MESSAGING GUIDE: MINI-GRIDS

prepared by Power for All

March 2019

I. Overview

What is a messaging guide?

Based on input from a diverse set of sources[1] gathered by Power for All, this guide is a reference tool to help various stakeholders understand the importance of the global mini-grid sector[2] . With this guide, sector stakeholders, including businesses, funders, government and civil society, should be able to easily discuss mini-grids at a high level or in-depth, using clearly sourced evidence.

II. High-Level Narrative

What is the mini-grid story?

> *Mini-grids have the potential to transform the lives of nearly half a billion people, by rapidly and affordably connecting rural communities to quality electricity for the first time and establishing a stable foundation for economic growth and social well-being.*
>
> *Using technology, business and financial innovation, mini-grids serve the needs of industry, households, health clinics and schools, delivering modern electricity that is customer-centric, reliable, modular and built for a climate-vulnerable future.*
>
> *Mini-grids are a local, "outside-in" solution to electricity access, helping governments achieve their development goals and save money, while complementing other pathways to electrification including grid extension and off-grid solar*

***Tagline*: Micro-grid, macro-impact**

III. Key Messages

[1] Power for All conducted a multi-stakeholder survey (private sector, funder/investor, government, civil society), global media audit, 1:1 interviews, literature review

[2] In this document, we use mini-grid interchangeably with micro-grids and distributed/decentralized utilities

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How do we validate the story?

Supporting the *narrative* are *key messages*. Each message is supported with *evidence*. The objective is to inspire the mini-grid sector, its partners and the broader energy ecosystem to speak with a confident and unified voice, further legitimize the sector, and bring its powerful story and data to life.

Message 1: Distributed energy solutions like mini-grids are the **lowest-cost, most reliable and resilient** way to electrify a majority of unconnected rural communities.

Supporting evidence:

- Distributed, renewable solutions, including mini-grids, are the least-cost way to connect over 70% of the world's 1 billion unelectrified people[3], with mini-grid costs expected to decline another 60% by 2020[4]
- Mini-grids are more reliable (in terms of up-time within normal voltage ranges), compared to the main grid; 98% vs. 47% respectively[5]
- For rural electrification, mini-grids are more affordable per-connection ($500-$1,000) compared to public utilities ($2,300)[6]
- Mini-grids take weeks to deploy and last 15-20 years. Grid extension in Sub-Saharan Africa averages over $1 million/MW-km (the cost of transmitting 1 MW of power a distance of 1 km), and takes an average of five years to complete.[7]
- In the past decade (2008-2017), solar mini-grid capacity worldwide grew 2700% to 308MW, even without supportive finance and policy. As of 2017, small hydro mini-grid capacity stands at 509MW.[8]

[3] http://www.iea.org/publications/freepublications/publication/WEO2017_Special_Report_Energy_Access_Outlook_ExecutiveSummary_English.pdf (p. 4)

[4] https://rmi.org/press-release/rural-minigrids-commercially-viable/

[5] https://microgridknowledge.com/mini-grid-model-sub-saharan-africa/

[6] https://www.brookings.edu/blog/africa-in-focus/2017/10/10/building-the-grid-of-the-future-today/

[7] https://www.greentechmedia.com/articles/read/grid-extension-done-right-for-sub-saharan-africas-utilities#gs.MrrJc6M

[8] http://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Oct/IRENA_mini-grid_policies_2018.pdf

- Mini-grids are ready to accelerate. The number of mini-grids in Africa is expected to increase 700% to 16,000 by 2023, while the number in India is expected to rise 650% to 15,000 in the same period[9]

Message 2: Mini-grids are a **critical part of national electrification**, playing a complementary role to grid extension and off-grid solar, while delivering exceptional customer service.

Supporting evidence:

- Many countries, both developing and developed (Cambodia, Sri Lanka, Indonesia, China, United States), started with an "outside-in" approach to rural electrification by using mini-grids[10], later integrating them seamlessly into the national grid
- Cambodia has more than 250 formerly isolated private mini-grids that are now connected to the national grid as small power distributors. These mini-grids provide power to over 4 million people, about 30% of the total population.[11]
- The World Bank says that "countries with private distribution companies have been able to address their rural electrification needs."[12]
- 70% of African utility executives say advances and cost reductions in decentralized technology like mini-grids will deliver an exponential increase in rural electrification levels by 2025[13]
- A global survey showed 40% of utilities identify services related to micro-grids, energy storage and data as top drivers of earnings growth beyond 2025.[14]
- Mini-grids are modular and can be scaled as demand grows[15]

[9] https://www.infinergia.com/en/mini-grid-market-report

[10] https://openknowledge.worldbank.org/handle/10986/29019

[11] https://www.greentechmedia.com/articles/read/subsidizing-private-sector-rural-electrification#gs.2kheo5

[12] https://www.greentechmedia.com/articles/read/subsidizing-private-sector-rural-electrification#gs.2kheo5

[13] https://www.pwc.com/rw/en/assets/pdf/pwc-africa-p&u-sector-survey.pdf

[14]https://www.accenture.com/t20181109T190517Z__w__/us-en/_acnmedia/PDF-89/Accenture-Vibrant-Potential-Distribution-POV.pdf#zoom=50

[15]https://medium.com/energy-access-india/utility-in-a-box-a-mini-grid-solution-for-scaling-last-mile-connectivity-ce9bc6008009

- Based on least-cost analysis, 450 million people could be connected to electricity by mini-grids by 2030[16]. The addressable market today is 100 million people[17]
- Mini-grids are a $300 billion investment opportunity between now and 2030[18]
- Between 100,000 and 200,000 mini-grids are needed in Africa by 2040[19]
- The mini-grid sector best understands the needs of the rural customer, providing more capital efficient, value-add service with higher customer satisfaction[20]

Message 3: Mini-grids are a **catalyst for social and economic development** in energy-poor rural communities, enabling improved livelihoods, economic growth and job creation.

Supporting evidence:

- As of 2016, at least 9 million people globally were served by renewable energy mini-grids[21]
- In less than 1 year in India, 11% of small enterprise expanded their business after connecting to a mini-grid; 13% saw an increase in monthly revenue[22]
- Mini-grids can play an important role in scaling domestic agriculture production in Africa; replacing the continent's $35 billion/year food import bill with local production and processing would be enough to fund the needed mini-grids[23]
- Mini-grids are ideal for serving SMEs, which are the economic engine for emerging economies yet face severe problems from the high-cost and

[16] https://www.weforum.org/agenda/2018/06/1-billion-people-lack-electricity-solution-mini-grid-iea

[17] https://www.greentechmedia.com/articles/read/minigrids-are-the-cheapest-way-to-electrify-100-million-africans-today

[18] https://www.weforum.org/agenda/2018/06/1-billion-people-lack-electricity-solution-mini-grid-iea

[19] https://www.engerati.com/article/mini-grids-power-africa%E2%80%99s-rural-electrification

[20] https://www.rmi.org/wp-content/uploads/2018/08/RMI_Nigeria_Minigrid_Investment_Report_2018.pdf

[21] http://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Oct/IRENA_mini-grid_policies_2018.pdf

[22] https://www.rockefellerfoundation.org/blog/powering-opportunities-energy/

[23] https://www.weforum.org/agenda/2018/06/1-billion-people-lack-electricity-solution-mini-grid-iea

unreliability of power (for example, 50% of businesses in Sub-Saharan Africa identify electricity as a major constraint.[24] In Nigeria, that number is 80%[25]).

- Mini-grids in southern and east Africa created 36 direct jobs on average per project[26]
- By replacing diesel mini-grids with renewable energy mini-grids, 2 gigatons of carbon emissions can be avoided by 2030[27]

Message 4: For mini-grids to scale and serve low-income rural customers, governments must provide a **fair and level playing field** with regard to financial and policy support.

Supporting evidence:

- Less than $120 million in subsidies are available globally for mini-grid companies compared to the $50 billion in subsidies provided to traditional utilities in emerging markets[28]
- Internationally, decentralized renewables receive less than 1% of total electricity finance investments[29]
- In India, the government provides just 0.8% of its electricity subsidies to decentralized solutions, while coal, oil and gas, and transmission and distribution (T&D) got $19.8 billion[30]
- In Sub-Saharan Africa, utility subsidies largely fail to help the under-served, with only 10% of subsidies flowing to households with the lowest income[31], while only 2 of 39 utilities fully recover both operational and capital costs[32]
- The World Bank found that "like grid electrification programs, off-grid programs typically require subsidies."[33]

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[24] https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9426.pdf

[25] https://www.rmi.org/wp-content/uploads/2018/08/RMI_Nigeria_Minigrid_Investment_Report_2018.pdf

[26] https://eepafrica.org/wp-content/uploads/EEP_MiniGrids_Study_DigitalVersion.pdf

[27] http://global-climatescope.org/en/insights/energy-policy/

[28] https://acumen.org/wp-content/uploads/Accelerating-Access-Role-of-Patient-Capital-Report.pdf

[29] https://www.seforall.org/sites/default/files/2017_SEforALL_FR4_PolicyPaper.pdf

[30] https://medium.com/energy-access-india/india-failing-to-support-distributed-renewables-for-energy-access-report-ec2bbdbc67bf

[31] http://www.powerforall.org/blog/2018/2/28/research-summary-electricity-subsidies-failing-low-income-households

[32] https://openknowledge.worldbank.org/bitstream/handle/10986/25091/108555.pdf

[33] https://www.greentechmedia.com/articles/read/subsidizing-private-sector-rural-electrification#gs.2kheo5