



Alliance for
Rural
Electrification
Shining a Light for Progress



ANNUAL REPORT

2019



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MESSAGE FROM THE PRESIDENT

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MESSAGE FROM THE PRESIDENT

860 million people in the world remain without access to electricity to date, perpetuating energy poverty, slowing down local socio-economic growth, and making sustained development almost impossible. An alarming 70% of those people live in sub-Saharan Africa. Despite encouraging increased rates of energy access in parts of Asia-Pacific such as Bangladesh and India, the East African region which accounts for 50% of those that gained access to energy in Africa as well as Latin America and the Caribbean (LAC), sub-Saharan energy access rates remain stubbornly low.¹

Privately funded decentralised renewable energy has proven itself to be the least costly and often only option available to close the energy access gap for most rural people still lacking electricity. Decentralised Renewable Energy (DRE) systems provide power where the traditional grid is non-existent, inadequate, not cost-effective or too distant for connection. While all types of systems including stand-alone, solar-home systems and mini-grids have their specific advantages to provide for different tiers of energy access, mini-grids have gained stronger attention recently. The Energy Sector Management Assistance Program (ESMAP) has predicted that more than half of the current energy deprived could be electrified through mini-grids by 2030.² As a means to support mini-grid companies and secure trust from customers, governments and investors, ARE, together with Swedfund, the Africa Minigrid Developers Association (AMDA) and Smart Power India, recently launched the Consumer Protection Principles for Clean Energy Mini-Grids in October 2019 and we are delighted to see that 15 companies have already either endorsed or committed to them.³

Reliable and affordable DRE electrification for all delivers meaningful socio-economic opportunities to Africa, Asia-Pacific and

LAC in their run towards sustainable inclusive development and their compliance with international climate change goals. Among the various ways in which energy can contribute to the above, “Productive Use of Renewable Energy (PURE)” is a key enabler. Combined with micro-credit and capacity building activities for project developers, PURE can construct the business enabling environment needed to scale up decentralised energy and foster sustainable development through increased local revenues, jobs and better services to meet basic community needs.⁴



RELIABLE AND AFFORDABLE DECENTRALISED RENEWABLE ENERGY ELECTRIFICATION FOR ALL DELIVERS MEANINGFUL SOCIO-ECONOMIC OPPORTUNITIES TO AFRICA, ASIA-PACIFIC AND LAC.

This trend provides for immense investment opportunities and market expansion in the energy access sector, reinforced by successful technology innovations such as the Pay-as-you-go (PAYGO) business model, measurement systems for technology efficiency, demand forecasting and project feasibility. These solutions in turn lead to reductions in financial costs, lowering project risk and improving investors’ trust, thus

1 IEA, *SDG7: Data and Projections*, 2019

2 ESMAP, *Mini Grids for Half a Billion People: Market Outlook and Handbook for Decision Makers*, Executive Summary, 2019: pg 2

3 ARE, *Consumer Protection Principles for Clean Energy Mini-Grids*, 2019

4 Enel, RES4Africa, *Africa's Future Counts: Renewables & the water-energy-food nexus in Africa*, 2019: pg 77

unlocking resources needed to bridge the energy access gap by 2030.⁵

However, the IEA estimates that the current political and international commitment scenario is insufficient to achieve universal access by 2030, and 700 million people could remain without energy by 2050.⁶ To overcome this challenge within these tight timelines, an annual investment requirement of USD 55 billion⁷ is required, substantially directed to DRE solutions.

Public and private stakeholders must really come together now to make investment in DRE a top priority and ensure the right conditions to develop the off-grid market. Smart finance, understood as innovative financing mixes, crowd private capital and mechanisms to de-risk investments in the off-grid sector, will play a fundamental role in making quality finance available for small & medium sized companies (SMEs) and relevant actors in this market.⁸

In the understanding that public and private stakeholders should work closer together and as a testament to ARE's advocacy, an increasing number of mini-grid tenders were launched in Africa, including public-funded programmes Pro Mini-Grids and Pro Mini-Grids in Northern Uganda, where a private company was selected to electrify 15 villages in the South and up to 25 in the North. In Togo, the West African Development Bank (BOAD) and the Energy Development Fund (EDF) announced they will fund a rural electrification project of 317 localities with solar mini-grids. In Zambia, the EU is providing a EUR 25 million in grant funding for the development of renewable energy and energy efficiency projects prepared by private sector and NGOs as part of the "Increased Access to Electricity and Renewable Energy Production" (IAEREP) project. In Benin, the Millennium Challenge Account - Bénin II (MCA-Bénin II) programme aims to increase the national power generation capacity to 50 MW (partly through mini-grids), equivalent to about 20% of current needs.

Since its inception in 2006, ARE has taken leadership in many ways and received great recognition from international cooperation and development partners for its efforts to mobilise, coordinate and link them up with private sector players to initiate common activities. Based on its strong commitment to SEforALL objectives and on the know-how of its 150 Members active in Africa, Asia-Pacific and LAC, ARE has constantly been proving itself as a trusted and reliable partner to support and scale clean energy access where it is needed.

In 2019, we welcomed 45 new Members, bringing us to 150 Members active in nearly every country in the world. Our vision of establishing win-win partnerships between local and international actors as well as our specific regional focus on low- and medium-income countries has resulted in 22 new Members from Europe, 11 from Africa, 5 from Asia-Pacific and 6 from the Americas. Thanks to the hard work of the Board and Secretariat, funders and investors are taking a keen interest and are looking for engagement possibilities in our growing sector.

I would like to first of all thank the ARE Secretariat for making this all happen as well as personally thank our Members for their insightful contribution to our sector discussions and fora as well as the feedback provided on avenues for ARE's further development. Your valuable Membership fees continue to constitute the base that supports our operation and allows us to keep fighting to make SDG7 a reality through our unified efforts.

Lastly, I would also like to send a big thank you to our key partners who have contributed greatly to our 2019 agenda and without who it would not have been possible.

—

Vivian Vendeirinho

ARE President (2018 - 2020)

Board Member (2015 - 2019)

5 IEA, *Digitalisation and Energy*, 2017

6 IEA, *SDG7: Data and Projections*, 2019

7 IEA, IRENA, World Bank & WHO, *Tracking SDG7: The Energy Progress Report*, 2019: pg 1

8 Hivos, *Financing Decentralized Renewable Energy for the Last Mile - What funding sources and instruments can be applied?*, 2019

A portrait of a middle-aged man with a receding hairline, wearing black-rimmed glasses, a light blue checkered shirt, a dark blue patterned tie, and a dark blue suit jacket. He is smiling slightly and looking directly at the camera against a dark blue background.

FOREWORD FROM THE EXECUTIVE DIRECTOR

2019 ANNUAL REPORT

FOREWORD FROM THE EXECUTIVE DIRECTOR

Given that only USD 36 billion per annum instead of the yearly needed USD 51 billion will be invested in clean energy access to the more than 860 million unelectrified living in rural areas, it will be crucial to attract new and innovative financing from both the public and the private sector.⁹ As outlined by IRENA, much of the needed investment can be met by redirecting planned fossil fuel investment.¹⁰

Indeed, off-grid renewables are a vital sustainable development tool to close the energy access gap and achieve all Sustainable Development Goals, such as SDG13 to "take urgent action to combat climate change and its impacts." For example, a recent study carried out by ARE Member Reiner Lemoine Institut and supported by the German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety (BMU) highlights that a progressive off-grid pathway to electrification will be up to 30% cheaper, 50% cleaner and 100% smarter – which would contribute to local socio-economic benefits and improve livelihoods.¹¹

In order to realise annual profits of USD 4.7 billion as estimated for the off-grid sector by 2030,¹² we need to turn the competitiveness of its solutions into a clearer roadmap.¹³

As a result of in-depth discussions held at the 5th ARE Energy Access Investment Forum (EAIF), hosted by the African Development Bank (AfDB) at their headquarters in Abidjan (Ivory Coast), on 13-14 March 2019, ARE has prepared key recommendations on how to resolve key challenges in the off-grid sector.¹⁴

Obviously, while the world increasingly speaks off-grid, an intensification of public and private efforts is needed to make universal energy happen by 2030. In the short-term, the off-grid sector will greatly benefit from innovation and digital solutions. Scaling up the sector will require more business-friendly framework conditions and regulations as well as more innovative de-risking and financing.

To prepare for the most crucial decade starting in 2020, ARE and its Members have been working intensively throughout 2019 and will continue to create the business enabling macro-level conditions for the sector and implement clean energy projects.

What we have learnt as a key lesson is that it all starts with your own change of behaviour. Please support us!

—

Marcus Wiemann
ARE Executive Director
(2013 – present)

9 SEforALL, *Energizing Finance: Understanding the Landscape*, 2019: pg 12

10 IRENA, *10 years – Progress to Action*, 2020: pg 11

11 BMU, *Off-Grid Renewable Energy opens up pathways for Electricity Access and Climate Action*, 2019: pg 59

12 ESMAP, *Mini Grids for Half a Billion People*, 2019: pg 26

13 SEI Platform, *Scaling-up energy investments in Africa for inclusive and sustainable growth*, 2019

14 ARE, *Outcome Report & Recommendations: 5th Energy Access Investment Forum*, 2019



1. KEY ACHIEVEMENTS IN 2019 & WAY FORWARD FOR 2020

1.1. KEY ACHIEVEMENTS IN 2019 & WAY FORWARD FOR 2020

Given the increasing worldwide understanding on how the actual clean energy access needs in Africa, Asia-Pacific and LAC can be tackled through international development cooperation and industry and finance sector involvement, the sector perspectives for off-grid energy solutions and services are positive and improving year to year.

In order to turn potential into concrete business and investment opportunities, the ARE Annual General Meeting (AGM) in Abidjan on 12 March 2019 reconfirmed its 2018 Strategy objectives, which were to build a sustainable decentralised renewable energy industry for the 21st century, to activate markets for affordable energy services, and create local jobs and inclusive economies.

We are very delighted to notice that the industry is steadily growing as reflected by 150 Members and 45 new Members in 2019. Their energy access work on the ground in Africa, Asia-Pacific and LAC, has contributed to the overall decline in the energy access gap from 1.2 billion in 2010 to 840 billion in 2017.¹⁵

In the face of future world population growth and increasing clean energy needs in ARE target regions, the key recommendations from the 5th Energy Access Investment Forum in March 2019 offer guidance on how to tackle the following most important challenges for the off-grid industry:¹⁶

Challenge 1: Lack of off-grid market information, data and transparency

Challenge 2: Unsupportive or non-existing policy frameworks

Challenge 3: Lack of interaction between market players inside & outside of local markets

Challenge 4: Lack of debt finance (both in terms of volume and design)

Challenge 5: Lack of capacity among market players (local associations, project developers and entrepreneurs)

While ARE Members are only one very important player in this complex situation, ARE has developed a 3-service line concept to support its Members and Partners.

Service Line 1: Market Intelligence & Business Services	Service Line 2: Policy & Advocacy	Service Line 3: Individual Support
• Weekly alert • Procurement • ARE newsletter • Visibility measures	• Media & Public	• Marketing & speaking slots • Event & exhibition discounts
• In-country workshops • B2B & B2F events • Market intelligence publication/toolkit • Young leaders & entrepreneurs / ARE Awards	• International conferences • In-country policy dialogue • Renewable energy association building	• ARE connection to financiers & donors • Business delegations • Trainings to governments

¹⁵ IEA, IRENA, World Bank & WHO, *Tracking SDG7 – The Energy Progress Report*, 2019: pg 17

¹⁶ ARE, *Outcome Report & Recommendations: 5th Energy Access Investment Forum*, 2019

In particular, as a result of new strategic partnerships with ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), EUD Togo, GET.invest, GIZ Togo, Swedfund and UNIDO and thanks to the policy and consultancy advice given to the Africa-EU High-Level Platform for Sustainable Energy Investments in Africa (SEI Platform), African Development Bank, Asian Development Bank, DG DEVCO, IEA, Intersolar, IRENA, Mini-Grid Partnership, REN21, SEforALL and the World Bank, ARE has been able to position off-grid solutions as equally important to those provided by the grid.

In order to further activate the off-grid markets on a global and regional level, ARE organised five events mobilising 1,250 key clean energy access stakeholders and practitioners to low- and medium-income countries. ARE also facilitated more than 600 B2B Matchmaking meetings in 2019.

As an industry leader and in face of individual market players failing in 2019, ARE launched a campaign to re-build trust amongst development partners and financiers working in the off-grid sector. 2019 also marked a year where ARE addressed new topics such as private sector driven business models for clean energy mini-grids (CEMG) in South and Southeast Asia and digitalisation & solar in emerging markets. The number of ARE Newsletter followers has now risen to 10,000 readers. ARE website visitors remain stable at 4,000 per month and social media followers increased to over 12,000 across all channels.

For 2020 and beyond, ARE is hopeful to expand its level of services to enable the off-grid sector to upscale. Many thanks to all Partners, Members and Supporters who have helped us to make this success story possible in 2019!

ARE is a Member-led association

ARE is an international business association that promotes sustainable decentralised renewable energy industry for the 21st century, activating markets for affordable energy services and creating local jobs and inclusive economies.

#1

Off-grid rural electrification
association

150

Members

From

50

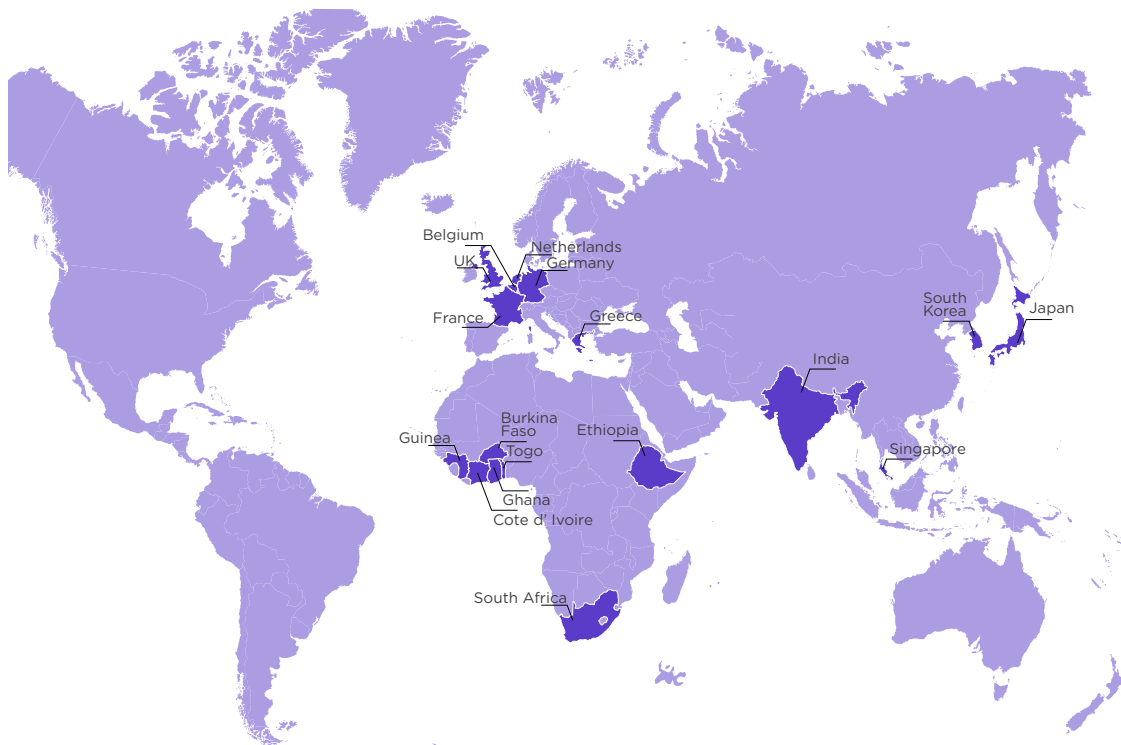
Countries

Covering

3

Continents

1.1 2019 IMPACT MAP



5

Big ARE
events yearly



1,250

Participants from the
off-grid sector



250

Expert speakers
on stage



25

Exhibitors

ARE OFFSETS ITS CO₂ EMISSIONS

Thanks to the CO₂ compensation (also called 'offsetting'), ARE can support local climate projects.

In 2019, ARE worked with CO₂ Logic and paid EUR 640 in 2019 to offset the ARE Secretariat's travels. CO₂ Logic supports only projects of highest quality (certified by Gold Standard, UN or other high-quality certifications). ARE has chosen to support the Efficient Cookstoves Climate Project in Ghana.¹⁷



¹⁷ GreenTripper, [Efficient cookstoves climate project](#)

1.2 TIMELINE OF ACTIVITIES IN 2019



2.

**HOW ARE
IS BRIDGING
THE ENERGY ACCESS
CHALLENGE**

2. HOW ARE IS BRIDGING THE ENERGY ACCESS CHALLENGE

2.1 STATUS QUO OF ENERGY ACCESS INVESTMENTS

According to the latest IEA estimates, at least 860 million people lack access to electricity.¹⁸ To bridge this gap and achieve SDG7 by 2030, it is estimated that annual average investments will need to reach approximately USD 55 billion.¹⁹

While finance for energy access start-ups and SMEs increased from USD 180 million in 2015 to USD 427 million in 2018²⁰ and corporate investments in energy access exceeded the USD 500 million mark in the same year (see Figure 1),²¹ SEforALL figures also confirm that that energy access investments are nowhere near the level needed to achieve SDG7 by 2030.²²

In particular, clean energy mini-grids, which ESMAP estimates can connect 490 million people globally by 2030, will be key to achieve SDG7 and provide clean, reliable and affordable power to rural households and productive uses of renewable energy, which can catalyse rural economies.²³

The private sector will be the key driver of this clean energy transition, offering high quality, cost effective and innovative solutions to reach last mile consumers and to power local economies. In total, the potential for annual profits in the 2030 mini-grid value chain is estimated at USD 4.7 billion (see Figure 2).

Yet, to get to the point where mini-grids can truly achieve scale and truly power the rural economy, a number of key challenges will need to be solved.

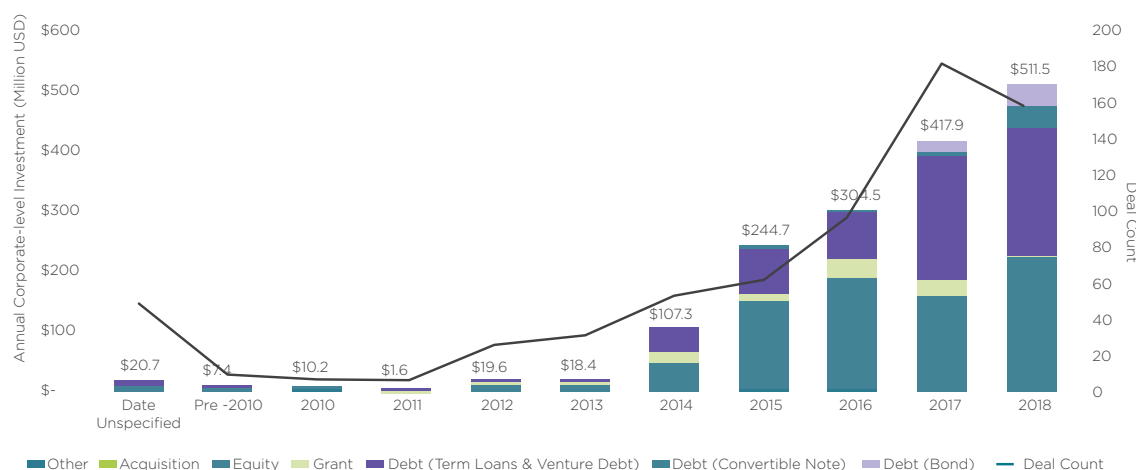


Figure 1. Corporate-level investment into off-grid energy access companies by year and type of financing through year-end 2018²¹

¹⁸ IEA, *SDG7: Data and Projections*, 2019

¹⁹ IEA, IRENA, World Bank & WHO, *Tracking SDG7: The Energy Progress Report*, 2019: pg 1

²⁰ BNEF, *Powering the Last Billion*, 2019: pg 26

²¹ Wood Mackenzie, *Strategic investments in off-grid energy access*, 2019: pg 9

²² SEforALL, *Energizing Finance: Taking the pulse*, 2019: pg 11

²³ ESMAP, *Mini Grids for Half a Billion People: Market Outlook and Handbook for Decision Makers*, Executive Summary, 2019: pg 2

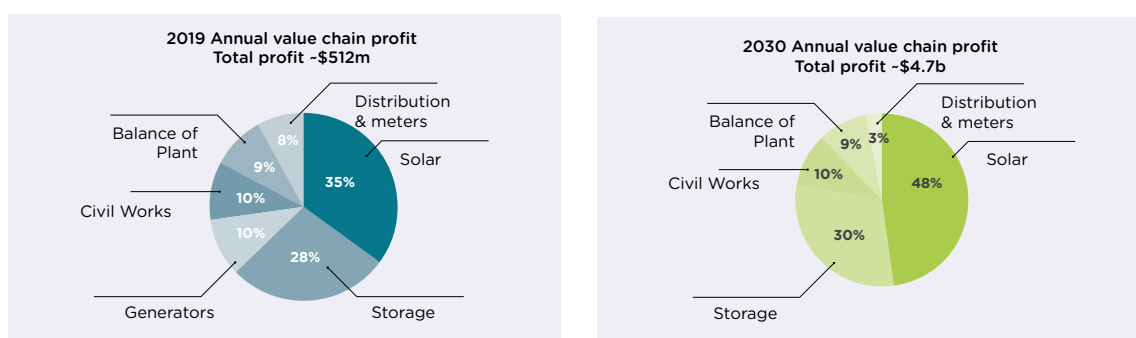


Figure 2. Profit potential across the mini-grid value chain, 2019 and 2030²⁴

2.2 THE KEY CHALLENGES TO SCALE ENERGY ACCESS INVESTMENTS

Building on its unique position as the leading global voice for the off-grid sector ARE is working on solving a number of key challenges hindering massive deployment of clean energy solutions.

The key challenges have been identified based on discussions with ARE Members, as well as through broader industry discussions, in particular at the 5th ARE EAIF held on 12-14 March 2019 in Abidjan, Ivory Coast (see Figure 3).

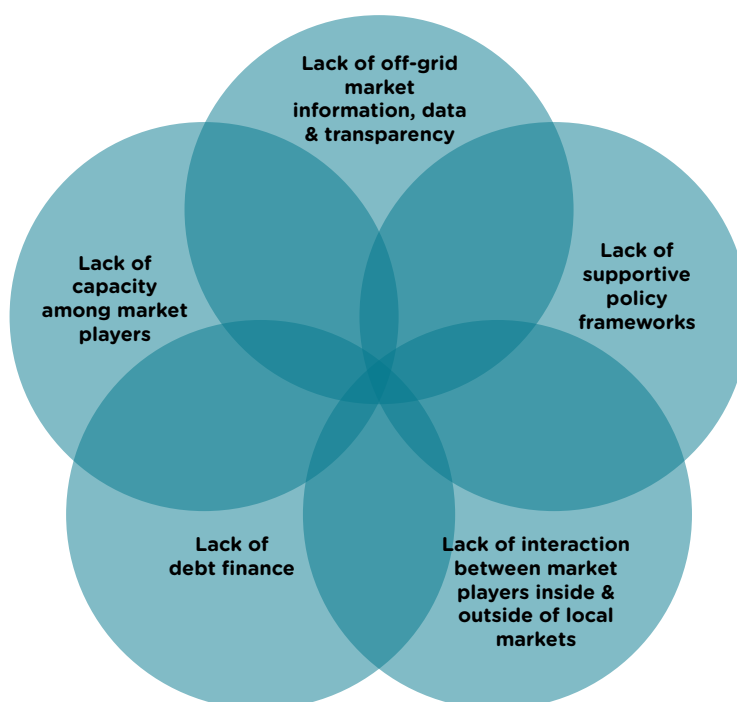


Figure 3. Five key challenges to scale energy access

²⁴ ESMAP, *Mini Grids for Half a Billion People: Market Outlook and Handbook for Decision Makers*, 2019: pg 26

CHALLENGE 1:

Lack of off-grid market information, data and transparency

While a large number of studies on off-grid renewable energies are available, sharing of the results is not often enough practiced and more importantly more data is still needed on the performance and costs of private sector operated mini-grids to increase investor confidence (e.g. through benchmarking studies on mini-grid deployment and costs). There is equally the need to pool knowledge on the role of different productive uses in business models.

Recommendation: Industry initiatives to collect data and share best practices from off-grid renewable energy projects and especially from clean energy mini-grids in selected countries on business models, performance and costs.

► **ARE ACTION: Private Sector Driven Business Models for Clean Energy Mini-Grids: Lessons learnt from South and South-East-Asia**

ARE joined forces with Energy for All Partnership of Asian Development Bank (ADB) and the Renewable Energy and Energy Efficiency Partnership (REEEP) to develop a publication dedicated to the innovative business models in the mini-grid sector which are being practiced in different regions of South and Southeast Asia. With this publication, ARE highlighted lessons learnt from 11 private sector driven clean mini-grid projects.²⁵

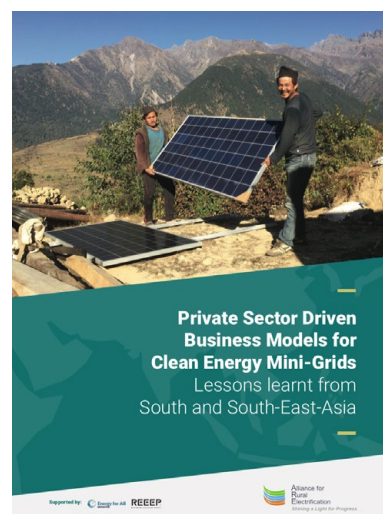
The 11 case studies, that come from eight different countries (Bangladesh, Cambodia, India, Indonesia, Myanmar, Nepal, Philippines and Thailand), include both financial and technical data, and also span across technologies from solar PV hybrids to biomass and hydro projects.

In total, the projects provide electricity to 5,715 households and have lowered GHG emissions by an estimated 3,257 tonnes CO₂ per year. Moreover, via PURE, nearly 1,000 jobs were created in local communities.

The purpose was to assist developers with know-how for the development of future projects and to inform investors about what to expect when considering mini-grids in their investment portfolios in this specific region.

With the help of the information collected from the 11 case studies, a thorough analysis was undertaken. It was identified that the private sector still faces a number of risks in emerging markets, which makes it challenging to build mini-grids at scale. Most importantly:

- Mini-grids serve last-mile customers, which live in remote and poor areas, making demand for electricity hard to estimate. The socio-economic standard of the rural customers often limits both their demand for electricity and the ability of consumers to pay; and



²⁵ Mini-grids are electric power generation and distribution systems that provide electricity to just a few customers in a remote settlement or bring power to hundreds of thousands of customers in a town or city. They can be fully isolated from the main grid or connected to it but able to intentionally isolate themselves from the grid. Mini-grids supply power to households, businesses, public institutions, and anchor clients, such as telecom towers and large agricultural processing facilities.” (ESMAP, *Mini Grids for Half a Billion People: Market Outlook and Handbook for Decision Makers, Executive Summary*, 2019: pg 12)

- political and regulatory environments often limit access to capital or make the cost of capital extremely high.

ARE concluded that with key partnerships and the right mix of financial support mechanisms (for both mini-grid companies and mini-grid end-users), the mini-grid sector in Asia-Pacific can fulfil its potential and reach scale for the purpose of contributing to the achievement of the SDG objectives.

To de-risk private mini-grid investment and deployment in South and Southeast Asia, ARE also provided four very important recommendations:

- Further explore innovative approaches to increase the uptake of productive appliance;
- Leverage digital and disruptive technologies;
- Develop public-private partnerships (PPP) across the Southeast Asian region; and
- Cultivate additional community-private partnerships (CPP).

Case studies contributors:²⁶



Fact Box: Southeast Asia

According to Southeast Asia Energy Outlook 2019, the region is well on the way to achieving universal access to electricity by 2030. Millions of people in Southeast Asia have gained access to electricity since 2000, yet some 45 million there are still without it today.

Since 2000, Southeast Asia's 80% increase in overall energy demand has largely been met by a doubling in fossil fuel use. Oil is the largest element in the regional energy mix, and coal – largely for power generation – has been the fastest growing. This has underpinned the region's development and industrial growth but has also made air pollution a major risk to public health and driven up energy-related CO₂ emissions.

Investment in renewables is starting to pick up: renewable capacity is expected to expand by more than one-third over the next five years, led by solar PV and hydropower.

However, without additional changes in policy intentions, renewable sources of power generation would account for only around one-third of the increase in electricity demand to 2040, according to the new IEA Outlook.²⁷

The market for energy access solutions in South and Southeast Asia was recently estimated by Bloomberg New Energy Finance at more than 339 million people, out of which clean energy mini-grids are estimated to make up 44% of all new energy access connections.²⁸

The bulk of the people without access to energy in Southeast Asia live in four countries: Myanmar (16 million), Philippines (11 million), Indonesia (5 million) and Cambodia (2 million). In South-Asia, India still has the largest energy access deficit (99 million people). Other countries such as Bangladesh (20 million), Pakistan (57 million) and Nepal (2 million) also remain priority countries.²⁹

²⁶ ARE, Private Sector Driven Business Models for Clean Energy Mini-Grids: Lessons learnt from South and South-East-Asia, 2019

²⁷ IEA, South-East Asia Energy Outlook, 2019, IEA

²⁸ BNEF, Powering the Last Billion, 2019: pg 22

²⁹ IEA, IRENA, World Bank & WHO, Tracking SDG7: The Energy Progress Report, 2019: pg 123-131

CHALLENGE 2:**Lack of supportive policy frameworks**

Policies for off-grid renewables play a vital role in enabling private sector engagement. While policy has in some cases spurred private sector participation to the benefit of rural populations (e.g. in the case of Nigeria as presented at the EAIF 2019 or in Togo, as discussed at the Atelier Off-Grid B2B Togo), other markets have yet to develop specific off-grid regulations, which can catalyse private sector investments.

Recommendation: Organise policy dialogue stakeholder meetings and implement trainings for policymakers and Rural Electrification Agencies.

► **ARE ACTION:** ARE Energy Access Investment Forum

ARE, in partnership with the African Development Bank and the GET.invest programme (formerly RECP), organised the 5th ARE EAIF which brought together more than 260 participants (with more than half coming from Africa) to Abidjan, Ivory Coast on 13-14 March 2019.

The Forum, supported by SEforALL, Club-ER, ECREEE and UNIDO, convened public, private and other stakeholders with the goal to boost clean energy access globally and in particular in Africa, where 588 million people still lack electricity.

Building on the success of previous editions, and in addition to showcasing the upcoming political and de-risking initiatives, the Forum served to discuss issues around policy and regulation, latest trends and innovations as well as contributed to socio-economic growth with 265 B2B matchmaking meetings being held between local, regional and international market players.

In light of building strong links between the EU and Africa, ARE and ECREEE have pledged to support SMEs and start-ups to upscale DRE and cross-sectoral collaborations in the ECOWAS region, which led to the ARE-ECREEE-GET.invest cooperation around the major ECOWAS Sustainable Energy Forum in Oct 2019 in Accra, Ghana (see page 19).



ARE Vice-President Rebecca Symington moderating a panel with Astria Fataki (Energy Generation)

► **AFDB-ARE TRAINING TO BURKINA FASO GOVERNMENT REPRESENTATIVES**



Former ARE Vice-President Caroline Nijland meeting with government officials from Burkina Faso

With the Burkinabe government's ambition to electrify 650,000 households by 2020, ARE gave a training to government officials in Ouagadougou on 20-21 June 2019.

Over the course of two days, themes related to off-grid renewable energy market trends in Africa and globally; designing access to renewable energy and hybrid technologies; operational and financial models and innovations in the sector for the productive use of renewable energy were tackled. Economic policy at regional and national level to attract experts and investments in the energy sector, methods of development and implementation of innovative funding programmes were also discussed.

Recommendations on legislation, policies and other ways to improve the renewable energy market were developed and shared with participants.

Fact Box: West Africa (ECOWAS)

The West African region has a vast renewable energy potential sufficient to cover unmet power demand and achieve universal access to electricity while supporting the region's transition to a low-carbon growth path.

In July 2013, the Authority of Heads of State and Government of the Economic Community of West African States (ECOWAS) adopted the ECOWAS Renewable Energy Policy (EREP); this aims to increase the share of renewable energy in the region's overall electricity mix to 35% in 2020 and 48% in 2030 (to 10% and 19%, respectively, excluding large hydro). Complementing the EREP is the ECOWAS Energy Efficiency Policy (EEEP), which aims to make available 2,000 MW of power generation capacity through efficiency gains and ultimately double the rate of improvements in energy efficiency.³⁰

Today, 208 million people in West Africa and Sahel regions don't have access to electricity, 70% of who live in rural areas. In addition,

West Africa and Sahel have also been experiencing the fastest growth in energy demand in the region that could go unmet at current electrification levels.³¹

The region targets to install up to 128,000 mini-grids in the region by 2030, however, not all countries in the region have the right enabling policies and regulatory frameworks to attract private participation. In addition to that access to finance also lies as the major barrier to the scale-up of CEMG deployment.³²

Complementing the ambitious mini-grid objectives, ECREEE is managing a 225 million USD facility named the Regional off-Grid Electrification Project (ROGEP), which aims to increase electricity access to households, businesses and public institutions using affordable quality-verified stand-alone solar systems. It estimates that 31 million households could be electrified using stand-alone solar systems. As part of its activities, ROGEP will provide matching grants, market-entry grants and performance-based grants to businesses.³³

► ECOWAS SUSTAINABLE ENERGY FORUM

The ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) convened its third annual ECOWAS Sustainable Energy Forum (ESEF) in the Kempinski Hotel in Accra, Ghana on 22-24 October 2019.

With over 300 experts from energy and related sectors in attendance, this year's event showcased the progress made by the region while highlighting the remaining challenges faced by stakeholders when achieving regional targets in renewable energy and energy efficiency.



Jan Cloin (GET.invest) and David Lecoque (ARE) receiving a token of appreciation from Mahama Kappiah (ECREEE)

Since its inception in 2017, ESEF has brought together West Africa's top officials, policy-makers, industry leaders and other individuals committed to moving forward the region's sustainable energy agenda. Geared toward facilitating business deals and promoting renewed investment in the area, ESEF aims to impact sustainable change and empower regional leaders from inception through execution and toward long-term results; in this sense, ESEF2019 was no different.

The forum was co-organised by ARE and GET.invest, a European programme that mobilises renewable energy investments with the support of the European Union, Germany, Sweden, the Netherlands, and Austria.

³⁰ IRENA, *West Africa Clean Energy Corridor*, 2019

³¹ ECREEE, *Regional Off-Grid Electrification Project (ROGEP)*: slide 2

³² ECREEE, *Mapping & Assessment of Existing Clean Energy Mini-Grid Experiences in West Africa*, 2016: pg. 10, 11

³³ ECREEE, *Regional Off-Grid Electrification Project (ROGEP)*: slide 3-8

ESEF2019 also featured GET.invest business-to-business matchmaking sessions. There, participants had the opportunity to connect with potential business partners, investors and relevant experts to advance projects during face-to-face interactions in 127 on-site meetings.

Participants also had a chance to join the industry consultation during a special panel, “Consumer Protection Principles for Clean Energy Mini-Grids” (see page 26). The event also featured a vibrant exhibition hall with an array of industry leaders including Universal Energy, Greenlight Planet, JA Solar, SPS Energy, AMMP Technologies, ARE and many more.

► UNIDO COOPERATION



L-R: Rana Ghoneim (UNIDO), Marcus Wiemann (ARE), Li Yong (UNIDO), David Lecoque (ARE)

Increasing access to affordable and reliable sustainable energy is essential for long-term economic prosperity and the achievement of the SDGs. It is with this goal in mind that UNIDO and ARE signed a Memorandum of Understanding (MoU) launching a partnership between the organisations.

The organisations will develop evidence-based policy guidelines and recommendations for decision makers in Africa, Asia and Latin America as well as encourage the creation of renewable energy associations and clean technology clusters at the national and regional levels. ARE is currently leading an initiative together with its Members AMDA and Inensus to co-develop a new regulatory toolkit for decision-makers in Africa. The new toolkit will consider ongoing developments since the first Mini-Grid Policy Toolkit was published in 2014.³⁴ The aim is to present the new regulatory toolkit in the first quarter of 2020.

The announced cooperation also foresees the convening of global and regional debates between business and governments as well as the dissemination and promotion of knowledge exchange on latest technology innovations.

“THE PARTNERSHIP WITH ARE WILL DEEPEN OUR UNDERSTANDING OF PRIVATE SECTOR NEEDS. IT WILL ALSO ALLOW US TO WORK TOGETHER ON FACILITATING A CONSTRUCTIVE DIALOGUE BETWEEN PUBLIC AND PRIVATE ACTORS TO SUPPORT A DEVELOPMENT PATH THAT DELIVERS ACCORDING TO LOCAL NEEDS AND EMPOWERS LOCAL CAPACITIES AND COMMUNITIES.”

RANA GHONEIM
CHIEF, ENERGY SYSTEMS & INFRASTRUCTURE
DIVISION UNIDO

³⁴ RECP, EUEI-PDF, ARE & REN21, *Mini-Grid Policy Toolkit*, 2014

CHALLENGE 3:

Lack of interaction between market players inside & outside of local markets

Local SMEs and start-ups that often have profound knowledge about last-mile customers and local distribution chains have limited capacity in accessing and meeting international financiers, donors, technology providers and suppliers.

Recommendation: Organise Off-Grid Investment Fora and workshops uniting international and local stakeholders

► **ARE ACTION:** Atelier Off-Grid B2B Togo

On 12 June 2019, private and public actors participated in the Atelier Off-Grid B2B Togo, which was organised under the hospice of the first Togo-European Union Economic Forum in Lomé, to discuss the issue of access to sustainable energy in the country.

Aware of the enormous potential held by off-grid solutions to advance energy access in support of Togo's 2030 Electrification Strategy, ARE co-organised this 1-day Atelier with the Delegation of the European Union to Togo (EUD), the German Development Cooperation implemented by GIZ and the Ministry of Mines and Energy of Togo.

The Atelier, which attracted more than 140 participants, aimed at bringing together key players in the off- and mini-grid Togolese market. The workshop included national and international private sector representatives such as project developers, investors and technology providers, as well as public sector officials from the Government of Togo and local authorities, and international development partners.

REGIONAL EVENTS, SUCH AS THE ATELIER OFF-GRID B2B TOGO WORKSHOP ORGANISED BY ARE WERE VERY GOOD OPPORTUNITIES FOR DEVELOPERS TO BE INFORMED ABOUT THE EXISTING OPPORTUNITIES, AND THE EU WILL CONTINUE TO WORK CLOSELY WITH ARE TO PROMOTE THE DEVELOPMENT OF RURAL ELECTRIFICATION IN TOGO.

ANTONIO CAPONE
FIRST SECRETARY AND TEAM LEADER
INFRASTRUCTURE & ENVIRONMENT
DELEGATION OF THE EUROPEAN UNION TO
THE REPUBLIC OF TOGO

With the aim of increasing visibility about the renewable energy business opportunities in the country and facilitating investments in local mini-grid and standalone projects, the event identified the best financing options and linked key players of the country's energy sector with national and international off-grid experts, project developers and financiers



Atelier Off-Grid B2B Togo group picture

► INTERSOLAR EUROPE

As the exclusive off-grid partner at Intersolar, ARE partnered with the German Solar Association (BSW), with the support of the German Federal Ministry of Economic Development and Cooperation (BMZ), to organise the Off-Grid Power Forum: Conference & Exhibition in Munich on 15-17 May 2019.

The Conference was an opportunity for companies and project developers to attract and to raise interest from high-ranking delegations, project partners, policy makers, investors and international press members. The Forum was the focal point to learn about the latest trends on future markets, technological solutions and smart applications in a growing cross-sectoral environment.

The Off-Grid Power Exhibition featured ARE Members and their products: EMPO-NI (solar powered water pump), GFM Fotovoltaica (solar mini-grids) and SD Wind (small wind powered mini-grids), as well as ARE's Partners GET.invest and ElectriFI. ARE also shared its booth with the "Low Carbon Off-Grid Communities (LOGiC)" project, where ARE was the communications lead.



Marcus Wiemann and David Lecoque at the ARE stand at the Intersolar Europe Exhibition

With around 450 participants, the Off-Grid Power Conference brought deep insights into the latest off-grid market trends, smart applications and technological power system solutions, including seven ARE Members who showcased their technological and digital off-grid products during the sessions on the following topics:

- **AMMP technologies:** How the internet of things (IoT) enables operational excellence for off-grid systems at scale.
- **Ferntech GmbH:** Off-grid power systems 4.0: Energy production in the digital world.
- **GFM Fotovoltaica:** New generation of smart mini-grids.
- **SMA Sunbelt Energy GmbH:** How to measure the quality of a solar mini-grid.
- **Solar23:** New Energy Roadmap - Distributed Energy Service Company (DESCO) projects with a strong social and economic impact.
- **Tesvolt:** Reduction of standby losses on module level - advantages and disadvantages for off-grid.

► INTERSOLAR INDIA



Jens Jaeger (ARE) thanking the panelists at the ARE Micro-Grid Workshop

Complementing the Micro-grid Pavilion together with Smart Power India and Victron Energy, ARE organised a workshop, sponsored by Studer Innotec, to discuss the role of micro-grids in powering India's rural economy. 90 participants attended various sessions, which included discussions on Consumer Protection Principles for Clean Energy Mini-Grids, demand-side management and the role of data in micro-grid business models.

ARE Board Members Rebecca Symington (Mlinda) and Sukla Chandra (GE Power) moderated at the event while ARE Members, CES-India, Mlinda, Rahimafrooz and Studer Innotec spoke in the various sessions.

As a key outcome of the event, ARE received additional endorsements and feedback to help implement its Consumer Protection Principles for Clean Energy Mini-Grids, which were discussed at the workshop with the mini-grid industry. Smart Power India also launched their Micro-Grid Handbook, with high-level representatives from ARE, International Solar Alliance (ISA), Ministry of Power and Smart Power India.

Fact Box: India

Almost 1 billion people have gained access to electricity in developing Asia since 2000, with 94% of the region having access to electricity in 2018 compared with 67% in 2000. Nearly two-thirds of this increase occurred in India, which continues to make unprecedented progress towards universal electricity access, as a strong push from the government resulted in almost 100 million people gaining access to electricity in 2018.

In March 2019, the government announced that it had provided access to all willing households after connecting 26 million households since October 2017 through the Saubhagya scheme, with 99% of them through the grid.³⁵

Yet national grid connections in many rural areas continue face problems with poor quality of electricity services and transmission and distribution systems leading to many hours of brownouts.

Especially rural micro-enterprises are struggling to secure reliable supply of electricity as Government efforts have primarily focused on household electrification. Stepping up to the challenge of powering the rural economy, mini- and micro-grids are thus gaining a lot of traction in India especially in states like Jharkhand, Bihar and Uttar Pradesh.³⁶

According to the latest study by ESMAP, India is among the top five countries with most mini-grids installation (2,800) and 1,905 new projects are planned.³⁷

³⁵ IEA, SDG7: Data and Projections, 2019

³⁶ Smart Power India, Rural Electrification in India Customer Behaviour and Demand, 2019: pg 2

³⁷ ESMAP, Mini Grids for Half a Billion People, 2019: pg 2

CHALLENGE 4: Lack of finance

Over the last few years, the financial means required to deliver clean energy access across emerging markets have generally been insufficient and, in view of the needs on the ground, financial schemes were often ill-designed. ARE Members and Partners consistently identify (the lack of) access to finance as a central obstacle hampering the growth of the off-grid and mini-grid sector, which is expected to deliver the majority of the new electricity connections to those currently without power around the world.

To put this into perspective, the IEA states in its latest Africa Energy Outlook that: “grid extension and densification is the least cost option for nearly 45% of the population gaining access by 2030, mini-grids for 30% and stand-alone systems for around a quarter.”³⁸

In terms of financing flows, SEforALL found that finance for electricity in the top 20 countries worldwide with the largest energy access deficits increased to USD 36 billion in 2017.³⁹ However, this is a long way from what is required to really address the issue. Indeed:

- *Approximately USD 40 billion is needed – annually – to achieve universal electricity access;⁴⁰*
- *Only one-third of the existing finance, or USD 12.6 billion, is estimated to have provided residential access;⁴¹ and*
- *Investment in off-grid solutions and mini-grids continues to remain small-scale, with 1.2% of the total finance for electricity tracked. Standing at USD 430 million in 2017, investments in the sector only marginally increased compared to 2015-16. Kenya, Tanzania, and Uganda together accounted for 56% of the total.⁴²*

Recommendation: Develop schemes that reward strong results and track records.

► ARE ACTION: High-profile bankruptcies in the off-grid sector

The year 2019 saw two of the off-grid industry’s most well-known companies active in Africa experience financial difficulties, causing alarm among some investors. Then as now, ARE is justifiably optimistic about the long-term prospects of the off-grid market and the crucial role it plays in actually delivering on the global goal to achieve universal access to energy by 2030.

Without delving into the specifics of the two companies, which have in the meantime both successfully relaunched, ARE is convinced of the long-term health of the off-grid sector, provided some conditions are met.

With its campaign paper,⁴³ ARE seeks to flesh out some of the core challenges and sector trends, and proposes a number of key recommendations on how to move forward and turbocharge the off-grid sector, so that SDG7 can move on from being a political goal to becoming reality.

³⁸ IEA, *Africa Energy Outlook*, 2019: pg 14

³⁹ SEforALL, *Energizing Finance: Understanding the Landscape*, 2019: pg 11

⁴⁰ IEA, *SDG7: Data and Projections*, 2019

⁴¹ SEforALL, *Energizing Finance: Understanding the Landscape*, 2019: pg 11

⁴² SEforALL, *Energizing Finance: Understanding the Landscape*, 2019: pg 12

⁴³ ARE, *High-profile bankruptcies in the off-grid sector: Where do we go from here*, 2019

► AFRICA-EU SUSTAINABLE ENERGY INVESTMENT PLATFORM

ARE was one of the leading contributors to the work of the Africa-Europe High-Level Platform for Sustainable Energy Investments in Africa (SEI Platform), contributed to leading reports including IEA's Africa Energy Outlook, and addressed its recommendations on access to finance at nearly all the events and meetings it participated in.

This consultation process led to a wide-ranging report entitled "Scaling-up energy investments in Africa for inclusive and sustainable growth" signed by numerous actors working on energy access around the world.⁴⁴

The report includes a series of recommendations such as:

- Facilitating sustainable energy investments through policy and regulatory measures;
- Promoting best practices in project identification, preparation, and procurement;
- Adapting financing and fiscal systems to meet potential investors' and projects' needs;
- Launching a comprehensive capacity building programme;
- Boosting mini-grids and standalone systems;
- Investing in generation to boost renewable energy sources; and
- Improving energy efficiency



ARE HAS BEEN A VERY VALUABLE PLATFORM FOR KNOWLEDGE SHARING ON WHAT WORKS AND WHAT DOES NOT WORK IN BRINGING ENERGY SERVICES TO POOR COMMUNITIES.

KANDEH YUMKELLA

FORMER UNITED NATIONS UNDERSECRETARY-GENERAL FOR SUSTAINABLE ENERGY

Fact Box: Africa

Despite being home to almost a fifth of the world's population, Africa accounts for little more than 3% of global electricity demand and North African countries (42%) and South Africa (30%) represent nearly three-quarters of this. Africa's electricity demand is growing: it rose to 3% a year on average between 2010 and 2018, increasing from 560 terawatt-hours (TWh) in 2010 to around 705 TWh. Electricity accounts for around 10% of Africa's total final energy consumption, but per capita electricity demand in Africa remains very low at around 550 kWh.⁴⁵

Sub-Saharan Africa remains the region with the largest access deficit: more than half of the 573 million people lack access to electricity. About half of the sub-Saharan African population without access to electricity live in five countries: Nigeria, Democratic Repub-

lic of Congo (DRC), Ethiopia, Tanzania and Uganda.⁴⁶

Access to clean energy is crucial not only for the attainment of health and education outcomes, or raising the standard of living, but also for reducing the cost of doing business, unlocking economic potential and creating jobs, truly enabling sustainable development.

The overwhelming case for energy access stands in stark contrast with the enormous but untapped energy potential in Africa⁴⁷ and particularly with the paltry investment in off- and mini-grid systems, even though these systems should deliver the majority of the needed new connections.

At the moment, according to the latest study by ESMAP, just 1,500 mini-grids have been installed throughout the continent and 4,000 more mini-grids are planned for.⁴⁸

⁴⁴ European Commission, *Scaling-up energy investments in Africa for inclusive and sustainable growth*, 2019

⁴⁵ IEA, *Africa Energy Outlook 2019*

⁴⁶ IEA, IRENA, World Bank & WHO, *Tracking SDG7: The Energy Progress Report*, 2019

⁴⁷ AfDB, *High 5s*, 2019

⁴⁸ ESMAP, *Mini Grids for Half a Billion People*, 2019: pg 2

CHALLENGE 5:

Lack of capacity among market players

As the industry is in constant development, the off-grid sector is permeated by a lack of capacity in the whole value-chain, including experts in management, financing, regulation and technical skills. This is especially the case on the local level. For example, mini-grid companies need support in implementing measures of consumer protection, which in turn can help secure trust from customers, governments and investors and hence attract more funding to mini-grids in the future.

Recommendation: Implement sector-wide programmes, which support off-grid companies globally.

► **ARE ACTION:** Consumer Protection Principles for Clean Energy Mini-Grids

The mini-grid industry is aware of the value of consumer protection principles and acknowledges their significance not only in business but also in relation to consumer rights in often poor and remote villages. Against this background, ARE, supported by AMDA, Smart Power India, launched Consumer Protection Principles for Clean Energy Mini-Grids in October 2019. The project was funded by Swedfund.

The objective of the project was to develop global and progressive Consumer Protection Principles for the mini-grid industry, which safeguard consumer rights, while defining key roles and responsibilities of market participants.

Based on in-depth desk research, surveys with mini-grid companies, financiers and governments, as well as industry consultations, ARE and its partners developed six Consumer Protection Principles (see Figure 4). The partners launched the draft principles via a 'Call to Action' in October 2019 and subsequently organised two industry consultations — one at ECOWAS Sustainable Energy Forum (22-25 October 2019) and another one at the ARE Micro-Grid Workshop at Intersolar India (28 November 2019). Based on sector-wide inputs, the principles were finalised in December 2019 with a view to present the principles at the next ARE Energy Access Investment Forum in spring 2020 (see Figure 5).⁴⁹



Figure 4. Consumer protection principles for clean energy mini-grids industry consultation milestones

⁴⁹ ARE, Call to Action: How you can support the Consumer Protection Principles, 2019

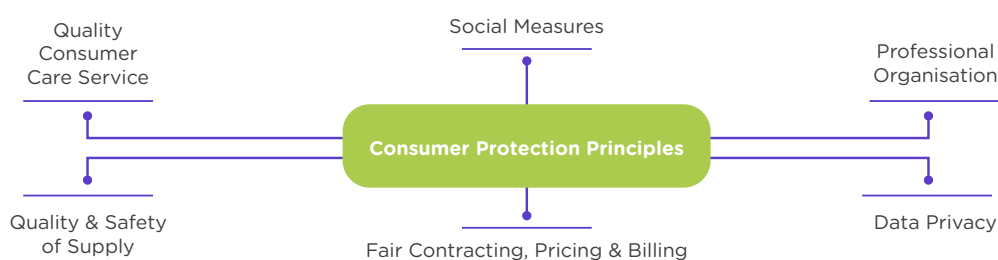


Figure 5: Six Consumer Protection Principles

Status of endorsements and commitments

The following 15 mini-grid companies have already either committed to the principles or endorsed them:



To promote this initiative, ARE invites all mini-grid stakeholders to commit to the principles. As a next step, ARE will try to seek support from existing and new partners to provide direct assistance to the mini-grid industry on the implementation of the said principles.

3. ABOUT ARE

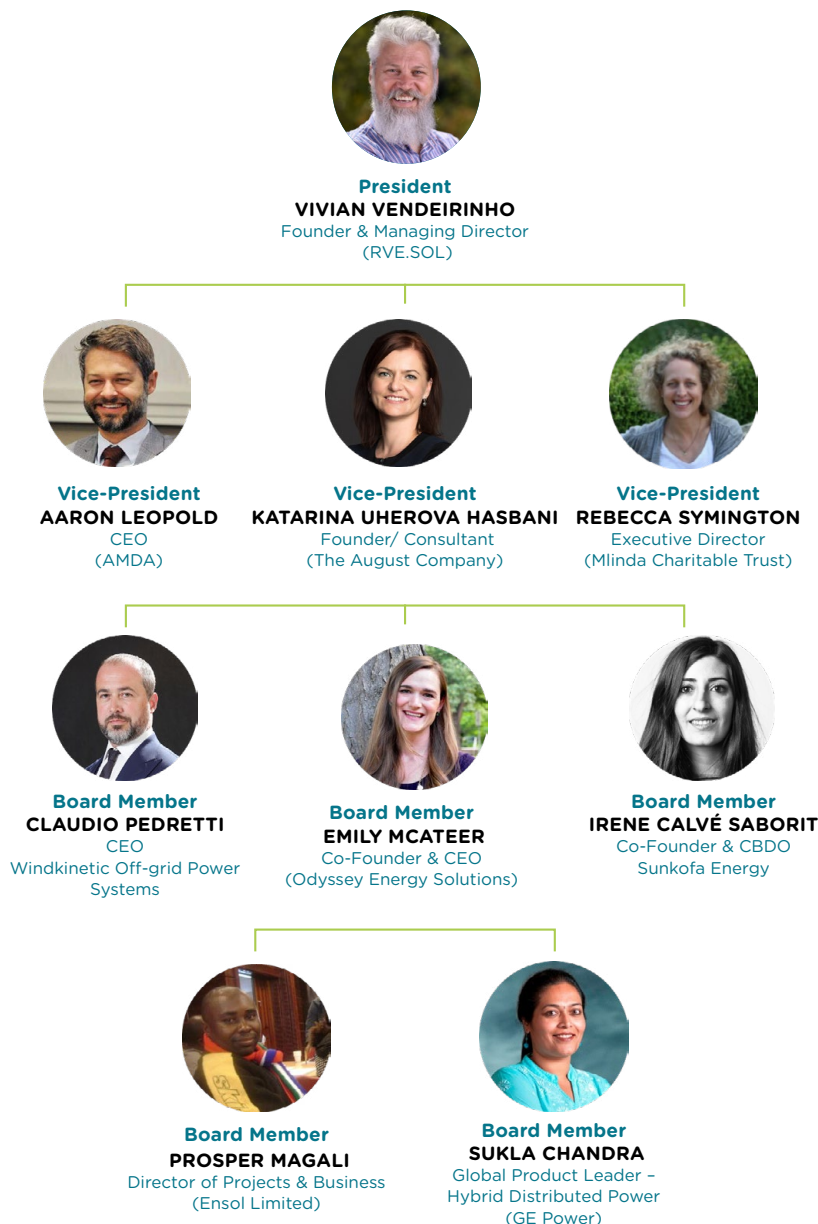
3. ABOUT ARE

Building on its unique position as the leading global voice for the clean energy off-grid sector, ARE established its 3-service lines concept in 2019 (see page 9) to allow for effective collaboration between private and public sector to make clean energy access a reality in Africa, Asia-Pacific and Latin-America-Caribbean by 2030. For reasons of good governance, ARE has established internal rules of procedure to define roles, tasks and responsibilities between the Secretariat, Board and Membership.

3.1 BOARD OF DIRECTORS

At the Annual General Meeting held in Abidjan, Ivory Coast on 13 March 2019, ARE held both its President and Board elections where five Board positions were filled.

Vivian Vendeirinho (RVE.SOL) upheld his position as President and served until 2020. Aaron Leopold (AMDA) and Rebecca Symington (Mlinda) were re-elected to the Board and were joined by two new Board Members: Claudio Pedretti (Windkinetic Off-grid Power Systems) and Irene Calve Saborit (Sunkofa Energy).



Name	Company	Country	Regional Focus	Term	Function
Vivian Vendeirinho	RVE.SOL	Portugal	Africa	2019-2020	President
Rebecca Symington	Mlinda Foundation	France	Africa	2019-2023	Vice-President
Katarina Uherova Hasbani	The August Company	Singapore	Asia-Pacific	2018-2022	Vice-President
Aaron Leopold	AMDA	Kenya	Asia-Pacific	2019-2020	Vice-President
Emily McAteer	Odyssey Energy Solutions	USA	Africa	2018-2021	Board Member
Prosper Magali	Ensol	Tanzania	Africa	2018-2021	Board Member
Sukla Chandra	GE India Industrial	India	Asia-Pacific	2018-2021	Board Member
Claudio Pedretti	Windkinetic Off-grid Power Systems	Italy	Africa & Asia-Pacific	2019-2020	Board Member
Irene Calvé Saborit	Sunkofa Energy	Spain	Africa	2019-2020	Board Member



JOINING ARE HAS BEEN PIVOTAL FOR WINDKINETIC TO STEP FORWARD IN THE FIELD OF RURAL ELECTRIFICATION AND ACCESS TO ENERGY. THANKS TO OUR MEMBERSHIP, WE GOT TO KNOW MANY COMPANIES IN THE OFF-GRID ENERGY SECTOR AND EXTEND OUR NETWORK. ATTENDING ARE EVENTS AND CONFERENCES IS EXTREMELY IMPORTANT TO STAY UPDATED ON THE MARKET TRENDS AND BRINGS US CLOSER TO DECISION-MAKERS AND FINANCIAL INSTITUTIONS.

CLAUDIO PEDRETTI
CEO
WINDKINETIC OFF-GRID POWER SYSTEMS (ITALY)

3.2 SECRETARIAT

With the expansion of ARE activities, ARE operates with a team of four permanent staff members and two assistants.



	Name	Country	Term	Function
Core Team	Marcus Wiemann	Germany	2013 - present	Executive Director
	David Lecoque	Belgium	2013 - present	Senior Policy & Business Development Manager
	Jens Jaeger	Denmark	2016 - present	Policy & Business Development Manager
	Ling Ng	UK	2014 - present	Communications & Marketing Manager
Support Staff	Melina Monjour	Italy & France	June 2018 - April 2019	Communications & Marketing Assistant
	Amanda Soler	Spain	May 2019 - present	Communications & Marketing Assistant
	Deepak Mohapatra	India	May 2019 - present	Policy & Business Development Assistant

4. **MEMBERSHIP DEVELOPMENT**

4. MEMBERSHIP DEVELOPMENT



4.1 NEW MEMBERS

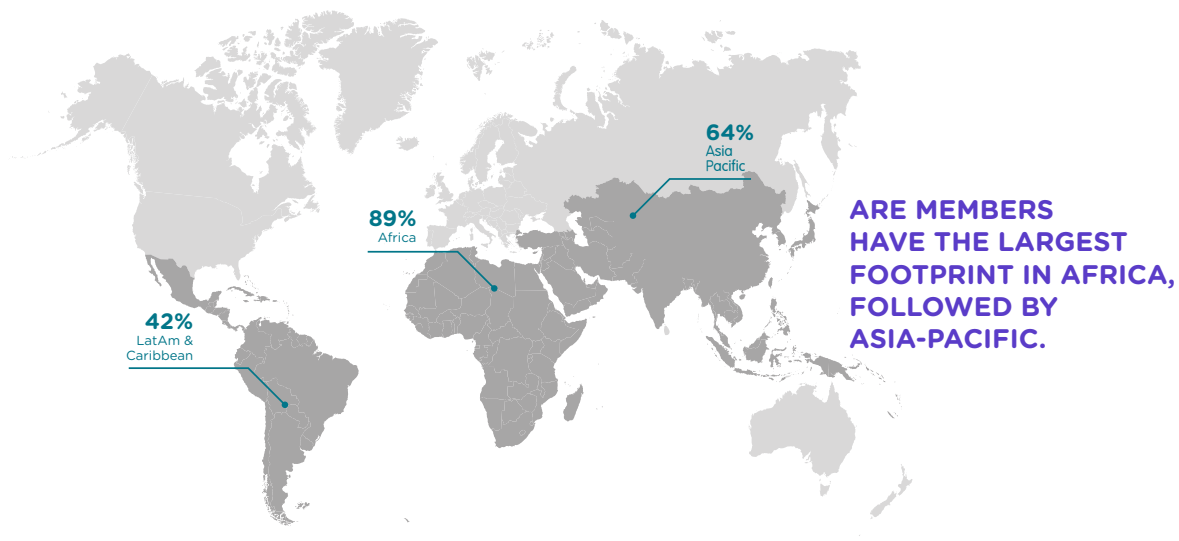
In 2019, ARE welcomed 45 new Members, increasing the Member base to 150. 26 Members left the association.



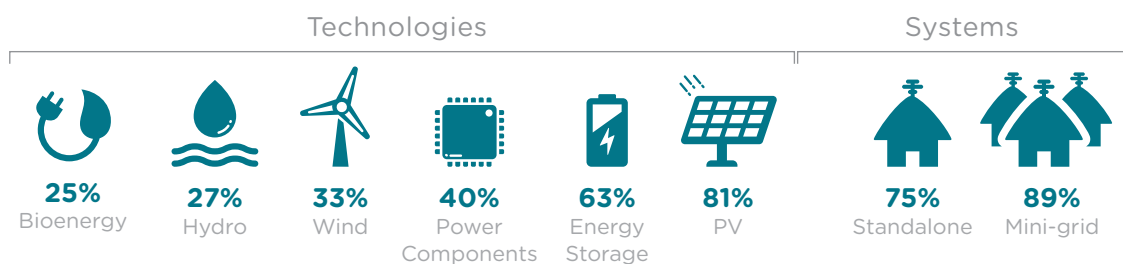
JOINING ARE WAS ONE OF THE FIRST DECISIONS WE TOOK AFTER LAUNCHING SUNKOFA ENERGY. IT HAS ALLOWED US TO GROW AS A START-UP COMPANY, FACILITATING THE ATTENDANCE TO CONFERENCES AND INTRODUCING US TO INVESTORS. THE ARE TEAM IS EXTREMELY PROACTIVE AND ALWAYS READY TO HELP, IT IS A PLEASURE TO WORK WITH THEM.

IRENE CALVÉ SABORIT
CO-FOUNDER & CBDO
SUNKOFA ENERGY (SPAIN)

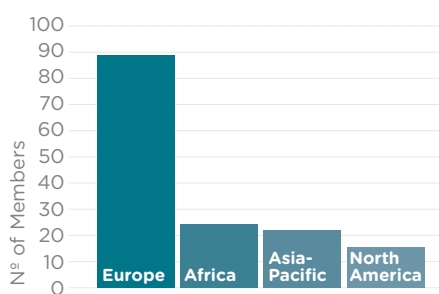
4.2 MEMBERSHIP OVERVIEW



ARE Members' Expertise

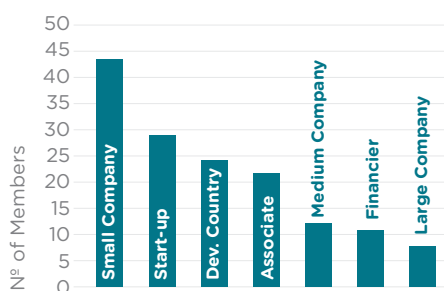


ARE Members' Origin



THE MAJORITY OF ARE MEMBERS ARE EUROPEAN WITH A GROWING NUMBER OF AFRICAN-BASED COMPANIES JOINING THE NETWORK.

Type of Members



ARE IS THE VOICE OF THE OFF-GRID PRIVATE SECTOR. 2019 SAW AN INCREASE IN FINANCIERS JOINING THE ARE MEMBERSHIP.

5. **FINANCIALS**

5. FINANCIALS 2019

The Financial Report of ARE for 2019 was prepared and certified by BVBA Solid Bookings, Brussels (Belgium).

ARE applied the percentage-of-completion method for its project accounting. As a result of unpaid invoices and unexpected cancellations of project activities for the year, ARE achieved a negative result in 2019.

Membership Fees €232,700		Operating Income: €526,755
Project Fees: Donor Partners Public Sector €207,483		
Sponsoring Fees €116,962	Management Fees €49,599	
	Deferred Incomes from 2019 activities -€79,990	
Services & Other Goods €362,534		Total Costs: €577,945
Remuneration & Social Security Costs €215,410		
Operating Profit/Loss: -€51,190		



6. **ABBREVIATIONS LIST**

6. ABBREVIATIONS LIST

A2E Access to Energy	DG DEVCO The European Commission's Directorate General for International Cooperation and Development	IAEREP Increased Access to Electricity and Renewable Energy Production	PV Photovoltaics
ADB Asian Development Bank		IEA International Energy Agency	RECP Africa-EU Renewable Energy Cooperation Programme
AfDB African Development Bank	DRC Democratic Republic of Congo	IoT Internet of Things	REEEP Renewable Energy and Energy Efficiency Partnership
AGM Annual General Meeting	DRE Decentralised Renewable Energy	IRENA International Renewable Energy Agency	REN21 Renewable Energy Policy Network for the 21 st Century
AMDA Africa Minigrid Developers Association	EAIF Energy Access Investment Forum	ISA International Solar Alliance	
ARE Alliance for Rural Electrification	ECOWAS Economic Community of West African States	kWh Kilowatt-hour	ROGEP Regional Off-Grid Electrification Project
B2B Business-to-business	ECREEE ECOWAS Centre for Renewable Energy and Energy Efficiency	LAC Latin America and the Caribbean	SDG Sustainable Development Goal
B2F Business-to-finance	EDF Energy Development Fund	LOGiC Low Carbon Off-Grid Communities	SEforALL Sustainable Energy for All
BMU German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety	EEEP ECOWAS Energy Efficiency Policy	MCA-Bénin II Millennium Challenge Account - Bénin II	SEI Platform Africa-Europe High-Level Platform for Sustainable Energy Investments in Africa
BMZ German Federal Ministry of Economic Development and Cooperation	ElectriFI Electrification Financing Initiative of the European Union	MEDENER Mediterranean Association of National Agencies for Energy Management	SHS Solar Home System
BOAD West African Development Bank	EREP ECOWAS Renewable Energy Policy	MoU Memorandum of Understanding	SMEs Small & Medium Sized Companies
BSW The German Solar Association	ESEF ECOWAS Sustainable Energy Forum	NGOs Non-Governmental Organisations	TWh Terawatt-hour
CEMG Clean Energy Mini-Grids	ESMAP Energy Sector Management Assistance Program	NWE North-West Europe	UN United Nations
CLUB-ER L'Association Africaine pour l'Électrification Rurale	EU European Union	OFID OPEC Fund for International Development	UNCDF United Nations Capital Development Fund
CO₂ Carbon Dioxide	EUD Delegation of the European Union to Togo	PAYGO Pay as You Go	UNIDO The United Nations Industrial Development Organisation
CPP Community-Private Partnerships	GIZ Deutsche Gesellschaft für Internationale Zusammenarbeit	PPP Public-Private Partnerships	USAID The U.S. Agency for International Development
DESCO Distributed Energy Service Company		PURE Productive Use of Renewable Energy	USD US Dollar



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