



Innovating Energy Access for Remote Areas: Discovering Untapped Resources

Symposium: UC Berkeley, April 10 - 12, 2014
in cooperation with various peer-reviewed journals

With investors pouring \$244 billion in 2012 into clean energy globally, it is shocking that energy poverty continues to plague nearly half the world's population (UNEP-FS, 2013). The idea that innovative approaches can work with previously underutilized or unrecognized resources is central to this symposium, as this may lead to the development of successful and sustainable energy access programs. Such untapped resources may be seen in the discovering of synergies within areas such as business delivery models, pre-existing parallel service infrastructures, supply chain and value chain management, natural resource availability, financing schemes, leap frog technologies, policy and governance, and more.

Sustainable solutions demand the balanced inclusion of technical, financial, human, institutional and natural resource capital to be effective. In this light we are inviting scientists from **social sciences, economics, natural sciences and engineering** to discuss their research results concerning decentralized energy supply and sustainable delivery models. We have also encouraged **practitioners** (e.g. project developers, implementers, entrepreneurs) in this field to share their experiences. In particular, we have focused on the participation of researchers from the Global South in this symposium. For this purpose, scholarship opportunities have been made available through the symposium partner organization *Appui au Développement Autonome*(ADA), a Luxembourgish NGO that works to promote inclusive finance worldwide as well as the Pakistan Pover Alleviation Fund (PPAF) that is currently setting up a new concerted approach for solar home systems (SHS), the Renewable Energy and Energy Efficiency Partnership (REEEP), and the GIZ office in Dhaka (Bangladesh), where the most successful model of SHS program to date has been running for 10+ years with dissemination figures exceeding 2.7 million systems installed in the field.

Five conference focus areas

- I. **Technology & Services**
- II. **Implementation & Business Models**
- III. **Financing**
- IV. **Planning & Governance**
- V. **Evaluation & Assessment**

Schedule (see attachment)

April 10th & 11th - Symposium
April 12th - optional California day

Symposium Overview

It is the stated goal of the symposium to present leading concepts surrounding microenergy systems and energy access issues on an international scale and to highlight particularly innovative topics within the current global energy access discourse. We aim to set an impulse for discussion by a broad and international public audience through direct presentation, intensive discussion, and keynote speeches. The participants will include professors, doctoral and post-doctoral students, private-sector representatives, prominent political figures and eminent researchers from the Global South. Furthermore, cutting edge research from the *EntDekEn Project* co-initiated by the *Potsdam Institute for Climate Impact Research* will be presented, focusing on how decarbonization in developing countries can be investigated in an equitable way that also contributes to poverty reduction.

The symposium will consist of keynotes by prominent researchers and practitioners, a panel discussion on a key topic in the field, 10 breakout sessions with presentations by researchers and practitioners, a poster presentation session with over 20 posters presented, and public events with opportunities for networking and information sharing. All presentations, submitted papers, and conference materials will be made available to attendees as part of the conference registration fees, and to the public for a small fee.

Scientific Committee

Chair:

Prof. Dr. Daniel Kammen (University of California, Berkeley, USA)

Prof. Dr. Dr. Martina Schäfer (Technische Universität Berlin, Germany)

Sub-Chair for focus area Financing:

Frankfurt School-

UNEP Collaborating Center for Climate & Sustainability Energy Finance



Frankfurt School
UNEP Collaborating Centre
for Climate & Sustainable Energy Finance

Committee:

Prof. Dr. Lucienne Blessing (Université du Luxembourg); Prof. Dr. Robert Brecha (University of Dayton, USA); Laura Foschi (ADA, Luxembourg); Prof. Marek Hudon (Solway Brussels School of Economics and Management, Belgium); Dr. Michael Jakob (Mercator Research Institute on Global Commons and Climate Change, Germany); Noara Kebir (MicroEnergy International, Germany); Marlis Kees (GIZ, Germany); Prof. Dr. M. Rezwan Khan (United International University, Bangladesh); Prof. Dr. Johann Köppel (Technische Universität Berlin, Germany); Prof. Dr. Stefan Krauter (University of Paderborn, Germany); Prof. Dr. Walter Leal (HAW Hamburg, Germany); Prof. Dr. Inmaculada Martinez-Zarzoso (University of Goettingen, Germany); Ellen Morris, Ph.D. (Columbia University, USA); Bruce Nordman (Lawrence Berkeley National Laboratory, USA); Shonali Pachauri, Ph.D. (IIASA, Austria); Debajit Palit (TERI, India); Daniel Philipp (MicroEnergy International, Germany); Prof. Dr. Gisela Prasad (University of Cape Town, South Africa); Kilian Reiche (iiDevelopment, Germany); Christa Roth (FOOD and FUEL, Germany); Dana Rysankova (World Bank, USA); Prof. Dr. Tomohiko Sakao (Linköping University, Sweden); Dr. Jan Steckel (Mercator Research Institute on Global Commons and Climate Change, Germany); Dr. Tania Urmee (Murdoch University, Australia); Prof. Bruce Usher (Columbia Business School, USA); Steven R. Wilson (Georgetown University, USA)

Publication opportunities

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Media partner:

Apart from the publication in the conference proceedings, the symposium will be organized in coordination with the *Environmental Research Letters (ERL)*, which will publish selected papers from the symposium in a special edition. Suitable papers may be also considered for peer-review in the following journals:

- *International Journal of Innovation and Sustainable Development (IJISD)*,
- *Progress in Industrial Ecology, An International Journal (PIE)*,
- *International Journal of Sustainable Development (IJSB)*,

as well as in a special compiled edition in *Springer Press*.

Scholarships

The organizers, sponsored by *Appui au Développement Autonome (ADA)*, Pakistan Poverty Alleviation Fund (PPAF), the GIZ office in Bangladesh as well as REEEP will provide a limited number of need-based grants covering the conference fee and travelling costs for scientists from developing countries.



renewable
energy
& energy
efficiency
partnership

Symposium website

<http://www.microenergysystems.tu-berlin.de/conference/berkeley2014>

For further information please contact:

Dimitry Gershenson: d.gersh@berkeley.edu

Sebastian Groh: groh@ztg.tu-berlin.de

Locations for Symposium:

BAM/PFA - (Thursday, 10 April, morning)

UC Berkeley Art Museum and Pacific Film Archive (south of the UCB campus)
(in the Museum Theater near Babette Café) - 2621 Durant Ave., Berkeley 94720.

Faculty Club - (Thursday, 10 April, afternoon)

UC Berkeley, Berkeley 94720. (central-east side of campus)

Blum Center for Developing Economies - (Thursday, 10 April, evening)

UC Berkeley, Berkeley 94720. (north side of campus on Hearst Ave.)

David Brower Center - (Friday, 11 April, all day)

2150 Allston Way, Berkeley, 94704. (off-campus, west of campus)

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Day 1Thursday,
April 10th**Registration and Opening session (venue: BAM/PFA)****07:45am Registration opens– please arrive early!**Meet and Greet
Coffee/tea and snacks served**09:00am Opening keynote and introductory remarks**Logistics intro by *Dimitry Gershenson* and *Brian Edlefsen Lasch*, BREG / MES;
Dr. Daniel Kammen, Renewable and Appropriate Energy Laboratory (RAEL);
Dr. Michael Jakob / Dr. Jan Steckel, Mercator Research Institute on Global
Commons and Climate Change Berlin (MCC)**10:30am Break and walk to Faculty Club**

Coffee/tea served

Research Presentation Sessions (venue: Faculty Club)**11:00am Block I**

Session I ICT & Energy Howard room	<i>Nordman B.:</i> Optimizing Device Operation with a Local Electricity Price <i>Ameli A.:</i> An Optimized Load Frequency Control of a Decentralized Energy System Using Plug-in Electric Vehicles <i>Nique M.:</i> The Synergies between Mobile Phone Access and Off Grid Energy Solutions
Session II Demand Assessments - O'Neil room	<i>Van der Straeten J.:</i> Financing Energy Efficiency and Climate Adaptation Measures on Household Level in Kyrgyzstan - Market Based Approaches for a Post-Soviet Country? <i>Warda A. & Taylor H.:</i> Demand Assessment of Solar Electrification in Off-Grid Rural Communities of Pakistan through Micro financing of Solar Home Systems <i>Gadhia D.:</i> Case Study of Experiences on promotion and implementation of Decentralised Energy Project- Smoke-free Village

Lunch break**12:30pm Decentralized lunch at Berkeley restaurants**

Gift cards with \$15/day provided for local restaurant of choice

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Research Presentation Sessions (venue: Faculty Club)

01:45pm Block II

<p>Session III Minigrids - Case Studies Howard room</p>	<p><i>Khan H.:</i> Experience from First Solar Mini Grid Service in Bangladesh</p> <p><i>Deorah S. & Lath A.:</i> Prospects for Electricity Access in Rural India using Solar Photo-Voltaic based Mini-Grid Systems</p> <p><i>Chowdhury S.:</i> Solar Diesel Hybrid Mini-Grid Design Considerations: Bangladesh Perspective</p>
<p>Session IV Cooking O'Neil room</p>	<p><i>Ortiz W.:</i> The influence of the end users' context on the dissemination of domestic biogas systems in developing countries</p> <p><i>Sesan T.:</i> Slow and Steady But Not to Scale: Lessons from a Context-responsive Approach to Market-based Stove Development in Western Kenya</p> <p><i>Tumwesige, V.:</i> Feasibility study assessing the impact of biogas digesters on indoor air pollution in households in Uganda</p>

03:15pm Afternoon break

Coffee/tea served in the Bowker room

03:30pm Block III

<p>Session V Minigrids – Participatory Energy Ecosystems Howard room</p>	<p><i>Groh S.:</i> Swarm Electrification - Suggesting a Paradigm Shift through Building Microgrids Bottom-up</p> <p><i>Abdullah M.:</i> A Simulation Gaming Approach to Micro-Grid Design and Planning: Participatory Design and Capacity Building</p> <p><i>Khan R.:</i> DC Nanogrids: A Low Cost PV Based Solution for Livelihood Enhancement for Rural Bangladesh</p>
<p>Session VI Planning and Governance O'Neil room</p>	<p><i>Terrapon-Pfaff J.:</i> The role of gender concerns in the planning of small-scale energy projects in developing countries</p> <p><i>Scott A.:</i> Some Complications In Economic Assessment of Substituting Baseload Geothermal for Diesel Power in Nome, AK</p> <p><i>Richter K.:</i> Barriers to the development of renewable energy technologies in the Caribbean</p>

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05:00pm Break and walk to Blum Center for Developing Economies

Evening Session (at Blum Center for Developing Economies)

05:15pm Presentations and Welcome Speeches

BREG and MES: *Dimitry Gershenson and Alexander Batteiger*

ADA: *Juana Ramirez*

Special paper presentation (*Sebastian Groh & Brian Edlefsen Lasch*): The Battle of Edison and Westinghouse Revisited: A comparative analysis of AC/DC micro-grids for rural electrification

6:00pm Poster Session and Evening Mixer

Beverages and snacks served

mixer sponsored by

-**Trojan Battery Company** and

-**Southeast Asia Renewable and Adaptive Energy** (SEA-RAE),

a project of New Sun Road

08:00pm End of day 1

Day 2

Friday,
April 11th

Optional: Special Workshop Event supported by REEEP

(venue: David Brower Center)

08:00am Coffee/tea and snacks served

08:30am Optional Workshop on Business Models for Clean Energy Technologies through Microfinance - Moderation: *Natalia Realpe Carrillo* (MicroEnergy International)

Morning session (venue: David Brower Center – Goldman Theater)

10:15am Panel Discussion

Innovating at the Nexus of Big Data and Energy Access

Panelists: *Kate Steel* (Google); *Lesley Marincola* (Angaza Design);
Michael Nique (GSMA)

Moderation: *Peter Alstone* (Energy and Resources Group, UC Berkeley)

11:15am Break

Coffee/tea served

Research Presentation Sessions (venue: David Brower Center)

11:30am Block IV

<p>Session VII Microfinance Goldman Theater</p>	<p><i>Realpe N.:</i> How to Scale Up Green Microfinance? A Comparative Study of Energy Lending in Peru</p> <p><i>Pillariseti S.:</i> Microfinancing decentralized solar energy systems in India: Innovative products through group approach</p> <p><i>Da Silva I.:</i> Innovative Energy Access for Remote Areas - The LUAV-Light Up a Village Project</p>
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Session VIII Lighting Kinzie Room	<i>Verastegui A.:</i> How big is small? Enough to not breathe oil! <i>Lam N.:</i> Characterizing Kerosene Demand for Light in India and Evaluating the Impact of Measures Affecting Access and Dependence <i>Aitken R.:</i> Night fishing with solar powered LED lights on Lake Tanganyika
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Lunch break**1:00pm Decentralized lunch at Berkeley restaurants**

Gift cards with \$15/day provided for local restaurant of choice

Research Presentation Sessions (venue: DavidBrower Center)**02:15pm Block V**

Session IX Community Energy Supply Goldman Theater	<i>Kirchhoff H.:</i> Hidden Resources in Solar Home Systems as the Base for Bottom-Up Grids <i>Muchunku C.:</i> The Energy Centre Model - An Approach to Village Scale Energy Supply <i>Newell P.:</i> Lessons from the Edge
Session X Value Chain Analysis Kinzie Room	<i>Suresh K.:</i> Advanced Solar-Irrigation Scheduling for Sustainable Rural Development: A Case of India <i>Beermann H.:</i> Value chain thinking and energy projects - A problem-centred value chain approach to energy based upgrading of rice farmers in the Philippines <i>Batteiger A.:</i> Towards a Waste Management System for Solar Home Systems in Bangladesh

03:45pm Afternoon break

Refreshments served

Public event (at Goldman Theater, Brower Center)**04:00pm Closing Keynote Events**

Media Partner presentation: *Fungai Sandamu*, energypedia

Discussions on innovation from Global North and Global South experts, including:

Insights from Global North: *Paul Savage*, Nextek Power Systems

Insights from Global South: *Dr. Rezwana Khan*, UIU Bangladesh

Closing: *Sebastian Groh* and *Jonas van der Straeten* (both MES)

06:00pm End of symposium

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Day 3
Saturday,
April 12th

Optional: Informal Group Excursion Day

Saturday will consist of an optional networking outing to explore the California Academy of Sciences, picnic in Golden Gate Park, and experience a driving tour of the San Francisco Bay bridges.

The outing must be pre-paid by participants, approximately \$70.
Please RSVP to Dimitry Gershenson ASAP, d.gersh@berkeley.edu.

10:30am Meeting for departure at BAM/PFA - Babette Café

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