

# DISTRIBUTED FUNDS FOR DISTRIBUTED RENEWABLE ENERGY: ENSURING AFRICAN ENERGY ACCESS FINANCE REACHES LOCAL ACTORS

## SUMMARY

Renewable energy produced through off-grid and mini-grid wind and solar installations – called ‘distributed renewable energy’ – has consistently been identified as the most effective, affordable, and resilient way to deliver electricity services to rural areas without access. However only about 1-2% of finance for electricity in Africa is currently flowing to distributed renewable energy.<sup>1</sup> Of this, the vast majority has been for multinational companies that are based in Europe or North America or led by entrepreneurs from these regions, meaning profits are largely not remaining in Africa.<sup>2</sup>

Communities in Africa have overall contributed the least to climate change and been undermined the most by international trade and finance policies and have a right to better international support for distributed renewable energy.

In order to reach universal energy access before the 2030 target set by the UN Sustainable Development Goals, international public finance institutions have an urgent responsibility to provide **more funding and better financial transparency and tracking** for distributed renewable energy. But they also have a responsibility to **foster local participation in and ownership of distributed renewable energy initiatives. This briefing provides recommendations for how international public finance institutions can fulfill this responsibility.**

As governments and public finance institutions around the world prepare historic stimulus packages in response to COVID-19,

support for distributed renewable energy for those lacking access to electricity is critical for improving health outcomes during the pandemic as well as building a just recovery with a more equitable and sustainable economy.<sup>3</sup> Distributed renewable energy has important cost and resilience advantages over both grid-based renewable energy and off-grid fossil fuels.<sup>4</sup> This is all the more important as the pandemic has laid bare the need to build energy systems that are resilient to future crises, including the global market shocks and natural disasters we can expect to see intensify as climate impacts escalate.

**To support local participation in and ownership of distributed renewable energy entities throughout Africa, international public finance institutions should:**

**Support the entry of local finance institutions into the distributed renewable energy sector**

1. Design early-stage finance for locally owned distributed renewable energy companies to include grant-to-debt sequencing and reporting requirements aimed at strengthening internal processes.
2. Support capacity-building for distributed renewable energy lending in local financial institutions. Specifically, enable programs that pair experts with local financial institutions for six months or more to set up systems and training for assessing risk and opportunities in this sector.
3. De-risk early distributed renewable energy investments for local financial institutions by enabling the establishment of catalytic first-loss capital, including first-loss guarantees.

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1 Allison Lee, *Shortchanging Energy Access: A Progress Report on Multilateral Development Bank Finance*, Oil Change International, October 2018, <http://priceofoil.org/2018/10/10/shortchanging-energy-access-report-mdb-finance/>; Federico Mazza et al., *Energizing Finance: Understanding the Landscape 2019*, Sustainable Energy for All in partnership with Climate Policy Initiative, October 2019, p. 12, <https://climatepolicyinitiative.org/publication/energizing-finance-understanding-the-landscape-2019/>.

2 Benjamin Attia and Isaac Maze-Rothstein, *Strategic investments in off-grid energy access: Scaling the utility of the future for the last mile*, Wood Mackenzie Power & Renewables in partnership with Energy 4 Impact, 28 February 2019, p. 19, <https://www.energy4impact.org/file/2086/download?token=9-hw5RF1>; Sanjoy Sanyal, Chen Chen, and Molly Caldwell, “The Impact Investors’ Blind Spot: Local Clean Energy Entrepreneurs in Kenya,” Working Paper, Washington, DC: World Resources Institute, June 2020, [www.wri.org/publication/impact-investors-blind-spot](http://www.wri.org/publication/impact-investors-blind-spot).

3 Vanesa Castán Broto and Joshua Kirshner, “Energy access is needed to maintain health during pandemics.” *Nature Energy*, 2020, <https://www.nature.com/articles/s41560-020-0625-6>.

4 Alstone, P., Gershenson, D., Kammen, D.M., “Decentralized energy systems for clean electricity access,” 2015 *Nat. Clim. Chang.* 5, p. 305–314, <https://doi.org/10.1038/nclimate2512>; Divyam Nagpal and Bishal Parajuli, “Off-grid renewable energy solutions to expand electricity access: An opportunity not to be missed,” International Renewable Energy Agency, Abu Dhabi, 2019, [https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Jan/IRENA\\_Off-grid\\_RE\\_Access\\_2019.pdf](https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Jan/IRENA_Off-grid_RE_Access_2019.pdf).

## Facilitate coordination, research, and planning

4. Design locally relevant and accessible guarantee facilities by providing forums for discussion between international public finance institutions, local financial institutions, and small-to-medium distributed renewable energy companies.
5. Provide grant and concessional finance to facilitate the provision of local market information, including feasibility studies, the development of standardized metrics, and advisory services for project preparation.
6. Dedicate more resources to communicating and coordinating distributed renewable energy initiatives between different international public finance institutions as well as internally between related program areas like agriculture and water.

## Increase support for distributed renewable energy with an emphasis on community-owned and cooperative models

7. For institutions providing policy and technical assistance to governments, support the domestic provision of at least equal support for off-grid and mini-grid solutions as for grid extension.
8. Target grants and concessional finance towards the up-front costs of community-owned and cooperative mini-grid initiatives.

# BACKGROUND

## LOCAL ACTORS HAVE LITTLE ACCESS TO FINANCE FOR DISTRIBUTED RENEWABLE ENERGY

Investment in distributed renewables for energy access in Africa has been growing since 2013.<sup>5</sup> Private finance for solar home systems — particularly “pay-as-you-go” models — has grown the fastest, increasing from less than \$10 million a year in capital investment in 2012 to more than \$200 million a year 2016-2019.<sup>6</sup> Between 2012 and 2019 this has totaled USD 851 million in East Africa, USD 247 million in West Africa, and 17 million in Middle & Southern Africa.<sup>7</sup> However, this is still only about 1-2% of all finance for electricity on the continent, and far from what is needed to reach the UN Sustainable Development Goal target of universal access by 2030. Under current projections, population growth will outpace electrification and an estimated 602 million people in Africa will lack access to energy in 2030 compared to 588 million in 2016.<sup>8</sup>

It is important to note there are significant regional differences in levels of energy access with 75 percent of the population without access in Central Africa in 2016, 69 percent in Southern Africa (excluding South Africa), 61 percent in East Africa, 48 percent in West Africa, 14 percent in South Africa, and near universal access in North Africa.<sup>9</sup>

Notably, the solar home system sector is very top-heavy, with 87 percent of cumulative funding 2010 to 2018 flowing to 10 market leaders, and 56 percent to the top four.<sup>10</sup> None of these companies were founded by or are led by Africans,

and most have head offices outside the continent.<sup>11</sup> Most have been led by entrepreneurs from European or North American countries who secured grants and funding from development finance, export credit agencies, and impact investing communities through networks that local entrepreneurs largely cannot access.<sup>12</sup>

In contrast to the solar home system sector, the mini-grid sector in Africa is smaller and has a greater diversity of players, business models, and generation technologies.<sup>13</sup> However, the recommendations in this briefing would still help catalyze more locally-owned mini-grid initiatives.

## LOCAL INVESTMENT YIELDS MORE LOCAL BENEFITS

Locally-owned and -operated distributed renewable energy initiatives — whether for-profit, community-owned, or public — have more spillover benefits for sustainable development relative to those run by companies based abroad. They result in a higher proportion of revenue circulating locally.<sup>14</sup> They also tend to create more local jobs — both direct and indirect — because they are more likely to be integrated with local economic activity.<sup>15</sup> Renewable energy projects in Africa have often been implemented without the participation and consent of local communities.<sup>16</sup> This is a continuation of a long history of aid projects that encroach on local sovereignty. Because of this, there are strong calls for a code of conduct between donor countries, donor institutions, and African governments to help ensure local recipient communities have oversight and receive the bulk of

5 Attia, “Strategic investments”; Lee, *Shortchanging*.

6 International Finance Corporation, “Off-Grid Solar: Market Trends Report 2020,” Lighting Global Program, February 2020, p 129, <https://www.lightingglobal.org/resource/2020markettrendreport/>.

7 IFC, “Off-Grid Solar,” p. 20.

8 International Energy Agency (IEA), *Energy Access Outlook 2017: From Poverty to Prosperity, World Energy Outlook Special Report*, 2017, [https://www.iea.org/publications/freepublications/publication/WEO2017SpecialReport\\_EnergyAccessOutlook.pdf](https://www.iea.org/publications/freepublications/publication/WEO2017SpecialReport_EnergyAccessOutlook.pdf).

9 IEA, *Energy Access*, p. 49.

10 Dalberg Advisors and Lighting Global, *Off-Grid Solar Market Trends Report*, January 2018, p. 125, <https://www.gogla.org/resources/2018-off-grid-solar-market-trends-report>.

11 Size ranked according to cumulative investment since 2010. Attia, “Strategic investments,” p. 19.

12 Allison Lee et al., *The African Development Bank and Energy Access Finance in Sub-Saharan Africa: Trends and Insights from Recent Data*, Oil Change International and Friends of the Earth U.S., November 2018, <http://priceofoil.org/content/uploads/2018/11/AfDB-Energy-Access-Finance-report-high-quality.pdf>; Dalberg, *Off-Grid*, p. 145; Sanjoy, “Blind Spot.”

13 Dalberg, *Off-Grid*, p. 25.

14 Divyam Nagpal and Bishal Parajuli, *Off-grid renewable energy solutions to expand electricity access: An opportunity not to be missed*, International Renewable Energy Agency (IRENA), January 2019, [https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Jan/IRENA\\_Off-grid\\_RE\\_Access\\_2019.pdf](https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Jan/IRENA_Off-grid_RE_Access_2019.pdf).

15 Divyam, *Opportunity*, p. 19.

16 Business & Human Rights Resource Centre (BHRRC), “Renewable Energy & Human Rights Benchmark Key Findings from the Wind & Solar Sectors,” June 2020, <https://www.business-humanrights.org/en/renewable-energy-human-rights-benchmark>.

the benefits from these development projects.<sup>17</sup> Small-to-medium, locally-owned distributed renewable energy entities financed through local financial institutions are more likely to ensure the participation and acceptance of the communities they are working in.<sup>18</sup>

## INTERNATIONAL PUBLIC FINANCE IS FALLING SHORT ON ENERGY ACCESS

Public finance should be filling the gaps in energy access and helping create conditions that will allow locally owned distributed renewables sector to grow. International public finance institutions have an outsized influence on the energy landscape because they can offer concessional (“below-market”) rates that make projects or sectors more attractive to other actors and they can shape wider norms through their signaling of government priorities and greater technical and advisory capacity.<sup>19</sup>

But in practice, international public finance institutions are overwhelmingly using this influence to further entrench fossil fuel infrastructure that does little to increase access. From 2016-2018, G20 public finance institutions backed 3.5 times more fossil fuels in Africa than renewable energy, with \$11.6 billion a year for oil, gas, and coal and just \$3.2 billion for renewable energy.<sup>20</sup> Very little of this appears to be in support of distributed renewable energy – for example, from 2014 to 2017 less than two percent of energy finance from multilateral development banks (MDBs) went to support the distributed renewable solutions most suited to achieving universal energy access.<sup>21</sup> Instead, the bulk of it flowed to loans for grid expansion and large power plants. There is a similar lack of ambition from bilateral and other international public finance institutions.<sup>22</sup>

## RECOMMENDATIONS SUPPORT THE ENTRY OF LOCAL FINANCE INSTITUTIONS INTO THE DISTRIBUTED RENEWABLE ENERGY SECTOR

The involvement of local financial institutions is an important step in creating a locally owned distributed renewable energy sector and can provide advantages over foreign financiers, including providing more revolving loans (due to the need for ongoing monitoring and communications between the lender and the borrower) as well as offering better on-the-ground knowledge of local market risks and trends.<sup>23</sup> The use of local financial institutions can also reduce the significant foreign exchange risk that pay-as-you-go solar companies have experienced as a consequence of attracting investments in foreign currencies while having receivables in local currency.<sup>24</sup>

However, local financial institutions in Africa have typically had large collateral requirements for new players or industries like distributed renewable energy. They have also generally emphasized project-based financing that is incompatible with assessing the risks and opportunities of lending to distributed renewable energy companies.<sup>25</sup> In the past two years this has started to shift, but further capacity-building is needed to grow the involvement of local banks. International public finance can play an enabling role in de-risking the sector for local financial institutions by providing concessional finance designed to support the early-stage growth of distributed renewable energy and training on assessing risk and opportunity in the sector. Multilateral Development Banks (MDBs) in particular are well-positioned to support such initiatives given many have pre-existing relationships with local financial institutions.

**Recommendation 1:** To build capacity in local financial institutions for distributed renewable energy lending, international institutions should **support programs that pair experts in the sector with local banks for periods of six months or more to conduct demonstration transactions, set up systems, and train staff in how to assess risk and opportunity in the sector.** This allows the experienced advisors to walk through the process of making transactions in the sector side-by-side with bank staff.

These capacity-building efforts should prioritize areas where there are few incumbent actors, because in these geographies new local distributed renewable energy businesses will be better able to capture first-mover advantages.<sup>26</sup> This would also better support reaching universal energy access. Finance for distributed renewable energy has so far been highly concentrated in East Africa, with Kenya, Tanzania, and Uganda alone receiving 56 percent of the finance for distributed renewables in low energy access countries worldwide since 2012.<sup>27</sup>

**Recommendation 2: Design early-stage finance for distributed renewable energy companies to have grant-to-debt sequencing and reporting requirements aimed at strengthening internal processes.** To help prepare companies to take on non-concessional finance, local financial institutions should provide a series of grants with growing portions of debt, or a string of grants followed by a loan. Early loans and grants could also be designed to improve the company’s structure through financial reporting requirements that push the companies to improve record-keeping, financial accountability, and management.<sup>28</sup>

17 Tasneem Essop, “Putting People Back Into Infrastructure,” Heinrich-Böll Foundation, *Perspectives*, 2, June 2017, p. 14, [https://www.boell.de/sites/default/files/https\\_\\_\\_ke.boell.org\\_sites\\_default\\_files\\_perspectives\\_june17\\_web\\_0.pdf?dimension1=ds\\_en\\_monopoly](https://www.boell.de/sites/default/files/https___ke.boell.org_sites_default_files_perspectives_june17_web_0.pdf?dimension1=ds_en_monopoly).

18 BHRRC, “Benchmark.”

19 Attia, “Strategic investments,” p. 14.

20 Data from Oil Change International’s Shift the Subsidies Database.

21 Lee, *Shortchanging*.

22 Mazza et al., *Energizing Finance*.

23 Dalberg, *Off-Grid*, p. 145.

24 Open Capital Advisors, *Increasing investment from local financial institutions in the off-grid solar sector: Lessons from East Africa*, Open Capital Advisors and Global Association for the Off-Grid Solar Energy Industry (GOGLA), November 2018, p. 3, [https://www.lightingglobal.org/wp-content/uploads/2018/11/181012-Increasing-local-financial-institution-investment-in-OGS-sector\\_vf3.pdf](https://www.lightingglobal.org/wp-content/uploads/2018/11/181012-Increasing-local-financial-institution-investment-in-OGS-sector_vf3.pdf).

25 Dalberg, *Off-Grid*, p. 117.

26 Dalberg, *Off-Grid*.

27 Mazza et al., *Energizing Finance*.

28 Mazza et al., *Energizing Finance*, p. 65.

**Recommendation 3:** A particularly important kind of de-risking that international financial institutions are well-positioned to support is the **establishment of catalytic first-loss capital –particularly through first-loss guarantees** for local financial institutions. This is a need that has been identified for many years, yet there are still relatively few first-loss guarantee offerings from international financial institutions in this sector.<sup>29</sup> In order to support the growth of local enterprises, institutions may need to design and offer first-loss guarantees of 70 to 80 percent.

### FACILITATE COORDINATION, RESEARCH, AND PLANNING

There is also key local market research and standardization initiatives that are needed to help de-risk the distributed renewable energy sector for local financial institutions. Public finance institutions can help by providing targeted grant and concessional finance to support this.

**Recommendation 4:** It is important that de-risking mechanisms for local financial institutions be fit-for-purpose and accessible to small-to-medium locally owned and led entities. Recent research by Open Capital Advisors found that even where guarantee facilities do exist, they are “frequently underutilized due to stringent lending criteria that do not match local contexts.”<sup>30</sup> **There is a need for a forum for discussion between international public finance institutions, local banks, and distributed renewable energy enterprises to improve design of guarantee facilities.** There are currently only ad-hoc feedback processes for this. One outcome may include eligibility criteria to ensure facilities are supporting early-stage entrants in the sector: for example, a maximum threshold on turnover for enterprises to be eligible.



**Recommendation 5:** Much of the risk for local financial institutions investing in distributed renewables in comes from a lack of adequate market information. In addition to enabling lower-risk mechanisms for lending, there is a need for international public finance institutions to **provide grant and concessional finance targeted at feasibility studies, the development of standardized metrics on the sector, and advisory services for project preparation.**<sup>31</sup> Addressing this issue may require more regular communication between international providers of public finance, local banks, and distributed renewable energy enterprises to develop appropriately tailored first-loss instruments.

**Recommendation 6:** International public finance institutions should dedicate more resources to communicating and coordinating their work on distributed renewable energy for energy access, both with each other as well as internally between related sectors like agriculture and water. Deeper communication and coordination between multilateral

development banks and other public finance institutions working towards energy access would help avoid duplication and ensure this finance has a more meaningful impact.

The recommendations in this briefing focus largely on how international public finance institutions can help build capacity for distributed renewables in local financial institutions and small-to-medium enterprises. However, public finance can also play a role in supporting governments and educational institutions in building capacity, particularly through programs to help foster local managerial and technical expertise specific to the distributed renewables sector.<sup>32</sup>

### INCREASE SUPPORT FOR DISTRIBUTED RENEWABLE ENERGY WITH AN EMPHASIS ON COMMUNITY-OWNED AND COOPERATIVE MODELS

Overall, more grant and concessional finance for distributed renewable energy in Africa is needed to support the growth of locally owned distributed renewable

29 Dalberg, *Off-Grid*, p. 144; Divyam, *Opportunity*, p.13; Uzoamaka Egbuche, “Nigeria: Small Infrastructure to Solve Big Problems,” Heinrich-Böll Foundation, *Perspectives*, 2, June 2017, [https://www.boell.de/sites/default/files/https\\_\\_ke.boell.org\\_sites\\_default\\_files\\_perspectives\\_june17\\_web\\_0.pdf?dimension1=ds\\_en\\_monopoly](https://www.boell.de/sites/default/files/https__ke.boell.org_sites_default_files_perspectives_june17_web_0.pdf?dimension1=ds_en_monopoly).

30 Open Capital Advisors, *Increasing Investment*, p. 17.

31 Egbuche, “Nigeria: Small Infrastructure,” p. 22; Dalberg, *Off-Grid*, p. 141; Divyam, *Opportunity*, p. 19.

32 See for example Dalberg, *Off-Grid*, p. 145; Divyam, *Opportunity*; Ganesh Rasagam and Danqing Zhu, “Delivering on the Promise of Distributed Renewable Energy Entrepreneurship in Sub-Saharan Africa,” *Current Sustainable/Renewable Energy Reports*, 5(4), 2018, pp. 230-239, <https://doi.org/10.1007/s40518-018-0120-x>. Power for All, *Sierra Leone Call to Action*, 22 March 2017, <https://www.powerforall.org/resources/calls-to-action/sierra-leone-call-action>; Power for All, *Powering Jobs Census 2019: The Energy Access Workforce*, July 2019, [powerforall.org/poweringjobs](https://www.powerforall.org/poweringjobs); Benjamin Attia and Rebekah Shirley, “Distributed Models for Grid Extension Could Save African Utilities Billions of Dollars,” *GreenTech Media*, 13 June 2018, <https://www.greentechmedia.com/articles/read/grid-extension-done-right-for-sub-saharan-africas-utilities>; Africa Progress Panel, *Lights Power Action: Electrifying Africa - Africa Progress Panel Report (2017)*, 13 March 2017, p. 56, <https://www.africanpowerplatform.org/resources/175-lights-power-action-electrifying-africa.html>.



energy economies at a pace that is in line with achieving universal energy access.

Non-profit models of distributed renewable energy in particular are a neglected but necessary tool for reaching universal energy access, particularly for mini-grids.<sup>33</sup> For-profit models of distributed renewable energy cannot always provide access for populations who are remote or low-income, and can put these populations at higher risk for punitive legal and financial penalties.<sup>34</sup> In contrast, cooperative and community-owned models tend to have stronger spillover benefits for gender equality, local job creation, and collective access to capital.<sup>35</sup>

**Recommendation 7:** Governments and international institutions providing policy and technical assistance to governments should **support the domestic provision of at least equal support for off-grid and mini-grid solutions as for grid extension.** The implicit subsidies for grid extension for many national utilities in Africa are greater than \$800 per connection<sup>36</sup> (and in some cases may be as high as \$6,600 per connection).<sup>37</sup> Therefore, international financial institutions advising governments or providing technical and policy support should work with governments to provide at least similar levels of support for off-grid and mini-grid solutions, in ways that promote local ownership and development of distributed renewable

energy without crowding out existing development of off-grid and mini-grid business models.

**Recommendation 8:** International public finance can play a catalyzing role by **providing concessional finance and grants towards the up-front costs for non-profit mini-grid initiatives.** Transaction costs for this can be reduced by aggregating mini-grid projects into larger programs for financing.<sup>38</sup> Case studies for financing and enabling policy environments for community-owned, cooperative mini-grids can be found in Tanzania, Burkina Faso, Bangladesh, Nepal, and Sri Lanka among other contexts.<sup>39</sup>

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33 Frederick O. Wanyama, *Cooperatives and the Sustainable Development Goals: A Contribution to the Post-2015 Development Debate*, International Labour Organization and International Co-operative Alliance, 8 April 2014, [https://www.ilo.org/empent/Publications/WCMS\\_240640/lang--en/index.htm](https://www.ilo.org/empent/Publications/WCMS_240640/lang--en/index.htm); Attia, "Distributed Models."

34 Africa Progress Panel, *Lights Power Action*, p. 56; Essop, "Putting People Back"; David Herbling, "M-Pesa solar dealer to blacklist defaulters with credit bureaus," *Business Daily Africa*, 18 February 2015, <https://www.businessdailyafrica.com/corporate/M-Pesa-solar-dealer-to-blacklist-defaulters-with-credit-bureaus/539550-2628252-pqdoc/index.html>.

35 Wanyama, *Cooperatives*; Africa Progress Panel, *Lights Power Action*, p. 50.

36 Energy Sector Management Assistance Program, *Mini Grids for Half a Billion People: Market Outlook and Handbook for Decision Makers*, ESMAP Technical Report 014/19, World Bank, 2019, <https://www.worldbank.org/en/topic/energy/publication/mini-grids-for-half-a-billion-people>.

37 Michael Toman and Jörg Peters, *Rural electrification: How much does Sub-Saharan Africa need the grid?*, Let's Talk Development, World Bank, 2017, <https://blogs.worldbank.org/developmenttalk/rural-electrification-how-much-does-sub-saharan-africa-need-grid>.

38 Africa Progress Panel, *Lights Power Action*, p. 56.

39 African Development Bank, *Mini Grid Market Opportunity Assessment: Burkina Faso*, Sustainable Energy for All: Africa Hub, June 2017, <https://greenminigrid.se4all-africa.org/file/178/download>; Lily Odarno et al., *Accelerating Mini-grid Deployment in Sub-Saharan Africa: Lessons from Tanzania*, World Resources Institute, October 2017, <https://www.wri.org/publication/tanzania-mini-grids>; Debajit Palit and Akanksha Chaurey, "Off-grid electrification experiences from South Asia: Status and best practices," *Energy for Sustainable Development*, 15, 2011, pp. 266-276, <https://www.dmu.ac.uk/documents/technology-documents/research-faculties/oasys/project-outputs/peer-reviewed-journal-articles/pj1-palit-chaurey-paper.pdf>.



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