



# sun connect

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## rural electrification with photovoltaics

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Harald Schützeichel

## Solar rubbish for rural people

Currently, organizations and enterprises are outbidding one another with their announcements of how many people they will supply with light. Talk is of hundreds of thousands or even a million. These success stories announced at conferences in reality often turn out to be no more than hot air.

Most “success stories” are based on the use of small solar lamps produced at a cost of less than fifteen US dollars. What people in the rural regions of Asia and Africa get for this is a dim LED lamp with a battery that rarely has a lifetime of more than a year. The cheap plastic housing lasts no longer and is thrown away together with the battery. Repairs or exchanges are intended as little as recycling. More disturbing than the ecological damage caused by this solar trash is the question: How are users meant to experience solar energy as an energy source to be taken seriously, one that fosters their economic development? The message given here is: Solar energy is for the poor.

The success is in terms of marketing. These users are henceforth cited in the success statistics of international conferences, and carbon dioxide certificates are sold for their old kerosene lamps. Regrettably, ever more large foundations and organizations are giving in to the temptation of such illusory declarations of success.

A different scenario is also possible: More and more people in developing countries have the possibility to make comparisons and know what quality is. And they are willing to pay for it—should they even be offered such solar products. And if a stable, durable solar product is, in the end, too expensive, then there are often MFIs available, allowing for installment payments.

Sustainability is costly, but it is the only way to lead people in rural regions of Asia and Africa out of poverty on a permanent basis. These people should not be misused by being sold solar rubbish as technology of the future.

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Harald Schützeichel is the founder and chair of the Stiftung Solarenergie – Solar Energy Foundation, [www.stiftung-solarenergie.org](http://www.stiftung-solarenergie.org).

Christian Schmidt

## The ISET Sensor fills a gap in the market

What is the capacity of a PV plant? In order to check actual energy production, this question must be answered precisely and reliably. A new solar radiation sensor can now do that at a reasonable price.



There are a series of devices on the market for measuring the energy yield of a PV plant. However, most are not acceptable in terms of price-performance relationship. The inexpensive products are lacking in terms of precise measurement and lifespan, while higher-priced devices fulfill these conditions, but are far too costly. Moreover, the majority are equipped with thermoelectric radiation sensors, which have a different spectral sensitivity, as well as different reflective and thermal characteristics, making them only conditionally comparable with a PV plant.

The new illumination strength solar radiation sensor developed by the Institute for Solar Energy Supply Technology ISET (Kassel) is now able to fill this gap. The greatest advantage of the instrument is its measuring cells. Technically, constructed in nearly the same way as a comparable PV module, the cell is the basis for a precise determination of the radiation strength. In addition, the ISET sensor has an integrated temperature probe, which corrects measured values. These two features guarantee a precise ascertainment of performance—and at an affordable price.

In addition, the ISET Sensor stands out through its simple and compact construction, which, in connection with its robust aluminum housing, predestines the device also for use in harsh conditions. The Stiftung Solarenergie can thereby successfully employ the sensor in Ethiopia.

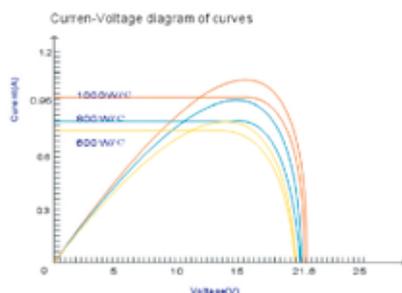
The ISET Sensor has been tested by the Fraunhofer Institute. The instrument is produced by IKS Photovoltaik (iks-photovoltaik.de), whereby every piece is calibrated on the basis of a reference sensor. The maximum deviation in measurement is  $\pm$  five percent. It is priced at 459 euros (exclusive VAT).

Christian Schmidt is a scientific journalist in Zurich.



### PHOTOVOLTAIC MODULE

The SPM Solar Module series consists of 1Watt~280Watt, mono-crystalline silicon & multi-crystalline solar cells (125\*125mm or 156mm\*156mm) with high efficiency, high transmission rate and low iron tempered glass, anti-aging EVA and high frame resistant TPT to laminate and anodized the aluminum alloy. The products have high efficiency, long life, strong wind and hail impact resistance, and are easily installed.



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## “Fill’er up!”

Approximately eighty percent of the rural population in Africa is not linked to the supra-regional electrical supply. Alternatives, such as petroleum or batteries, are not only expensive, but also cause additional problems when it comes to disposing of them. In Senegal, the Energy Kiosks developed by Kaïto provide relief.



The “Energy Kiosk” is a small, decentralized village electrical plant based on solar energy; it is equipped with a central PV facility with a charging station. For a fee, the village residents can “fill up on electricity” there, and, for example, charge lamps, mobile phones, and other batteries. In this way, they are able to cover their primary energy demand. In addition, they can use an AC connection, and a freezer to make ice for refrigerating their food. The facility functions independently and can be expanded if necessary. The rural population thus progressively enjoys the benefits of an electrical supply. Producing electricity at the site where it is used saves the material and costs necessary for laying cables. User fees for fill-ups, which also cover maintenance and replacement batteries, run roughly the same as the costs for the kerosene previously used by village dwellers to run their lamps.

The Energy Kiosk, an in-house development by Kaïto, arose in close collaboration with partners in Senegal. The greatest challenge was to simplify the highly complex European PV system for the local African market. “It is not possible to simply export to Africa a system that works perfectly in Germany. We carried out a number of discussions on site in order to figure out what the electricity would be used for, and what the facility had to be capable of achieving,” explains Wolfgang Hofstätter, responsible for technology at Kaïto.

The modular concept foresees a stepwise development of individual solar facilities in villages through to supra-regional networking into energy clusters. A comprehensive network of village kiosks is the first stage. With an increasing energy demand, the plan is to expand with a vegetable oil or wind power facility and join together as a regional electricity network.

Three kiosks, each with a yield of 1 kW, were installed in spring 2009 in the Senegalese province Casamance, five further facilities followed by the end of the year. Aiming for a comprehensive solution, by the end of 2010, a network of twenty kiosks should cover the country’s southwest province.

They are financed by private economic means, without subventions. The facility must therefore generate a return and all electricity must be paid for. “If something is free, it is often not considered valuable; this is also true in Africa,” says Heidi Schiller, co-owner of Kaïto. The financing is carried out through Kaïto Energie AG, local marketing is taken care of by the appropriate subsidiary. The building site and the construction costs of the kiosk are covered by the village community. In this way, the investment costs are lowered and the electricity can be sold at a slightly lower price.

### Perspectives for structurally weak regions

The facilities also create jobs on site: local business people run the kiosks as Kaïto’s partners. They are chosen by the village community and receive a basic salary and a commission. Installation and maintenance are taken care of by local electricians. The electricians are trained by Kaïto and are also capable of carrying out repairs and maintenance at other local firms. During the installation phase, Kaïto is, indeed, on site, but at start-up, responsibility is handed over to the African business partner.

The Munich enterprise was awarded the German Solarpreis (solar prize) in the category “Eine-Welt-Zusammenarbeit” (One World Cooperation) in autumn 2009 for the “comprehensive solution in the area of rural electrification.” *me*

#### Energy Kiosk in numbers

Preparation time:	3 months
Construction time:	6 weeks
Investment costs:	according to the yield 3000–10 000 € (without building and rental equipment)
Space needed for the solar collectors:	ca. 15 m <sup>2</sup> on the roof
Running time / lifetime:	solar technology: 20 years; electronics: 10 years; batteries: 5 years
Max. daily yield:	600–1800 W
Burning time of a rental lamp:	ca. 12 hours
Average rental time:	4 days
Average catchment area:	within a radius of ca. 3 km
Number of households covered:	30–100
Minimum earnings for a kiosk operator:	ca. 50 € monthly
Average maintenance interval:	four weeks

## An innovative concept for Solar Home Systems

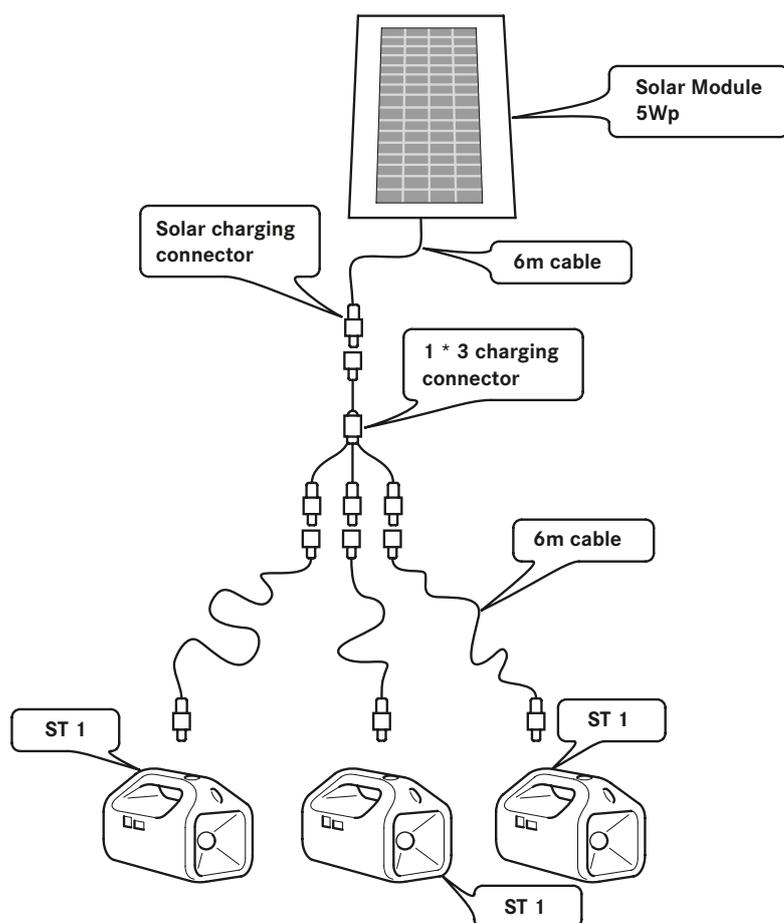
There is something new on the Solar Home System market that could be leading the way to the future. The mini Solar Home System Sun Transfer 5 brings together the benefits of a classical Solar Home System with those of a mobile solar lamp.

The basic configuration includes three solar lamps attached to a module by means of a connecting cable. In contrast to traditional Solar Home Systems, there is no central battery, but instead, every lamp has its own integrated battery with a charge controller. The lamps can be used as mobile units, but as a rule are installed permanently on the ceiling. To operate the lamps, contrary to normal mobile lamps there is an on/off switch located on a cable hanging down from the unit.

The modular construction makes it possible for customers to install the entire system themselves, thus eliminating the high installation costs of traditional Solar Home Systems. Along with the attractive price, there is also the decisive advantage that each individual lamp can be used as a mobile unit; thus, should one of the lamps fail, there are still two left that are capable of functioning. In the case of a defect, the user sim-

ply takes off the defective lamp and brings it to the workshop. This lowers repair costs by eliminating what is often an expensive journey to individual rural customers.

With the development of Sun Transfer 5, the supplier pursues the goal of simplification of Solar Home Systems. Sun Transfer 5 has high quality individual components: the integrated LED, with 90–100 lumen/W is currently one of the brightest available on the market. At 150 degrees, the scattering angle is remarkably wide for a LED. The battery is a GEL battery, which can work for up to four years maintenance-free. Sun Transfer 5 has been on the market since February 2010. The first systems have already been delivered in Peru, Kenya, and Ethiopia. *us*



### LED

90–100 lumen / W, angle 150°  
 3 settings for light: low / medium / high  
 Hours of light with full battery (each lamp):  
 Low: at least 10 hours  
 Medium: at least 10 hours  
 High: at least 4 hours  
 Remote power on / off switch (cable 3 m)

### Battery

Durable, long life GEL-battery 6V / 2.8Ah  
 Charging indication at each lamp  
 Battery power indication at each lamp  
 CE & ROHS certificate  
 IP 41

**Solar module:** 5 Wp crystalline silicon module with aluminium frame and tempered glass

**Options:** Power extension: additional 2 Wp solar module plus wire

**Price:** US\$ 85 FOB Zhuhai

**More information:** [www.suntransfer.com](http://www.suntransfer.com)



### A new name for Intersolar Munich

The doors of the world's largest professional trade fair for solar technology, Intersolar Munich, will open again on June 9, 2010. The hitherto "Intersolar" will hence become "Intersolar Europe." The new name is a reaction by the organizers to the growing internationalization of the trade fair, which is currently represented at various locations throughout the world. One thousand five hundred exhibitors are expected at the 120,000-square-meter facility in Munich in June.

### First International Conference for solar module recycling

More than 200 professionals in the areas of photovoltaics, waste management, and recycling attended the first conference for solar module recycling held in Germany at the end of January. The event was organized by PV CYCLE and EPIA together with the research center of the European Commission.

According to a study presented at the conference, in Germany alone, circa 3,000 tons of PV modules will be disposed of in 2010. That is nearly fifty percent of the total photovoltaic waste arising in Europe this year. Although this number is expected to remain relatively stable over the next twenty years, the study shows that by 2030, roughly 130,000 tons of disused solar modules must be disposed of in Europe. Since the beginning of 2010, Germany has had a return and recycling model that places the responsibility of disposing of modules with industry. This model is meant to be introduced gradually to all countries in the EU and the European free trade zone.

### "Solar for All" Initiative

The Ashoka and Canopus Foundations are the founders of the initiative "Solar for All," a competition for technologically sound, inexpensive, off-grid solar power systems for the supply of families in developing countries. The competition is open to manufacturers, system integrators, and social enterprises that provide off-grid homes with sustainable and clean energy.

The first prize is a capital investment of US\$ 250,000 by the Deutsche Bank Americas Foundation. Finalists will be honored for innovation in the areas of technology, financing, and distribution. The competition closes on April 30, 2010. More information at: [www.sfa-pv.org](http://www.sfa-pv.org).

### Finland pens 89-million-rand Southern African deal

Finland has entered into a partnership with the Development Bank of Southern Africa that will see roughly 89 million rand injected into renewable energy and energy efficiency for southern and eastern African nations. The agreement will be implemented over a three-year period and is set to help southern Africa as well as Tanzania, Kenya, Botswana, Zambia, Mozambique, Swaziland, and Namibia.

### AU nominates Ethiopian PM as AU Chief Negotiator at Climate Conferences.

The 14th Summit again nominated Ethiopian Prime Minister Meles Zenawi to represent Africa in international forums in upcoming consecutive global climate conferences. The Summit commended the leading role of PM Meles at the Copenhagen Climate Conference in the tough negotiations with the many stakeholders. The African leaders have expressed their appreciation to Meles for the outstanding contribution he made to maintain and further the benefits and interests of Africa.

### READER ECHO

Your magazine is still telling us about the Solar of the last century. It is time to catch up with the new technology of the 21st century. Modern Photovoltaics are called Thin Film. You only showed the old crystalline technology.

*Paul Millot, Kuala Lumpur, Malaysia*

Thank you for the interesting and informative magazine. A small note on solar mobile phones. Most of the disadvantages you mention are eliminated with the use of a separate mobile battery charger, which contains batteries with a charge that is transferred to the phone at the user's leisure. This is not the perfect solution, mainly because of the variety of plugs used with different phones, but our experience has shown that such battery chargers have a better chance of success.

*Mawuli Tse, Accra, Ghana*

*My comment in the magazine concerned only the phones with integrated solar cells. My apologies if this was not clear. hs*

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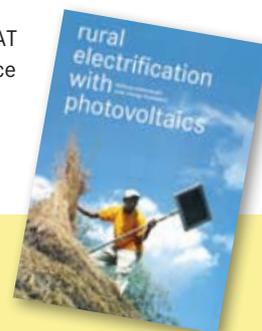
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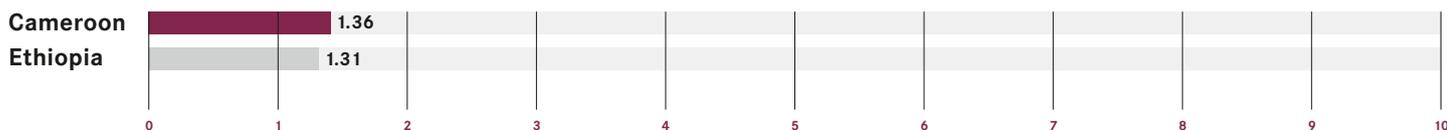


#### Corrigendum:

#### Sun connect 1 / November 2009, p. 6

Only 2.2 % of Ethiopian rural population has access to electricity (not 22 %); the Rural Solar Energy Index is, thus, 1.31 (not 1.56).

**Rural Solar Energy Index:** 1.36 (1 = poorest, 10 = best performance)



## Geography/demography/education

**Location (continent):** Central Africa

**Form of government:** Unitary Republic

**Surface:** 475,442 sq km

**Population:** 18.9 m

**Population density:** 39.7 / sq m

**Per-person-income:** US\$ 2180

**Life expectancy:** 49.8 years

**Urbanization:** 56 %

**Literacy rates (of population 15 +):** 67.9 %

**Religions:** Christians (40 %), Muslims (20 %), traditional indigenous beliefs (20 %)

**Human Development Index (HDI):** 0.532

## Economy

**Gross national income (PPP):** US\$ 41.28 bn

**Economic growth:** 3.9 %

**Share of agriculture:** 19.5 %

**Inflation rate:** 2.5 %

**\*Economic transformation index (Bertelsmann):** 4.4

**\*Corruption index (Transparency International):** 2.2

**\*International Property Rights Index (IPRI):** 3.8

## Electricity

**Electricity consumption:** 4453 GWh

**Electricity production:** 5753 GWh

**Electricity export:** –

**Electricity import:** –

**\*Share of PV in electricity production:** –

**Percent of the overall population with access to electricity:** 47 %

**\*Percent of the rural population with access to electricity:** 5 %

## Photovoltaic (PV)

**Daily sun-hours:** 3.98 kWh / sq m / day

**\*Tax exemptions / incentives for Photovoltaic:** –

**\*Market introduction programs for PV, general:** –

**\*Market introduction programs, special for off grid:** –

**Amount of installed PV capacity:** 7.8 MW<sub>p</sub>

\*included for calculation of Rural Solar Energy Index



Sources: Africa Development Indicators 2006, Bertelsmann Transformation Index 2010, CIA, Human Development Report 2007/08, International Energy Agency, International Property Rights Index 2009, Internet Center for Corruption Research 2009, Rural Poverty Portal, Unctad, World Bank

# Cameroon



Jacob Winiiecki

# How to put together a successful solar loan portfolio

## 5 tips for MFIs

Dozens of MFIs around the world have introduced special loans for solar energy products and services. However, many solar lending portfolios struggle to grow beyond the pilot phase and some even fail within a short time. The following is a list of five key success factors when setting up and growing a solar loan facility for microfinance clients:

### 1. Plan carefully

This may seem intuitive, but experience has shown that proper planning prior to piloting a solar loan product can be critical. MFIs should spend time studying their clients' existing energy needs and current expenditures, and conducting an analysis of available solar products and local solar enterprises. As many MFIs do not have energy expertise in-house, it is often helpful to seek external technical assistance in understanding the energy market and opportunities.

### 2. Offer high-quality products and services at the client's doorstep

Experience has shown that successful solar energy loan portfolios include a focus on high-quality solar products, packaged with after-sales-service and maintenance, and flexible financing options delivered to the clients' doorstep. On the technology side, MFIs should ensure that solar products deliver the energy services marketed to clients, that they have been adequately tested with end-users, and meet user acceptance criteria. MFIs should also make sure that spare parts are available and a full line of after-sales service and maintenance support is offered by the energy partner(s). On the financing side, it is important to create innovative lending products. MFIs need to go beyond standard lending methodologies and design products that are flexible in terms of repayment schedules, collateral requirements, loan tenure, and eligibility criteria. MFIs also need to explore the possibility of offering parallel loans or packaging energy loans with other, larger loans (for housing or agriculture, for example).

### 3. Understand the productive uses of solar energy

Many MFIs view energy purely as a consumptive product that clients take advantage of in addition to enterprise loans. While this is sometimes true, there are many ways that solar energy services can improve productivity of a microenterprise and significantly reduce household and business expenses on energy, freeing up income to repay energy loans. Due to a lack of information, many MFIs are not aware of the many applications of solar energy that can have significant income-generating opportunities. Access to even limited amounts of lighting and electrical services for microenterprises in off-grid areas can play a critical role in the establishment and growth of these businesses. For example, solar applications can improve productivity of microenterprises by 1) extending operating hours, 2) improving working conditions, 3) increasing consumer draw, 4) delivering reliable power, 5) helping preserve products for export or retail, and 6) enabling access to communications.

### 4. Understand and mitigate risks<sup>1</sup>

Financing for energy systems and products calls for innovative risk mitigation strategies. In energy lending, the spectrum of risks involved is much broader since it includes not only credit risk, but also risks due to failure of technology, unanticipated change or access to a better technology, and absence of (or unreliable) service infrastructure. Technical risk mitigation requires different strategies. Signing a standard memorandum of understanding with the energy partner (e.g., energy company, NGO, donor) can clearly define the roles and responsibilities of different parties involved, outline the

terms and conditions of equipment buy-back and recovery in case of loan default or technology breakdown, and stipulate product quality specifications. In some situations, collaborating with an insurance company to cover the technical risk provides the best coverage. However, if this is not possible, the MFI can set up its own internal insurance product where liability is restricted to the value of the insurance fund mobilized. Partnering with other energy companies in the region is useful to avoid overlap (among other benefits), and can help ensure the most efficient use of resources to expand the outreach of energy access.

### 5. Pilot the solar loan products prior to launch

This is another tip that seems intuitive. However, it is surprising how many MFIs do not conduct adequate pilot testing—and, more importantly, evaluation of the pilot tests—prior to rolling out solar energy loans. Piloting and testing of the energy-lending pilot is an essential step, which allows MFIs to experiment and learn from experiences with a small number of customers. This kind of experimentation can allow MFIs to test solar products in a somewhat controlled environment prior to investing in full-scale implementation. In most cases, MFIs will want to rigorously test the products and processes, learn lessons to inform modifications, and solicit feedback from stakeholders.

Jacob Winiiecki is an independent consultant specializing in energy and microfinance.

<sup>1</sup> Adapted from "Using Microfinance to Expand Access to Modern Energy Services" by Morris et al; 2007; The SEEP Network, Citi Foundation, and United States Agency for International Development.

Arne Jacobson

## Improving the quality of affordable off-grid lighting products

The rapidly emerging market for off-grid lighting products in Sub-Saharan Africa provides reasons for optimism, although the market lacks commonly accepted quality standards.

Lighting Africa, a joint initiative of IFC and the World Bank, has developed a program to support the development of a large, thriving, and sustainable market for affordable, high quality off-grid lighting products in African countries.

The rapidly emerging market for off-grid lighting products and services in Sub-Saharan Africa provides reasons for both optimism and moderate concern. Optimism is born from the steady rhythm at which new off-grid lighting products using LED and CFL technologies are being developed, improved, and marketed to consumers. Concern stems from the fact that the market lacks commonly accepted LED quality standards; many importers have succumbed to the pressures of chasing the lowest consumer price points and higher sales volumes with little apparent regard for product quality. A robust framework for product quality assurance is required in order to overcome the emerging market spoilage trends.

Lighting Africa, a joint initiative of IFC and the World Bank, addresses this challenge by contributing to the improvement of product performance and quality. The Lighting Africa team has tested a number of products procured from markets in Sub-Saharan African countries. Results indicate that many of the very low-cost LED lighting products perform very poorly. Problems include rapid LED failure, poor battery performance, fragile product construction, and sloppy wiring (a more detailed report will be published in a few months). These low-performing products are widely available and—in some cases—have become the dominant lighting technology for specific segments, such as the electric torch market. Low-income buyers unfortunate enough to purchase inferior goods frequently suffer significant financial losses; their experiences may undermine consumer confidence in LED and CFL-based off-grid lighting technologies.

### Combining good quality and affordability

The good news is that high performance off-grid lighting products are also increasingly available in many African markets. Some of these high-quality products are competitively priced and affordable to low income populations. It is this combination of quality and affordability that is needed to ramp up delivery of off-grid lighting solutions to the hundreds of millions of people in Africa who currently rely on fuel-based lighting and spend an estimated seventeen billion US dollars annually for their lighting needs. This, however, depends on the ability of buyers to recognize the added

value of an investment in high performance off-grid lighting systems. They thus need reliable information that will help them in distinguishing the good from the bad and the ugly.

Lighting Africa has developed a quality assurance (QA) strategy that compliments existing methods for testing CFL-based lanterns. The strategy currently being piloted in Ghana and Kenya has four main elements that are designed to support quality-oriented companies and to protect the interests of low-income consumers.

First, Lighting Africa has developed a standardized method to test LED-based off-grid lighting products. It provides the foundation for the second QA element, Lighting Africa's Outstanding Product Awards competition. The goal of the competition is to identify and provide recognition to off-grid lighting products that are truly outstanding. The winners will be announced at the Lighting Africa 2010 Business Conference and Trade Fair to be held in Nairobi, 18–20 May of this year. The awards applicants are currently going through a rigorous judging process that includes laboratory testing as well as field evaluations by low-income end users who live in off-grid homes.

For the third QA element, Lighting Africa is working to establish a quality seal that can be used by companies to market quality-assured products. The goal is to provide end-users with reliable information on product quality and performance so that they can distinguish high performance off-grid lighting products from low quality goods. Lighting Africa is also working with stakeholders from all over the world to avoid a fragmentation of standards that would undermine brand recognition and economies of scale, for instance, by establishing one internationally recognized seal.

Fourth, and finally, Lighting Africa has recognized that certain technical challenges are recurrent. A series of technical briefing notes related to the design, manufacture, and performance of off-grid lighting products will therefore be published. For more information, see [www.lightingafrica.org](http://www.lightingafrica.org).

Arne Jacobson, Associate Professor in the Environmental Resources Engineering Department and Co-Director of the Schatz Energy Research Center at Humboldt State University, has been a technical consultant to Lighting Africa for the past three years.

Guido Glania

## The New EU Energy Facility

For many years, small-scale off-grid solutions have been successfully implemented in a number of developing countries. But the demand for off-grid solutions is mainly driven on a project basis. In most countries there is almost no self-sustained market growth. The European Commission is now set to allocate two hundred million euros for boosting off-grid solutions in Africa, Pacific and Caribbean countries (ACP). Will the new Energy Facility bring the breakthrough for off-grid systems in developing countries?

Two hundred million euros is definitely not enough to substantially improve the electricity infrastructure in ACP countries. The annual investment costs for accelerated rural electrification are several times higher. However, the Commission will allocate this money to projects that could substantially improve framework conditions for decentralized energy generation and also to investment projects with a high potential for up-scaling. Smart concepts, co-financing from the private sector, and bilateral donors are meant to induce a high leverage effect. As a result, success of the facility will depend mainly on the creativity and commitment of the various stakeholders. The facility follows the “Call for Proposals” approach, hence the Commission has invited interested parties to present their ideas.

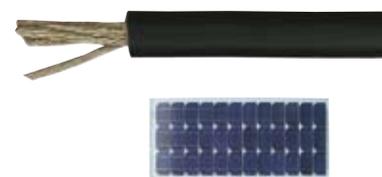
The facility can inject grants meeting up to seventy-five percent of the total costs of a project. The size of projects will be roughly from two hundred thousand to three million euros. Off-grid solutions with renewable energy have been clearly highlighted as technical focus of this facility. The first call for proposals closed on February 5, 2010. Required for this initial stage was only a brief description highlighting the key features of the envisaged project. The most interesting projects will be invited to submit comprehensive proposals. Final selection is slated for the autumn, allowing most projects to begin by year's end. A second call for proposals (endowed with ca. sixty million euros) will be launched in 2011.

The Energy Facility is not the only new financing opportunity for renewable energy in developing countries. At the climate change conference in Copenhagen, most states agreed to mobilize one hundred billion US dollars over the next ten years for adaptation and mitigation measures in developing countries. In 2009, G8 summit leaders vowed to mobilize additional funding for access to energy projects in the near future. Revenue from the European Emission Trading Scheme (ETS) could also be allocated to renewable energy projects in developing countries. Most of these “schemes” are still only announcements, and it remains to be seen whether the resources will be made available and whether a meaningful share will be allocated to renewable energy projects in developing countries. Powerful advocacy is crucial to ensure that the many opportunities for an accelerated deployment of renewable energy are used.

The Alliance for Rural Electrification (ARE) is an international business organization dedicated to the promotion of renewable energy solutions in developing countries.

Guido Glania is Secretary General of ARE.

**We deliver to where ever the sun is shining**



## New books

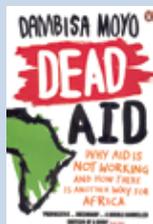
Dambisa Moyo

### **Dead Aid. Why aid is not working and how there is another way for Africa**

188 pages, paperback, English

Penguin Books, 2010

ISBN 978-0-141-03118-7, 11.95 €



We all want to help. Over the past fifty years, one trillion US dollars of development aid has flowed from Western governments to Africa. But this has not helped Africa. It has ruined it. *Dead Aid* is the story of the failure of post-war development policy. Forty-year-old Zambian author and Harvard- and Oxford-educated economist Dambisa Moyo takes an approach to dismantling the arguments that have supported the single worst decision of modern developmental politics: the choice of aid as the optimum solution. In *Dead Aid* she provides a road map for Africa to wean itself off aid; and suggests a new model for financing development for the world's poorest countries including accessing the international capital markets, encouraging China's direct investments, pressing for free trade in agricultural products, and microfinance. Her best-selling book has met with both acclaim and criticism. But there is no doubt; her approach is compelling and refreshing.

Excoriating and provocative: for Africans and African policymakers; and for those in the West and the broader international community who truly wish to see Africa progress.

The World Bank (ed.)

### **The Welfare Impact of Rural Electrification: A Reassessment of the Costs and Benefits**

154 pages, paperback, English

The World Bank, 2008

ISBN 978-0-8213-7367-5, 20.55 €



Rural electrification (RE) can have many benefits; it not only brings lighting, but improves the quality of health care and the spread of information; and it supports productive enterprises. The extent of these

benefits has been questioned, arguing that they may be insufficient to justify investment costs. This report by the World Bank's Independent Evaluation Group (IEG) seeks to use a variety of data sources to both demonstrate impact and deliver policy-relevant conclusions. In five chapters, the authors focus on economic rates of return of RE and ask: Who benefits from RE? And they find that benefits can indeed be high, substantially outweighing the costs; consumer willingness to pay is generally sufficient to achieve financial sustainability. However, benefits could be increased further by providing smart subsidies to assist connections for poorer households and further consumer education. The attractively designed publication contains an extensive appendix with data on individual World Bank projects and studies.

Rigorous and relevant: for personnel in projects in the area of rural electrification.

Ostbayerisches Technologie-Transfer-Institut e.V. (ed.)

### **Small PV-Applications. Rural electrification and commercial use**

362 pages, paperback, English

OTTI, 2009

ISBN 978-3-934681-97-2, 150.00 €



The symposium held at the University for Applied Sciences Ulm in spring 2009 was dedicated entirely to the theme of Small PV Applications with a focus on Solar Home Systems, power for off-

grid and industrial infrastructures, as well as power for integrated equipment. Well over fifty speakers handed in their manuscripts beforehand for printing in a handbook accompanying the symposium. Themes include detailed questions "What's the job of a socket in a remote household?" to marketing tools, "The Microenergy Certificate" through to supra-regional issues "Off-grid lighting solutions for rural areas in developing countries," to cite but a few examples. The substantial, 362-page book contains a vast number of fascinating contributions from specialists, introduces projects in various countries, and offers something for every area of study. On the downside is the publication's not very attractive, inconsistent design: apparently, the contributions were adopted exactly as handed in and formatted by the authors.

Topical and specialized: for experts working in the area of small PV applications.

## Agenda

**March 30 – April 1, 2010**

### **AsiaSolar Photovoltaic Expo Shanghai, China**

AsiaSolar Photovoltaic Expo is one of the most comprehensive events for solar and PV industry in China. This is the fifth edition and will be held at the Shanghai Mart Exhibition Hall.

[www.asiasolarexpo.com](http://www.asiasolarexpo.com)

E-mail: [info@aieexpo.com.cn](mailto:info@aieexpo.com.cn)

**April 6 – 7, 2010**

### **The Eastern Africa Renewable Energy Summit and Expo Nairobi, Kenya**

The summit reflects the growing international profile of Eastern Africa in renewable energy and the summit's vital contribution to the sector. To offer decision makers a comprehensive overview of the potential of renewable energy markets in the Eastern African.

[www.e-ideagroup.net](http://www.e-ideagroup.net)

E-mail: [info@e-ideagroup.net](mailto:info@e-ideagroup.net)

**April 22 – 25, 2010**

### **Green Tech Asia Kuala Lumpur, Malaysia**

The initiative wants to mobilize public and private actions and investments in renewable energy a.o. It comprises Energytech 2010, Environtech 2010, and Cleantech 2010.

[www.femsb.com](http://www.femsb.com)

**May 18 – 20, 2010**

### **International Business Conference & Trade Fair for Off-Grid Lighting Nairobi, Kenya**

[www.lightingafrica.com](http://www.lightingafrica.com)

E-mail: [conferences@lightingafrica.com](mailto:conferences@lightingafrica.com)

**June 9 – 11, 2010**

### **Intersolar Munich, Germany**

As the international platform for solar technology, Intersolar reflects the dynamic developments along the entire value-added chain in the areas of PV and solar thermal.

[www.intersolar.de](http://www.intersolar.de)

## Imprint

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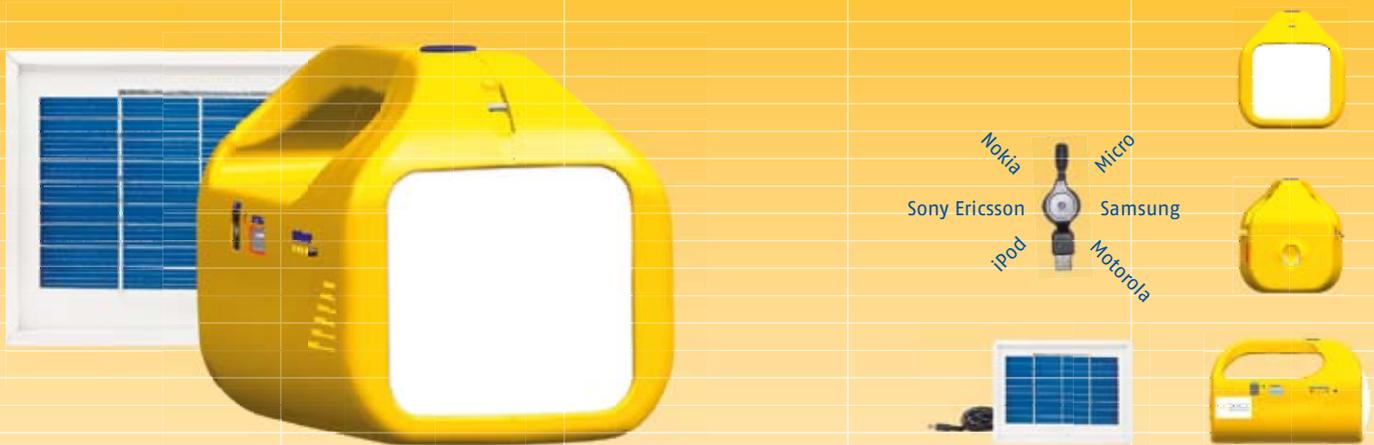
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**SUNTRANSFER 1 –**
**Better light and mobile phone charging - independent from the power grid**


In developing countries, this multi-purpose solar lamp is replacing the kerosene lamp, providing safer and more affordable lighting. It makes an important contribution towards education and development, especially in rural areas. The SunTransfer 1 is also a high-power LED lamp, enabling mobile phone charging independent from power grids – Innovation from Germany.

- \* **High-power LED technology**
- \* **Mobile phone charger (option)**
- \* **Can be fixed to the ceiling or used as a torch**
- \* **Reliable and easy to operate**
- \* **Durable and robust**
- \* **Designed in Germany**
- \* **1 year warranty**

**Solar lamp**

- 3 light settings: low / medium / high
- Hours of light with full battery: low: at least 100 hours, medium: at least 10 hours, high: at least 4 hours
- Battery capacity indicator
- Extendable switch cable for remote switch on/off
- High-power LED: 90-100 lumen; service life 30,000 hrs (decrease less than 20%)
- Durable, long life GEL-battery 6V/2.8 Ah
- CE & ROHS certificate, IP 41

**Mobile charger (option)**

- USB 5V DC output for mobile phone and 3C device
- USB cable with 8 adaptors for the most common mobile phones: Samsung D800, Sony Ericsson, Sony Ericsson K750, Nokia  $\Phi$  3.5, Nokia  $\Phi$  2.0, Micro 5P, Motorola V3, iPod

**Solar module**

- 1,5 Wp crystalline silicon solar module with aluminium frame and tempered glass
- 3 meter connector cable

**Size**

Lamp: 160 x 98 x 108 mm

Module: 115 x 153 x 17 mm