



**2023.** IN SHORT.

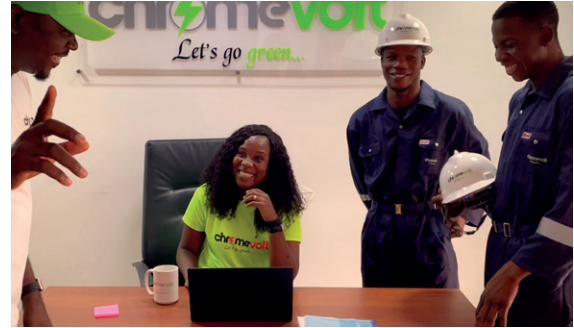
# #1 SOLAR GENERATORS NOW READY TO SCALE UP – ALSO OUTSIDE OF NIGERIA

Up to now, 2000 solar generators have been sold on the African continent, most of them in Nigeria.

Also, A2EI's work over the last 2 years has demonstrated that there is actually a large potential market, not only in Nigeria. In addition, companies that were until now in the smaller solar home system segment, such as SunKing, d.light and others, have been using A2EI data to build their own larger solar business system.

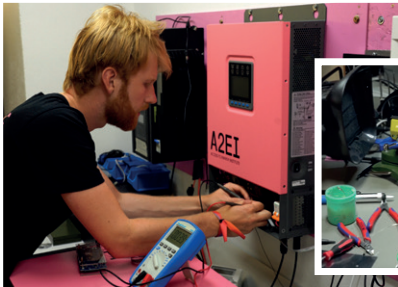
Fuel subsidies were stopped in Nigeria in July 2022, which led to a tripling of fuel prices, making the economics of the solar generator even stronger from a customer's perspective. At the same time, the FX losses of the Naira and unsustainable subsidy programmes have made the sales reality of most distributors of solar equipment unprofitable at this moment.

One of the main contributions of the A2EI engineering team is to do continuous R&D improvement of the solar generator, with the goal of making it reliable enough for the strong impacts of the Nigerian environment, and as affordable



as possible. We have started analysing the repayment patterns of end customers and are helping the distributors to improve their portfolio quality.

2023 has also seen demand from new countries increase, in particular from South Africa (where the grid situation is worsening), DRC (where fuel is more expensive than in Nigeria), and in Malawi and Zambia (in combination with productive use appliances).



## #2 NEW USAGE CASES – EMPOWERING EMERGENCY & HEALTH INFRASTRUCTURE



Apart from new geographical markets, new areas of deployment for the solar generators are becoming relevant, especially in the fields of emergency relief work and healthcare infrastructure.

In February 2022, we had collected donations and were able to ship 1,300 small solar kits to Ukraine as a first relief for families who were disconnected from the electricity grid by the war.

Another order came in 2023 through the British Government/UK Aid, who ordered 100 solar generators for community centers in Ukraine.

These community centers are now being equipped with a larger version of our solar generators to rebuild local infrastructure.

On the basis of our data work for the Ministry of Health in Benin, we have realized that our solar generators were actually a good fit for small health-centers requiring less than 5kWh of electricity per day.

In 2023, we actually started deploying our solar solutions on Nigerian health centers.

Together with USAID's Health Electrification and Telecommunication Alliance (HETA), we are planning to electrify 75 health clinics in Nigeria with our solar generator.

We are set to be monitoring and optimizing the systems for individual use cases and are preparing for many more to come.



# #3 GREEN GENSET FACILITY - OVERCOMING FINANCING BOTTLENECKS

The biggest hurdle to scaling is distributor finance. Since the upfront cost of the solar generator is higher than for a fuel generator (\$1,200 vs \$120), distributors need more working capital to buy them and to provide consumer finance to their customers.

Because solar gensets are not a well known asset class yet, banks are hesitant to lend, and volatile financial markets make it hard to source other capital. Therefore, a combination of flexible-early stage financial instruments (e.g. grants and concessional finance) is required to further prove this market. The average working capital cycle between manufacturing of the solar genset and final repayment is 24 to 36 months, and we have developed the so-called Green Genset Facility (GGF) to cater for the financing needs of distributors. Prior to proposing a

structure for a larger facility, Good Energies Foundation and DOEN Foundation provided two smaller tranches of grants, with the A2EI providing another €1.5m to equip distributors with stock, and gather valuable repayment data.

Solar generators were purchased by local distributors and 20 months payment terms were agreed upon. Every installed solar generator is visible through our data platform Prospect, which tracks energy consumption and



repayment in real time. The gathering and analysis of repayment data from customers is key to understanding the real risks around the business model of the solar generator, and to invite commercial funders from 2025 onwards.

Collecting granular repayment data will facilitate inviting local finance institutions to over the longterm provide the end customer finance for another scaling boost. The objective is now to fill the next tranche of the GGF to allow distributors, also in other countries than Nigeria, to purchase more solar generators. Our objective is to find funders for the next USD 5m in the months to come.

We are confident that as we provide more granular repayment data, the product will become better understood and the opportunity to lend too attractive to forego.

# #4 PROSPECT PLATFORM GAINING TRACTION



After having launched in late 2022, the open-source data platform Prospect, a cooperation between A2EI and GET. invest, has attracted a lot of attention in 2023.

We have registered a variety of new users – ranging from local and international companies, utilities and distributors, over development assistance agencies, to rural electrification authorities (REAs) and governments. As one example, REA Zambia uses Pros-

pect to monitor its full portfolio of electrification projects. Using Prospect allows for the remote monitoring of installations as well as effective oversight of contractors under various subsidy programmes, thus building the case for future finance. Detailed data is made available to report accurately on progress. Prospect can be used to report on every connection in the country, be it ongrid, minigrad, offgrid, productive use or clean cooking.

Prospect aims to provide an easy and seamless way for small and medium scale distributed renewable projects to participate in the international climate financing markets, mainly the Voluntary Carbon Markets and the market for Renewable Energy Certificates and Credits (RECs) through Distributed RECs (D-RECs). This will be made pos-

*Check out the new  
Prospect website!*



sible by providing a digital, verified and certified trace for impact generation at least possible transaction costs, and combines impact with carbon emission mitigation.

In 2024, Prospect will pilot novel ways of digital Measurement, Reporting, and Verification (MRVs), including the use of chatbots and evaluation of aerial images to further reduce the transaction costs for electrification programs such as Results-Based Financing programs.



# #5 CLEAN E-COOKING & E-MOBILITY: EXPLORING NEW OPPORTUNITIES



In the clean e-cooking sphere, in 2023 the A2EI supported data collection and analysis on projects in Uganda, Kenya, Rwanda, Nepal, El Salvador, Lesotho, and Guinea.

First results of our data collection and research were published in different reports. The report *Renewables-based electric cooking: Climate commitments and finance* by authors at A2EI and the International Renewable Energy Agency (IRENA) details how countries are linking electric cooking to their climate

commitments. It provides a review of the finance landscape today, and details how countries can scale finance for electric cooking.

In addition to supporting these projects, we have been developing the Appliance Demand Platform (ADP) with funding from and in cooperation with GEAPP. ADP is designed

for researchers and project managers to gain insights into how appliances are being used. We are beginning to implement it with productive-use appliances, electric cooking appliances in schools, and in the staff kitchen at Kenya Power.

The most important test-case for ADP will be to monitor the results of a large-scale electric pressure cooker project in Uganda that is led by the electricity distributor Umeme. In 2024, ADP will help Umeme answer questions around

demand for electric cooking and how it is affected by electricity tariffs, user behaviors, and grid stability. ADP is built on existing Prospect architecture, and we expect 2024 will see increased overlap between the two platforms and increased use cases for tracking CO2 emission reductions.

Within our Entrepreneur in Residence program, we supported the Tanzanian company Greenfoot in developing solar-powered e-mobility solutions for the African continent. After much research Greenfoot focused on electric transport bikes. Prototypes have been manufactured locally in Tanzania, and the transport bikes will launch in 2024.

Download the  
*Renewables-based  
electric cooking*  
report *here!*



# #6 5 YEARS OF A2EI - COLLABORATING TO HELP ACHIEVE #SDG7

Five years ago, we founded the A2EI to help solve two global problems: on the one hand, bringing sustainable and affordable electricity to all, and on the other hand, to fight global warming.

We have achieved a lot so far – and we are working hard to continue to make comprehensive data, as well as reliable solar generators available to a growing number of stakeholders worldwide.



To honor our mission, in September 2023, apart from “just” celebrating our anniversary, we convened about 30 experts from the industry in a new format in Berlin. We hosted a series of workshops to brainstorm collective approaches to tackling some of the most pressing challenges on the road to achieving SDG7:

- 1) strategies to #LeaveNoOneBehind, and how to provide power to the over 519 million people, mostly in Sub-Saharan Africa, that still lack energy access;
- 2) how to bridge the affordability gap and procure working capital for (sm)all distributors;
- 3) how to improve digitization to support achieving SDG7 – e.g. by reporting accurately and transparently, and by

monetizing impact.

Together, we set out to create a “Think and Do Tank” to accelerate innovations. We will keep you up-to-date on the process – and look forward to the input of many additional stakeholders as we go forward.

It has been a great pleasure and privilege to shape the A2EI over the past five years, together with YOU – and many further great team members, friends, colleagues, and supporters.

We are confident that by working collaboratively, we will be able to accelerate the pace towards reaching SDG7 in the years to come!

*Please watch our 5 years A2EI anniversary video!*



A special thank you to the generous supporters making our work possible:



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