest **opportunities to advance and optimize technology for distributed renewable energy in underserved markets**? What actionable priorities could accelerate progress over the next 12-18 months, particularly in light of current crises?

## Practical opportunities and challenges

- Transformational advances in hardware for power have occurred in recent years. A precipitous cost reduction in battery storage technology, particularly lithium ion batteries, on the heels of a similar cost reduction trajectory in solar photovoltaics (PV) have fundamentally disrupted the sector. In the United States, building new clean energy portfolios (a combination of renewables, storage, energy efficiency, and demand response) is now [cheaper than building new fossil generation](#) and will soon be cheaper than operating existing gas-fired power plants.
- Yet the approach to building out new power systems to serve the [nearly 800 million people](#) in the world without access to electricity is dominated by traditional grid development paths. Despite much talk about and promotion of distributed energy resources and off-grid energy access, of the [~\\$40B poured into the power sector](#) in sub-Saharan Africa in 2018, a little more than [1 percent](#) was put into distributed or off-grid solutions.
- Core impediments today to scaling distributed renewable energy in underserved markets are about harnessing existing advances and unlocking the dynamic interface of technology, regulation, finance, and policy – and largely not about pure technology R and D innovation (except in digital tech/modeling and, on a longer-term horizon, long-term storage).
- In the context of balkanized approaches, success in scaling renewable energy in underserved markets will require convergent execution on what matters, particularly from governments and donors – lest we lose the next decade to fragmented pilots.
- Success will also require surmounting the false choices that tend to dictate the discourse in the market today, particularly between:
  - Off-grid/decentralized vs. on-grid/centralized (we need integrated grid systems that drive both energy access, resilience, and sustainability)
  - Small-scale vs. large-scale (we need mixed-scale and networked/orchestrated solutions; just thinking of this as kW-scale for access or GW-scale for climate change will limit creative new solutions)
- Emerging COVID-19 recovery efforts and associated public investments in infrastructure represent a critical short-term opportunity to either more deeply entrench siloed approaches – or advance holistic models for a green, inclusive recovery.

## Illustrative areas for action include:

- **Building capacity around integrated energy systems modeling** to unlock the synergies between grid-based and distributed renewable technologies, by building the capacity of utilities, regulators, and policy makers to fully leverage the potential. This is an area where NGOs/industry and others could partner to build an Africa-oriented power systems operator/modeling group that could bridge the false choice between grid vs. off-grid technologies by identifying what's possible and how to build the future grid intelligently from the start.
- **Harnessing advances in renewable technologies (especially battery storage and PV) by bringing purchasing scale to new markets, particularly distributed electrification systems for underserved populations.** This could include aggregated purchasing and/or volume guarantees across large and small companies to reduce costs and make new markets for disruptive technology. For example, bringing the current cost of these technologies in sub-Saharan Africa in line with global the average alone will drive down the realized price of energy storage by 70 percent and reduce the overall installed cost of a DRE system by approximately 30 percent.<sup>1</sup> It would require mobilizing blended private financing to rapidly expand capital available to developers to fund purchases, perhaps best deployed in markets with policy enabling context associated with countries participating in the emerging results-based pan-African Universal Energy Fund.

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<sup>1</sup> Based on modeling by The Rockefeller Foundation, using World Bank and Bloomberg New Energy Finance data.

- **Supporting business model innovation to leverage emerging technologies** – for example by promoting collaboration between on-grid and off-grid solutions for rural customer markets. For example, there could be major efforts to use data from utilities to improve planning through complementary (rather than competitive) solutions that could attract large scale private capital. Approaches could include identifying and backing 3-4 progressive utilities most interested in an integrated approach where a stronger enabling environment is in place (e.g., Nigeria).