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Policy pointers

Global energy ambitions must step up from offering the minimum energy for survival to delivering affordable, reliable and sufficient energy for households, productive activities and public services, to help reduce poverty and improve livelihoods.

Future efforts should focus on neglected rural areas and smallholder agriculture, integrating energy interventions with other local development priorities such as food, water, land, employment, women's empowerment and climate resilience.

Decentralised and bottom-up approaches may be the most effective for delivering energy to the poorest, and should receive greater attention in energy plans and investments.

To reach the poorest, existing market failures must be overcome through public policy and finance, social enterprises and businesses focused on serving low-income energy markets and multi-sector partnerships.

Shaping a global goal on energy access that leaves no one behind

Energy features strongly in discussions about a post-2015 development framework. Energy poverty puts huge constraints on human and economic development. Negotiating the content of an energy goal could be politically contentious, giving rise to polarisations that stymie debate: centralised, large-scale projects versus decentralised, small-scale ones; renewables versus fossil fuels; public versus private provisioning; the responsibilities of the rich versus the needs of people living in poverty. This briefing draws on research by IIED and others to suggest priorities for achieving universal energy access. It proposes that post-2015 energy ambitions go beyond meeting people's 'basic survival needs', and instead be centred on energy needs in a way that will help reduce poverty and improve livelihoods, particularly in rural communities. To date, this has been a classic blind spot for energy policymakers and the market.

State of play

Differential access to energy is both a driver and consequence of growing inequity worldwide, between and within countries. Energy poverty is widespread, and despite significant improvement in electrification in some countries, progress across the board is slow. If we continue in this vein, we will see little change in the total number of energy-poor by 2030. The situation is particularly dire in rural areas — for example, 42 per cent of Mali's urban dwellers have grid connections and pay 15–25 cents/kwh, whereas only three per cent of rural dwellers are connected, paying up to 40 cents/kwh.¹

The link between energy and poverty reduction is well documented. Electricity enables children to study after dark, farmers to pump water for their crops, and the refrigeration of foods and medicines. Modern, reliable energy services can increase poor people's earning capacity; reduce workloads; increase resilience to climate shocks and hazards; and support basic services such as healthcare, drinking water and information and

communication technologies. Energy contributes to gender and health objectives. Exposure to the smoke of inefficient cookstoves or open fires causes four million deaths per year (mainly among women and children) from respiratory conditions — that's more than the number who die from malaria or tuberculosis. Adopting modern fuels for cooking and heating can save lives and relieve women and girls from the drudgery, physical strain and danger of travelling long distances to gather wood.²

The millennium development goals notoriously did not include energy, an oversight that the post-2015 agenda must address. Table 1 (overleaf) outlines existing proposals for an energy goal. The UN's Sustainable Energy for All initiative (SE4ALL), launched in 2012, is the most prominent global initiative.

This briefing focuses on the access dimension of a post-2015 energy goal or targets. It explores how ambitious targets can be achieved in poor rural areas where energy poverty is greatest and market failure and technological challenges

constrain 'normal' investment responses. It looks at the roles of governments, community institutions and innovative partnerships in overcoming obstacles to progress.

Rethinking energy strategies to reach the poorest

1. Prioritise access in rural areas. Box 1 demonstrates the gaping rural-urban divide in energy provisioning. Governments and donors have favoured centralised grid connections in urban areas, where demand is most vocal, economic and political power is greatest and results can be rapid. They have been much less willing to invest in remote rural areas, where costs are high, returns are low, poverty is the norm and the political cost of inaction is small.

Although efforts to bring energy to poor urban and peri-urban communities — especially informal settlements — must continue, the needs remain greatest in rural communities. The grid can reach many households at once in heavily populated areas, but rural energy solutions involve a more challenging mix of approaches and sources. The International Energy Agency estimates that 36 per cent of additional power supply will need to come from mini-grids and 20 per cent from isolated off-grid systems. There are lessons to learn from China and Nepal: 500 million people in China have gained access through a combination of centralised, decentralised and off-grid electricity, using small hydro, wind and solar sources since 1990,¹ and in Nepal, almost 30 per cent of rural electricity is off-grid.³

In the poorest households, a transition in household cooking systems is as important as

access to electricity. But aside from China's cookstoves programme, there are few examples of rapid successful scale-up. New global initiatives such as the Clean Cookstove Alliance are promising. All interventions must take on board lessons from past initiatives, and involve women in developing and maintaining stoves while giving attention to public education, marketing, distribution and product quality standards.³

2. Adopt an expanded understanding of access. There is no consensus definition of energy access, but agreeing what access means and how to measure it is crucial for framing post-2015 goals and national energy policies. Access (and therefore energy planning) has traditionally focused on households' connections to an electrical grid and more recently, modern cooking fuels or technologies. As a result, these are the measures that dominate statistics.

For access to be meaningful, energy services must be available, affordable, adequate, reliable, safe and targeted at the needs of poor people. If energy is to transform lives, it must go beyond merely meeting basic needs.

The NGO Practical Action developed the following simple typology of energy uses for improved livelihoods:

- **Household needs:** lighting, cooking, hot water, charging phones, heating and cooling, for example
- **Productive uses:** for instance agriculture, small-scale manufacturing, service sector activities and transport

Table 1. Suggested global energy goals and targets

Proposer	Goal	Targets
SE4ALL	Sustainable energy for all by 2030	Ensure universal access to modern energy services Double the global rate of improvement in energy efficiency Double the share of renewable energy in the global energy mix
High-level panel on post-2015	Secure sustainable energy	Double the share of renewable energy in the global energy mix Ensure universal access to modern energy services Double the global rate of improvement in energy efficiency in buildings, industry, agriculture and transport; and phase out inefficient fossil fuel subsidies that encourage wasteful consumption
Global Compact	Sustainable energy for all	Universal access to modern energy services Double the global rate of improvement in energy efficiency in production, distribution and consumption Double the share of renewable sources in the energy mix Reduce by at least 50% the particulate concentration in urban air (not to exclude achievement of more stringent regional targets)
Sustainable Development Solutions Network	Curb human-induced climate change and ensure renewable energy	Decarbonise the energy system, ensure clean energy for all, and improve energy efficiency with targets for 2020, 2030, and 2050

- **Community services:** for example health posts, hospitals, schools, government offices, police stations, street lighting and religious buildings.⁴

Energy for smallholder agriculture and related enterprises is particularly important, but largely ignored by energy planners. Poor countries and communities need to increase agricultural productivity for national food security and to raise rural incomes. In sub-Saharan Africa, agriculture employs 60–80 per cent of the workforce, but accounts for only three per cent of total electricity consumed;⁵ only four per cent of cropland is irrigated, compared with 39 per cent in South Asia.⁶

Using an expanded definition of access means embedding energy access in a wide spectrum of policy areas, including improving agricultural livelihoods, expanding farmers' access to markets, increasing food and water security, addressing land degradation, and strengthening climate change resilience. Although there are few examples of joined-up policymaking, there are some ideas worth exploring; the Mary Robinson Foundation–Climate Justice, for example, is looking into how governments could link social protection systems with policies to promote energy access for the poorest.⁷

3. Take a demand-driven approach. Linking energy to poverty reduction and rural development will require a big shift from today's technology- and supply-driven approaches to more bottom-up, people-centred ones, where interventions are tailored to local demands and contexts.⁸

There is strong evidence that energy access projects fail because they ignore the fundamental issues: what people want energy for; the types of equipment they use; what they can afford; their capacity to run and maintain systems; how existing systems operate. In many low-income countries, traditional and modern energy systems co-exist, with most households using wood and charcoal for cooking, candles or kerosene for lighting, and human or animal labour for agriculture and transport. With supply dominated by the informal sector, these systems operate outside the purview of policymakers and energy planners, who instead focus on improving the modern energy system to supply electricity, modern fuels and appliances.

Working with households and communities to define their energy needs and preferences is time-consuming and requires a change from the technocratic approach of most energy planners. But, if well designed and implemented, this approach will lead to more sustainable outcomes.

4. Adopt appropriate technology solutions.

Meeting energy needs in rural areas requires

Box 1. Energy poverty in numbers

Worldwide:

- 2.8 billion people rely on inefficient and polluting cooking fuels and technologies
- 1.2 billion have no electricity access
- 1 billion have intermittent access.

In Least Developed Countries:

- 4 out of 5 people have no electricity connection in their home
- 9 out of 10 people (73% of urban dwellers and 97% of rural dwellers) have no access to modern fuels for cooking.

Progress stalling for the poorest?

- In low-income countries, access to non-solid cooking fuel rose only by two per cent — from 7% to 9% — between 1990 and 2010.
- The International Energy Agency estimates that the number of people without access to electricity will fall marginally between now and 2030 — to 1 billion — with sub-Saharan Africa overtaking Asia as the region with the largest deficit. The total number of people without access to non-solid cooking fuels will remain largely unchanged.

Sources: Sustainable Energy for All. 2013. *Global tracking framework*; UNDP/WHO. 2009. *The energy access situation in developing countries. A review focusing on the Least Developed Countries and sub-Saharan Africa*; OECD/IEA. 2012. *World Energy Outlook*.

solutions that are tailored for specific contexts. New bilateral and multi-lateral climate funds — such as Energy+ or the Climate Investment Fund — seek to demonstrate the viability of low-carbon pathways and often promote renewable energy sources, influencing the way countries evaluate their energy options. But poor rural people have a minuscule carbon footprint, and should not be pushed to adopt renewable energy if fossil fuel or hybrid alternatives are a better alternative in terms of local availability, cost and user preferences.

That said, renewable energy can offer real opportunities for poor rural communities, because resources such as water or solar power are often available locally and the technology requires minimum maintenance. Although upfront costs tend to be higher than alternatives such as diesel generators, operating costs are much lower. Wood and charcoal are established rural energy sources that supply most household needs and boost the informal economy; with the right policy incentives, legal frameworks and management regimes, they can be environmentally sustainable.⁹

5. Build partnerships for energy delivery.

Programmes that expect the private sector to provide the finance, technology and skills for expanding energy access in rural areas are unlikely to achieve much success. Rural energy delivery has lagged behind largely because high costs, low returns and high risks make it unattractive to private investors. Governments must step in with targeted public money and policy

interventions to stimulate the market and, crucially, fill the gaps where the private sector will never go. Government responses must address policy issues such as incentives, import duties, fuel subsidies and tariffs, while offering targeted subsidies to make energy affordable for the poorest.

Although the solution does not lie solely with the private sector, it can play a big role through social investment and partnerships with government, NGOs and other actors. Some low-income energy markets are starting to attract impact investors seeking relatively low risks and reasonable returns, who are prepared to put extra effort into building relationships and ensuring a social return on their investment.¹⁰ There are also many examples of small and medium social enterprises or not-for-profit organisations that have innovated to meet the energy needs of poor consumers.¹¹ Initiatives include very low-cost solar lighting products, pay-as-you go systems to reduce up-front technology costs, training for local people to sell and maintain services, and providing patient capital through new investment channels such as crowdfunding.

The potential exists, but scaling up remains a challenge. IIED research has highlighted that information and knowledge-sharing are insufficient, there are too few proven enterprises and business models to invest in, and too few pioneer enterprises and investors.^{10,12} Governments can step in by providing finance for local small and medium enterprises, for example, through start-up grants, loans, equity, insurance, risk guarantees and tax breaks. Donors can help by funding business model validation to build investor confidence, supporting services and skills training, and using grants as 'risk capital' for enterprise development.

How can a global goal help?

The post-2015 goals are one element of a complex and evolving international energy sector landscape. The big question is: Where and how can a voluntary goal make the most difference — relative to other instruments and processes — balancing vision and high ambition on one hand, and a concise set of implementable targets on the other?

Notes

¹ Sustainable Energy for All. 2013. *Global tracking framework*, Data annex 6. See: www.sustainableenergyforall.org/tracking-progress. Electricity prices were obtained via personal correspondence with Youba Sokona, coordinator of the African Climate Policy Centre. / ² See www.cleancookstoves.org/the-alliance / ³ Pachauri, S. et al. 2013. *Energy for all: Harnessing the power of energy access for chronic poverty reduction*. Chronic Poverty Advisory Network / ⁴ See Practical Action's *Poor people's energy outlook* report series. <http://practicalaction.org/poor-peoples-energy-outlook> / ⁵ See Sokona, Y., Mulugetta, Y., Gujba, H. 2012. Widening energy access in Africa: Towards energy transition. *Energy Policy* 47, 3–10. / ⁶ Practical Action. 2012. *Poor people's energy outlook 2012*. Practical Action Publishing. / ⁷ See www.mrfcj.org for more on this emerging area of work. / ⁸ For more on bottom-up delivery models, see Wilson, E., Godfrey Wood, R., Garside, B., 2012. *Sustainable energy for all? Linking poor communities to modern energy services*. IIED, London; and Bellanca, R. Garside, B. 2013. *An approach to designing energy delivery models that work for people living in poverty*. IIED, London. / ⁹ Macqueen, D., Korhaliller, S. 2011. *Bundles of energy: The case for renewable biomass energy*. IIED, London. / ¹⁰ Wilson, E., Symons, L. 2013. *Stimulating quality investment in sustainable energy for all*. IIED, London / ¹¹ See, for example, the winners of the Ashden Awards at www.ashden.org / ¹² Bellanca, R., Wilson, E. 2012. *Sustainable Energy for All and the private sector*. IIED, London / ¹³ See citation on p17 in Doczi, J. et al. 2013. *The post-2015 delivery of universal and sustainable access to infrastructure services*. ODI, London.

There are three key ways an energy goal could help achieve real outcomes for the energy-poor:

1. Re-shaping the discourse and priorities of governments, by helping to focus priorities on improving the wellbeing of the poorest. A

stronger focus on rural needs and more expansive notion of access could help steer the design of energy interventions toward real outcomes for poor people. It would no longer be the number of cookstoves distributed that counts, but whether they are used and the health and productivity benefits they bring. Governments and donors would need to develop new indicators that are meaningful and usable in countries where statistical capacity is often weak.

2. Coordinating and channelling international finance and donor efforts, to help steer funding and support to where it is needed

most. At present, energy aid is not always targeted at the poorest or where access deficits are greatest; one study found that 65 per cent of all energy aid went to countries with electrification rates above 75 per cent; only 15 per cent went to those with less than 50 per cent electrification.¹³

3. Improving state-citizen accountability for energy policy, by providing advocacy tools for citizens to engage in policymaking, hold governments to account and press for change.

Civil society is not strongly engaged in energy access debates; when it does get involved, it is often in response to specific mega-projects, such as large dams. An under-recognised benefit of the millennium development goals was that they galvanised civil society efforts around issues such as maternal health, education and water. For an energy goal to serve a similar function, there needs to be a concerted effort to build energy literacy at the grassroots and, crucially, to set national-level targets and indicators that provide meaningful measures of access — such as affordability, reliability, sufficiency and the outcomes on poor people's lives.

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