

## Why we believe open sourcing our financing approach can accelerate universal energy access in Africa

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Openly sharing information has accelerated the impact of innovation on people's lives for centuries. The most radical and formalized example is the open source movement in software. The Free Software Foundation was founded in 1985 and open source moved rapidly into the mainstream as tech giants such as IBM, Oracle, and Microsoft all established an open source presence on the internet.

We believe now is the time to take a similarly radical approach in other sectors. CrossBoundary Access and Shell Foundation, co-funded with UK aid from the UK government, are taking the next step in 'open sourcing' the financing approach developed by CrossBoundary Access for mini-grids to accelerate universal access to electricity in Africa. Mini-grids can power whole communities, helping small business owners, rural households, and transporters, the key focus customer groups for Shell Foundation. We are sharing the legal contracts and financial models that we co-developed with our partners to unlock access to the \$1 trillion global infrastructure capital market that mini-grids need to scale.

### **The new mini-grid business model can help achieve Universal Energy Access**

Time is running out to achieve universal energy access in Africa. The International Energy Agency (IEA) forecasts that the number of people in Sub-Saharan Africa without power – 600 million – will be largely unchanged by 2030. The IEA believes that mini-grids – self-sufficient electricity grids that can serve households and businesses – have a critical role to play in bridging the gap. They are the least-cost method to bring electricity to over 260 million people.

### **But this business model needs new models of financing**

The mini-grid sector is ready to scale and meet that challenge. But it needs new models of financing that allow infrastructure capital to flow into the underlying assets.

In 2019, we launched Africa's first project financing facility for mini-grids, CrossBoundary Access, to help create these models. We believe project finance can unlock the infrastructure capital mini-grids need to scale. Mini-grids are infrastructure and they need long-term low-cost capital just like other infrastructure assets. However, the throttle on capital flowing into mini-grids is the same as it is for infrastructure in general. A G20 taskforce on increasing infrastructure finance noted that "...the investment gap in infrastructure is not the result of a shortage of capital...there is ample supply of long-term finance, interest by the private sector is high, and the benefits are obvious."

The barrier to infrastructure capital flowing into the sector is a lack of bankable projects. Project finance creates bankable projects by fixing the risks and cashflows over a project's lifetime. This brings risk levels down to match the long-term, low-cost financing mini-grids require, and deliver the stable cash flow-based returns that infrastructure investors seek. This is what CrossBoundary Access does; it unlocks project finance for mini-grids.

### **To accelerate finance into the sector, we are open sourcing CrossBoundary Access's approach**

However, project finance has high barriers to entry. The process of fixing and allocating revenues, costs, and risks over 10 - 20 years is a highly intensive process. Complex, detailed, and interlocking financial models and project contracts are required to create bankable projects.

This is why we are open sourcing CrossBoundary Access's approach to project finance for mini-grids. We are sharing these two core components of project finance to allow others to adopt a project finance approach more quickly and at less cost. We believe this will help facilitate more capital into this tried and tested model of infrastructure development.

### **Can you truly open source a financing approach?**

We know that legal contracts and financial models are not software. But as Chris Dixon, a partner at the venture capital firm a16z, says, "Software is simply the encoding of human thought". We argue that legal contracts and excel models also encode human thought, and that industries other than software can adopt the fundamental principles of open source. Elon Musk open sourced some of Tesla's patents for this reason. He believes this is the best way to deliver on Tesla's goal to "...accelerate the advent of sustainable transport by bringing compelling mass-market electric cars to market as soon as possible."

The most challenging open source principle to apply to project finance is how it can be developed and improved on by a public community. In 1997, the 'founding father' of the open source movement Eric S. Raymond published the seminal essay, "The Cathedral and the Bazaar". The essay's title comes from the two models of open source software development:

- The **Cathedral**: Source code is made by a small group of developers, distributed freely with each software release.
- The **Bazaar**: Source code is developed over the Internet, in public.

Project finance transactions are typically lengthy processes with a large amount of confidential information. They don't lend themselves well to the public testing and rapid iteration aspects of the 'Bazaar' model which are so core to the open source movement. However, to move ourselves away from a pure 'Cathedral' model, we will establish a working group of fellow investors that will act as a type of Bazaar, meeting regularly to iterate and improve on the initial models and project contracts we're publishing, bringing in input from other players like developers and regulators.

We do want to make one thing clear. We do not believe that CrossBoundary Access's approach is the best form of project finance for mini-grids, or even that project finance is the best approach to unlocking capital for mini-grids. A good analogy is with electric vehicles. It's like we're saying: "We need a new approach to make transport environmentally sustainable, and one of those ways is through electric vehicles. We're now sharing the design of the first electric car we made. We know it works, but we also know it could be better, that we need many more manufacturers of electric cars, and that there are other alternatives to powering vehicles like biofuels or hydrogen fuel cells."

We're encouraged by the engagement and enthusiasm we have had from other investors in the sector who see the need and value of bringing an open source approach to financing energy access. We welcome advice and feedback from others who have created open source projects in their own sectors, and hope to see this approach continue to spread beyond its origins in the software industry.

### **About Shell Foundation**

<https://shellfoundation.org/about/>

Established in 2000, Shell Foundation (SF) is a charitable organization founded by Shell with a mission to create and scale business solutions that empower underserved populations to earn a living income through access to clean energy products and services. SF is committed to driving sustainable development and fostering a future where clean energy is accessible to all. To further this mission, Shell Foundation, with co-funding from the UK government through the FCDO, funded the Open Source project to encourage more investments in mini-grids, which can power whole communities, helping small business owners, rural agricultural households, and urban transporters, the key focus customer groups for the Foundation.

### **About CrossBoundary Access**

<https://crossboundary.com/access/>

CrossBoundary Access is Africa's first blended finance platform for mini-grids. CrossBoundary Access uses an innovative blended finance approach to invest in mini-grids and provide 24/7 grid-quality power to households and businesses in rural Africa. CrossBoundary Access reached first close in June 2022 with \$25 million from ARCH Emerging Markets Partners Limited, Bank of America, and Microsoft Climate Innovation Fund. In September 2023, the platform secured an additional \$10million from AfDB's Sustainable Energy Fund for Africa (SEFA). CrossBoundary Access continues to raise and deploy a total of \$150 million of blended project finance over the next three years to bring clean energy to one million people in Africa. CrossBoundary Access is a member of the CrossBoundary Group.