

WORKSHOP REPORT¹

**Expert Workshop on
Energy Access and Climate Mitigation:
Synergies and Trade-offs,
a part of the New Climate Economy project**

10-11 April 2014, Nairobi, Kenya

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1. Key insights

Introduction and background to workshop

Much of the developing world and sub-Saharan Africa, in particular, face a dual challenge of expanding access to modern energy services for poverty alleviation and wider economic development while concomitantly mitigating climate change. However, these goals are usually considered independently. This workshop, organized jointly by the Stockholm Environment Institute (SEI) and the International Institute for Applied Systems Analysis (IIASA), set out to explore whether low-carbon options have changed conditions for energy access, drawing primarily on examples from across Africa. To address this question, the workshop specifically explored: 1) to what extent low-carbon options are being used to expand energy access and electrification; 2) what the incentives and barriers to using low-carbon options are; and 3) how low-carbon options fare against other political goals.

The workshop, held as part of the New Climate Economy² (NCE) project, on the 10-11 April 2014 in Nairobi, brought together about 40 participants from academia, government, NGOs, donor organizations, the private sector, practitioners, and other stakeholders to take stock, analyze and share progress and challenges to expanding access to modern energy through adopting low-carbon technologies and solutions.

This document summarizes the key findings and insights from the workshop. These have been distilled from the comments made by participants either during plenary discussions, breakout sessions, or through pre-prepared presentations. As the points below are a summary of insights from the workshop, they do not necessarily reflect the views of the workshop organizers.

1. Low-carbon options have not changed conditions for expanding modern energy access (yet)

Experience to date, in the African context, suggests that low-carbon options have not (yet) altered the fundamental barriers to expanding modern energy access in the region. These remain and include: high costs to supply rural households; lack of appropriate incentives for implementers; weak implementing capacity: shortage of power generation capacity and low-carbon energy supply and technology networks; lack of reliable financing; low demands and ability to pay of consumers. While there has been some success in certain niche markets e.g. solar-water heaters in South Africa, these have not scaled up or out more widely. What has changed, more recently, is an increasing awareness and knowledge of the inter-linkages between energy use, development, and potential climate change impacts. There is also heightened awareness of the need to take an integrated approach to expanding energy access, recognising the benefits of low-carbon options, and overlaps with other policy areas. This is reflected in recent policy visions and documents, for e.g. Kenya Vision 2030, the Third National Energy Policy in Kenya, and the Climate Resilient Green Economy in Ethiopia.³

² For further information, see: www.newclimateeconomy.net

³ For further information, see: Kenya Vision 2030: <http://www.vision2030.go.ke>; 3rd National Energy Policy, Kenya: http://www.ketraco.co.ke/opencms/export/sites/ketraco/news/Downloads/National_Energy_Policy_-_Final_Draft_-_27_Feb_2014.pdf; Climate Resilient Green Economy, Ethiopia:

http://www.ethioembassy.org.uk/news_archive/crge/Ethiopai's%20Vision%20for%20a%20Climate%20Resilient%20Green%20Economy.pdf

2. Broadening what we mean by energy access and embedding it in larger development and poverty alleviation goals is required to truly appreciate the potential of low-carbon options to expand energy access

Low-carbon is perceived as a realistic long-term priority or goal; development comes first. Providing a minimum (basic) access to modern energy is only the first step to a continuum. The greater challenge is providing modern energy services to reduce poverty and enable wider development. Access, not just to basic energy services, but to energy supply and services at scale that can be used for productive purposes is needed. The ultimate goal must be energy for inclusive development. To this end, we need a broader (more than a grid connection) & systemic (wider context and constraints) understanding of energy access.

The Total Energy Approach promoted by Practical Action and others, is an example of an inclusive framework for understanding energy access needs in terms of which energy services are needed and for whom. TEA emphasizes the importance of developing products and services that serve multiple purposes. This type of framing allows thinking outside the ‘energy box’ and enables taking an integrated approach to energy access, which involves creating incentives for low-carbon options, understanding and overcoming sticking points by building the right enabling environment and creating an integrated policy vision. Seen from this angle, low-carbon options will only gain traction if there is enough evidence that they can provide sufficient services at lower cost and equal quality to conventional options.

3. The potential benefits of low-carbon pathways are acknowledged both in policy planning and in the academic discourse, but the evidence base for convincing policy makers and the wider public is weak

The emissions consequences of (basic) energy access policies are largely negligible. Furthermore, access expansion takes direct precedence over climate mitigation as a policy priority for poverty alleviation in developing nations. As a consequence, currently, low-carbon options are assessed as attractive to energy planners and decision makers only when they prove to be cheaper than conventional options. It is therefore important to understand if there are other, wider, considerations that make low-carbon options attractive, for example the potential for employment generation and local ownership in decentralised renewable energy initiatives.

While several potential benefits of low-carbon pathways were mentioned during the workshop, it was concluded that convincing evidence was still considered lacking for, among others reducing indoor air pollution and job creation. As noted by one participant: “If evidence between low-carbon and job creation could be found, would be very convincing proof for policy makers. To make a compelling case for politicians, we need a better understanding of how, where and why jobs increase from renewables.”

In this context, stronger efforts towards data collection and monitoring and making better use of existing data, including packaging and communicating data in a way that engages end users as well as policy makers was highlighted. Efforts are also needed to gather more nuanced and disaggregated household level data on, for example, willingness and capacity to pay for low-carbon energy services. There is a need to continually collect data that can be used comparatively across cases and over extended time periods to establish trends across sectors, for instance respiratory health and access to (modern) energy services. There is also a demand for more focused analysis on subsidies and taxation in current renewable energy systems – there is no established “best practice”

Knowledge sharing of current best practice by tapping into local, national, regional and international knowledge and expertise was also considered crucial.

4. There are many low-carbon pathways to choose from, each being framed by different interests

Pursuing a pro-poor low-carbon pathway will require bringing on-board stakeholders not normally included in the process, including ensuring a wider participation of marginalised stakeholders (pro-poor). An important step in this process involves seeking synergies with other policy processes and linking energy access with other important growing sectors, e.g. agriculture, industry, transport, construction (e.g. solar heaters can be included in the cost of building houses)

Such a process would likely involve negotiation with “winners” and “losers”, and it will be crucial to recognise the vested (personal) interests of politicians and decision makers when lobbying for change. It was noted that if energy access were to be framed as an energy security issue (e.g. referencing high foreign exchange expenditure on petroleum imports to meet basic energy needs), it could gain traction as a national and regional priority.

Importantly, there are also deeply entrenched vested interests that work against a low-carbon future and will need to be overcome if the low-carbon way is to become “the mainstream way”. These include strong economic interests tied to fossil fuel extraction industries, noting that many countries depend on revenues from fossils for a large share of their national income.

5. National governments must play a central leadership role to mainstream low-carbon modern energy access options

Expanding modern energy access is ultimately a domestic matter. Donor money is fickle and there are no good examples of countries having achieved universal access with only donor funding. The pre-conditions for low-carbon options to change conditions for energy access include strong government commitment; operating institutions; readiness to attract and absorb low-carbon financing; adequate capacities to plan, adapt, implement, maintain and monitor low-carbon technologies.

A clear government commitment and vision is a necessary first step, as exemplified during the workshop by Morocco’s commitment to universal electrification (among others). Beyond visions, governments need to put in place adequate incentives and clear implementing mechanisms, such as economic instruments (e.g. FIT; subsidies etc.), obligations, regulations and standards that ensure quality and consistency in interventions. In Morocco, this involved, inter alia, ring-fenced funds and mandatory contributions from all involved stakeholders: utilities, local authorities, beneficiary’s contributions and a “solidarity levy” from grid connected users.

National policy commitments and visions must furthermore be reflected in budget allocations, including public resources that are consistent and sustained beyond political terms and mandates. Another important component is setting coherent and consistent strategies, policies regulations and incentives for the private sector, and defining policies at different levels of administration (e.g. central, provincial, city, etc.). The regulatory environment needs to reward saving and energy efficiency efforts. Mobilising and committing the necessary resources also involves paying attention to inter-country equity, for instance among rural, peri-urban and urban areas.

Governments should also play a role in strengthening institutions so that they become operational. This involves attracting – and keeping – the necessary skills and competence.

Finally, coherence and consistency in mainstreaming energy access is needed across sectors/ministries in order to realise its broader benefits (for e.g. jobs, economic development, improved health, manufacturing capabilities, etc.) One example used during the workshop was ministries and agencies in the health sector can/should feel ownership of household energy interventions that reduce emissions in the home and ameliorate health impacts.

6. An enabling environment that fosters modern energy access expansion through low-carbon options needs to be developed

A significant barrier to implementing and scaling-up low-carbon technologies is access to appropriate financing. Financial sector/institutions are often weak in developing countries and need to build capacity to think longer term, absorb risks, and develop appropriate financial packages for start-up products and technologies. New and additional financial instruments and approaches are required.

To move away from a model where stand-alone technologies are introduced and then abandoned (e.g. solar lanterns), a longer-term perspective is required that pays more attention to the receiving end of technology transfer. This includes, inter alia, maintenance, local capacity, availability of spare parts and after sales support. Building skills at various all levels and investing in R&D are furthermore essential to developing absorptive capacity to make use of technology and finance and develop markets (and administrative projects!). In context of rural energy access, it was noted that a better understanding of households' actual capacity to pay for energy services is needed.

As (political) interests come and go, there is a need for concerted efforts through public-private partnerships to ensure consistency when adequate policy structures are either not in place or unreliable. This involves making better and more integrated use of stakeholders not normally included/prioritised, such as SMEs and those operating outside the energy field.

Building public awareness on the benefits of using low-carbon options, highlighting cost competitiveness, including more active use in the formal education system and getting a better understanding of how to engage the public, is also key.

2. Ideas voted most novel and most important

Methodology for group discussions

During the second day of the workshop, participants split into four groups to pursue group discussions on the question: “What would it take to make the low-carbon way of expanding energy access the only way, without compromising the rate and quality of the process?”

The group discussions lasted 2.5 hours and were conducted according to an Icelandic methodology⁴ that emphasises deeper dialogue between a small group of individuals. The process is designed to capture every idea brought forward by each participant and involves three steps: thinking, writing and sharing. Participants gathered around round tables and were given pens and several sheets of blank paper. They were asked to think and write down individual answers to the set question cited above. When having written down several plausible answers to the question, participants were asked to share their answers one at a time with the rest of the group. The sharing process involved taking turns going around the table with each participant placing one written down idea on the table for all others to see. When all participants had shared all their ideas, the group jointly categorized their ideas by collectively agreeing on suitable categories. Subsequently, participants were asked to vote for the most important idea and the most novel idea brought forward. Voting took place with the aid of color-coded stickers. Each participant was given three votes for most important idea and three votes for most novel idea.

The results of the voting are presented below. They give an indication of which of the points raised were ranked the highest among the group as a collective.

Most important points

1. It is not acceptable to prioritize low-carbon over energy access. Low-carbon energy access is best approached as part of a long-term goal. Development must come first. Given existing energy options and the growing demand for energy, low-carbon options to expanded access cannot be the only way, but should be pursued as one of many plausible options.
2. We do not yet have the necessary evidence to assess whether the low-carbon way of energy access is a given. We need to collect more systematic data and evidence to demonstrate why and how low-carbon options are cheaper in the long term, including financial and socioeconomic benefits. Data that demonstrates the relationship between low-carbon pathways and job creation and economic growth would be particularly appealing to policy makers.
3. In order to stimulate the pursuit of low carbon options, institutional capacity must be put in place at all levels and the necessary enabling conditions created. National governments have a vital role to play to make this happen. Support is also needed from other concerned actors such as donors, international organizations, etc.
4. A low-carbon future requires sustainable business models. There is thus a need for capacity and skills’ building that goes beyond technology development to include business and market development, policy support, and business regulation.
5. There is need for more awareness raising on the benefits of pursuing low-carbon options, targeted at all levels and actors.

⁴ The methodology, called “Think, Write and Share”, has been developed in Iceland and has been widely applied: from the constitutional reform of Iceland to vision planning for cities and private enterprises. It is open sourced. For more information: alda@vendum.is

Most innovative points

1. Adopt an integrated approach to energy access that links various sectors with low-carbon options.
2. The government must make bigger efforts to create the necessary enabling conditions for the private sector, including appropriate financial packages that absorb risks. This also includes developing local value chains to maximize benefits and make products affordable.
3. Taking a regional approach can motivate countries to initiate and adopt low-carbon pathways and allow for technology and capacity sharing. This could also involve policy interventions that externalize the cost of carbon, for instance a regional market mechanism based on a carbon tax and/or national/regional caps.
4. Politicians are powerful people. It is therefore necessary to think about personal incentives/vested interests of individual decision makers and lobby for change.
5. There is a need to better understand the end-user and what they will use the technology for, so as to appropriately design and tailor low-carbon solutions to end-user needs.
6. Make government institutions examples by regulating or mandating that they use low-carbon options (that have already proven cost-effective and deemed appropriate).

2. Annex 1: Background note

Background and purpose

Last September the Global Commission on the Economy and Climate and its flagship project the New Climate Economy⁵ was launched to help governments, business and society make more informed choices on how to achieve economic growth and societal prosperity while combating climate change. Chaired by former President of Mexico Felipe Calderón, the Commission's members include former heads of government and finance ministries as well as leaders in the field of economics and business. Its primary audience is economic decision makers in government, business, states and cities for whom climate change is rarely a primary concern, yet whose decisions have a substantial influence on the trajectory of greenhouse gases.

The purpose of the workshop is to better understand how carbon mitigation strategies and technologies change conditions for energy access and what trade-offs, if any, exist between these twin goals. By drawing on the experience of key decision makers and implementers across Africa, the meeting will explore: 1) the extent to which low-carbon options are being considered when expanding energy access; 2) the motivating factors behind pursuit of such options; and 3) how low-carbon options for energy access fare against other political goals such as affordability, inclusive access and energy security.

The output will be a set of key insights that can serve as input to the recommendations for action that the Commission will put forward in September this year at the UN Climate Summit 2014.

Key questions to be addressed

The workshop will aim to answer the following questions:

What is the current state of play?

1. Are low-carbon options and technologies considered when designing policies and programs to enhance energy access? To what extent are renewables being promoted to meet the needs of unserved or underserved populations?
2. Are existing energy access projects and programmes being evaluated for their emissions impacts? Is there a clear understanding of the emissions consequences of current energy use patterns? If yes, how is this information being used?

Why are these actions being taken?

3. What are the underlying incentives for undertaking investments in energy access? (National requirements? International requirements? Access to carbon finance?)
4. What framings and assumptions go into determining the cost-competitiveness of fossil versus renewable options and selecting from amongst them? Are there sections of the population or regions where renewables are considered cost-effective and economically viable? Where are there gaps in the data (e.g. demand side analysis)?

⁵ For further information, please visit www.newclimateeconomy.net

What are the implications of these investments and interventions?

5. Have the equity implications of currently planned or implemented climate mitigation activities been considered during their design? If so, what policies and protection mechanisms were considered to safeguard the poor from any potential welfare losses?
6. What trade-offs between energy access, climate mitigation and other political goals are implementers faced with, and how are these tackled?
7. Have low-carbon options changed conditions for energy access? How have low-carbon options fared against other political priorities such as cost effectiveness and inclusiveness?

What we already know

Where energy poverty is still prevalent, economic and social development is contingent on increasing energy access and supply of modern energy services. Indeed, expanding access to modern energy services for poverty alleviation and mitigating climate change are twin challenges facing much of the world today. However, these goals are usually treated independently. Traditionally, this has been the case because nations facing the biggest challenge in providing modern energy access are those that have historically contributed the least to climate change. However, this is unlikely to continue as in many emerging nations, large populations without access to modern energy services already coexist with populations living affluent lifestyles and having large carbon footprints.

Existing evidence suggests that meeting the energy needs of the poor will not contribute significantly to global greenhouse gas emissions even when met almost exclusively by expanding fossil fuels. A few recent studies that have assessed the emissions implications of achieving universal modern energy access for cooking and other domestic uses or eradicating energy poverty globally, conclude that these are likely to be negligible over the next 20-50 years⁶. A recent national-level study on the emissions implications of achieving complete access to electricity (both for cooking and domestic uses) in South Africa, through centralized carbon-intensive grid extension, also found that providing access to electricity to a backlog of 3.4 million households by 2020 would result in an additional 13Mt of carbon dioxide emissions, accounting for approximately only 1.8% of the total projected national emissions for that year⁷.

However, achieving basic energy access is only the first step. Providing energy that enables broader development beyond meeting just basic domestic needs is likely to lead to larger increases in energy demand⁸. How to meet this demand in the long term is a critical challenge all over the developing world, and the choices made will have implications for energy security, affordability of energy, equality in access, imports and exports, as well as – of course – carbon emissions. Energy planners are concerned that low-carbon energy investments will lead to increases in energy costs, reducing the affordability of modern energy for the poor and for businesses. However, a comprehensive view is rarely taken on the costs and benefits of different strategies.

While the political momentum around expanding energy access and mitigating climate change has been high over the past years, there are yet few – if any – examples of countries that have managed to pursue both goals in tandem. There is thus a need to better understand both the incentives behind and implications

⁶ See for e.g. Pachauri, et al., (2013) [doi](#); Chakravarty & Tavoni, (2013) [doi](#); IEA (2013) World Energy Outlook.

⁷ Tait & Winkler, (2012) [doi](#)

⁸ Nilsson et al., (2012) [doi](#)

of choosing, or not choosing, low-carbon options when expanding energy access, including the associated benefits that are not directly relevant to climate and/or energy policy priorities, and how these fare against other political goals.

Expanding energy access through improved cooking services

Currently, almost 40% of the global population cooks with solid fuels like unprocessed biomass, charcoal or coal. Though biomass is considered a renewable fuel, burning it in inefficient stoves results in emissions of greenhouse gases (GHG) such as methane and nitrous oxide. Carbon dioxide emissions from non-sustainable harvesting of biomass in specific locations also adds to its environmental impacts. This suggests that transitioning away from solid fuels could even reduce emissions⁹.

The health benefits that come with introducing cleaner cooking technologies are now widely recognised by the scientific and policy communities and are increasingly also being used to market improved cookstoves to end-users¹⁰. However, the performance of improved stoves varies widely and improved thermal efficiency (important for climate outcomes), although often linked with improved livelihoods (e.g. time and fuel savings), does not necessarily lead to reduced emissions (required for improving household health)¹¹. The choice of household energy “intervention” will have implications for these various outcomes and for the implementation approach taken by cookstove entrepreneurs/project developers as well as the financial incentives available to support these.

Despite numerous improved cookstove interventions over the past decades, the world has still not seen a sector transformation, i.e. the sustained and widespread adoption of improved cookstoves. Various explanations have been offered for this lack of progress; one problem that has become evident is that programmes have too often failed to understand the market for their stoves – the needs, preferences and constraints of stove users in their unique contexts. Developing a cleaner stove is relatively easy, however ensuring that communities use these stoves, especially in the long term, has proven difficult since it requires a deep knowledge of culture and traditions, social norms, household needs and habits, etc. In this light it is vital to understand what are the most pressing challenges facing cookstove implementers today are, and how can these be overcome.

Expanding energy access through electrification

About 20% of the global population also still lives without access to electricity. Supplying these populations with electricity can be achieved by extending existing transmission infrastructure and connecting them to central grids, or through developing decentralized off-grid or mini-grid solutions. Considering renewable options for expanding access to electricity, especially for remote rural populations with low population and demand densities or living in difficult terrains, is becoming increasingly popular¹². Assessing the appropriateness of renewables for expanding electricity access is, however, challenging as it requires detailed information on local demands and distances to existing grids in addition to estimates of costs and potentials in an area. Barriers to electrifying rural areas, whether through off-grid

⁹ See for instance - Grieshop, et al. (2011) [doi](#); Johnson, et al. (2008) [doi](#); Rehman, et al. (2011) [doi](#)

¹⁰ For the latest estimates of the Global Burden of Disease attributable to household air pollution (HAP) from solid fuel use, see Lim et al. (2012) [doi](#)

¹¹ Smith et al. (2013) [doi](#); Duflo et al. (2012); Grieshop et al. (2011)

¹² See for e.g. van Ruijven, et al. (2012) [doi](#); Deichmann, et al. (2011) [doi](#); Karki, et al. (2008) [doi](#)

or grid electrification, are still significant in many developing nations and strengthening the policy and institutional frameworks for this remains an important prerequisite.

Leapfrogging to new renewable or low-carbon technologies in developing nations is certainly desirable, but how much this might contribute to global mitigation efforts as well as other societal goals such as economic growth and social wellbeing remains uncertain. Given the urgent need to increase access to electricity, it is natural that nations choose options with which they have the most familiarity and that are perceived to have the least cost. In practice, this often means going with conventional technologies and fossil fuels. There is thus a need to better recognize how an environment that enables low-carbon interventions can be put in place, i.e. the necessary institutional, financial and political support structures, and how choosing such a path can bring about achievements toward other political goals of social and economic well-being. Furthermore, how national and international policies might foster a quicker diffusion of low-carbon technologies in such circumstances needs further consideration.

Areas still lacking clarity

The net emissions impacts of such energy transitions are clearly dependent on the emissions characteristics of existing technologies and energy sources used and of those with which these are replaced. A comprehensive assessment of emissions impacts of access policies and projects will need a deeper understanding of: 1) current and future energy demands; 2) future electricity generation mixes; 3) the extent to which future demands can be cost-effectively met from low-carbon or renewable sources.

Although existing research suggests that sustainable development and energy poverty eradication can go hand in hand with mitigating climate risks, there are important considerations surrounding costs, energy security and ancillary benefits that must be taken into consideration more systematically. Bringing modern energy access to many more people around the world—which one might initially expect to lead to increased greenhouse gas emissions—can also be consistent with reducing emissions because renewables could be more widely deployed and energy efficiency will improve with better access to modern energy technologies and fuels¹³. However, knowledge is lacking on the barriers and opportunities involved in introducing such technological and systems change, including the incentives that lie behind the needed investments. Linking forward looking projections with a thorough understanding of the socio-technical dynamics of implementation, will give us a clearer understanding of the synergies and trade-offs between potential systems pathways and implementation in practice.

Organizers

This workshop is jointly organised by the Stockholm Environment Institute (SEI) and the International Institute for Applied Systems Analysis (IIASA).

SEI is one of seven research partners in the New Climate Economy project. It is an independent international research institute that has been engaged in environment and development issues at local, national, regional and global policy levels for more than 20 years. SEI's goal is to bring about change for sustainable development by bridging science and policy and does this by providing integrated analysis that supports decision makers. SEI has offices in Estonia, Kenya, Thailand, the UK and the US, with its headquarters located in Stockholm, Sweden.

¹³ See Rogelj, et al. (2013) [doi](#)

IIASA is a scientific research institute that conducts policy-oriented research into problems of a global nature that are too large or too complex to be solved by a single country or academic discipline. IIASA uses advanced systems analysis to conduct policy-oriented research into the most pressing areas of global change – energy and climate change, food and water, poverty and equity – and their main drivers. IIASA is located in Laxenburg, near Vienna, Austria.

3. Annex 2: Workshop agenda

10 April 2014

09.00 – 09.30	<i>Arrival and registration</i>	
09.30 – 10.00	Welcome and introduction to the workshop	Stacey Noel, Marie Jürisoo, SEI
10.00 – 10.30	Framing 1: “Universal Modern Energy Access: Potential Synergies and Trade-offs with other Climate, Pollution and Energy Goals”	Dr. Shonali Pachauri, IIASA
10.30 – 11.00	Framing 2: “Energy for Inclusive Economic Development: the need for a Broad and Systemic Understanding of Energy Access”	Dr. Oliver Johnson, SEI
11.00 – 11.30	<i>Coffee Break</i>	
11.30 – 12.00	Keynote address: “Expanding Energy Access in Africa: Balancing of Goals”	Prof. Ogunlade Davidson
12.00 – 12.20	“Expanding Energy Access using Low-Carbon Options: Reflections on the Enabling Environment”	Maxwell Musoka, GIZ Kenya
12.20 – 13.00	Q&A with speakers	Fiona Lambe
13.00 – 14.30	<i>Lunch</i>	
14.30 – 14.45	Brainstorming exercise: “Why use low-carbon technologies to expand energy access?”	
14.45 – 15.45	Experience from Implementation: “The Impetus for using Low-Carbon Options to Expand Energy Access: Three Examples from Different Sectors”	Tagay Girma, Ethiopian Biofuels Directorate; Emmanuel Cyoy, Practical Action; Touria Dafrallah
15.45 – 16.30	What did you learn from this session? Joint discussion speakers and participants	Fiona Lambe
16.30 – 17.00	<i>Coffee Break</i>	
17.00 – 17.30	Reflections on the day	Stephen Karekezi, Estomih Sawe, Steve Thorne
19.00	Dinner	

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09.30 – 10.00	Framing: “Have low-carbon options changed conditions for energy access and how can they expedite other political goals?”	Koffi Ekouevi, World Bank
10.00 – 12.30	Interactive session: “What would it take to make the low-carbon way of expanding energy access the only way, without compromising the rate and quality of the process?” - Introduction to “Think, Write and Share” - Breakout groups - Report initial impressions from breakouts	Marie Jürisoo
12.30 – 14.00	<i>Lunch</i>	
14.00 – 15.30	Key insights from workshop: how can low-carbon options change conditions for energy access?	Marie Jürisoo, Oliver Johnson & Shonali Pachauri
15.30	Workshop ends	

4. Annex 3: List of participants

Name	Affiliation	Position	Email address
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