



This policy brief is based on a CPAN Policy Guide: [Energy for All: Harnessing the Power of Energy Access for Chronic Poverty Reduction.](#)

### The Chronic Poverty Advisory Network (CPAN)

ensures that chronically poor people are not overlooked by policy-makers and disseminates evidence to improve the effectiveness of policies and programmes at reducing the poverty of the poorest people.

CPAN has partners in 10 countries and builds on the work of the Chronic Poverty Research Centre (CPRC).

## Energy for All: Harnessing the Power of Energy Access for Chronic Poverty Reduction

- Lack of access to energy is strongly correlated to income poverty. Energy poverty is most acute for the poorest households, and is more severe in rural areas.
- Expanding the availability and improving the quality and reliability of electricity coverage and improved cooking technologies, along with the ability of the poorest people to afford these when available, can all contribute to poverty reduction.
- Shifting the use of energy from solely consumptive purposes to productive and income enhancing purposes is crucial for sustainable escapes from poverty.
- To achieve transformational results for the chronically poor, policy efforts require complementary interventions, including co-ordination and inter-sectoral collaboration.

The lack of access to modern energy services is an obstacle to economic and social development. Energy poverty is strongly correlated to income poverty and is most acute in rural areas, where many chronically poor people are concentrated.

This policy brief makes the case that access to electricity, together with the assets which enable its use in a transformational way, improved cooking technologies, and the ability to afford them, can all contribute to poverty reduction. Research and policy evaluation point to three policies that can help achieve this; expanding electricity coverage and the distribution of clean-combusting fuels and equipment to populations not yet served; improving the ability of the poorest people to afford these when they are available; and enhancing the reliability and quality of energy services.

While the focus to date has largely been on securing minimalist energy access for poor households, these efforts are more suited to consumptive uses rather than productive and income enhancing ones. Specific measures are

therefore needed to ensure energy is harnessed for productive uses as well as domestic and community needs if people are to escape persistent poverty.

Analysis of poverty dynamics demonstrates that chronically poor households are less likely to have electricity than households which have escaped or fallen into poverty; in addition, households which stay out of poverty are more likely to have access to electricity. This lack of access amongst the chronically poor is due to the unavailability of supply as well as its unaffordability.

Government efforts can often overlook the chronically poor and subsidies require better targeting. Electrification alone is not enough to ensure poor people escape from poverty, and complimentary interventions are also necessary, in sectors other than energy, such as skills development services, to ensure that the expansion of energy services contributes to chronic poverty reduction.



## Making Energy Affordable

Despite the poorest households spending a significant proportion of their income on energy, the affordability of modern energy services (electricity and improved cooking fuels and technologies) is often a barrier to access. Universal access to modern energy services will only be achieved if there is some form of support for the poorest people.

The multiple benefits of access to modern energy services, along with the links between access to energy and poverty reduction, have led some governments to adopt measures to make it more affordable. Subsidies are the most common mechanism, and though they can have a significant impact on reducing the incidence of poverty (Komives et al. 2007), they are often regressive and need to be better targeted.

better targeting of subsidies will entail higher administrative capacity and costs, for means-testing, categorising beneficiaries, and geographical or sectoral identification of recipients. For example, subsidies for connection charges, often a critical barrier to access, can be well-targeted to the poor. Alternatively, customers can be allowed to pay the connection charge over a longer time period.

Energy services are not often considered an essential service to be delivered through safety nets. However, alternatives to subsidies, including cash and non-cash transfers, could also enable the poorest to access modern energy services. Another approach is the use of output-based aid (OBA) to ensure connection fees or equipment costs are subsidised after delivery to targeted households. However, energy subsidy programmes need to adopt simple and transparent targeting criteria consistent with those adopted by social assistance programmes in order to ensure effectiveness and safeguard against corruption and leakages.

## Scaling up Promising Cooking Fuel and Technology Innovations

A transition to cleaner- combusting fuels and/or stoves is as important as access to electricity for improving the situation of chronically poor people. Cooking remains the primary domestic use of energy in many developing nations, accounting for over 80% of the total energy used in poor households, and cooking energy systems are still largely solid fuel dependent.

A global cost-benefit analysis estimates that there are potentially huge and multidimensional gains for chronically poor people shifting to the use of advanced stoves and/or cleaner-combusting fuels such as liquefied petroleum gas (LPG) or biogas (WHO 2006). Evidence suggests that for the poorest population groups, improved or advanced biomass stoves are a feasible first step in a transition to cleaner cooking. Interventions in household cooking systems can have very large economic and social returns as well as health and environmental benefits. Policies need to address both the distribution of clean-combusting fuels and stove supplies to rural areas, as well as the affordability of these for the poorest households.

### Box1:China'sNational Cookstove Programme (NISP)

Between 1982 and 1992 NISP introduced 129 million stoves, mostly biomass stoves, to rural areas. More than 100 million were still in use 15 years later.

The programmes involved three phases including; i) government subsidising and distribution of low cost stoves; ii) focus on research development and push for commercialisation; iii) emphasis on extension, promotion and increased standardisation.

The success of NISP has been due to the systematic independent monitoring and evaluation of cookstove use, which identified early inefficiencies, leading to improved alterations. Government investment in research and development, in collaboration with retailers and customers ensured quality and reduced costs. Most users now pay full costs of stove materials & labour.

Source: Barnes et al. (2012) and Smith et al. (1993).

For policymakers, scaling up the dissemination, adoption and use of clean-combusting fuels and/or improved cookstoves requires multiple actions at different levels. Fuel supply and distribution chains also need to be addressed. Targeted subsidies and consumer financing are essential to making new fuels and stoves affordable for all. Developing and regulating financial services that can address the financial needs of the poor can be crucial to the success of achieving this transition. While some private sector initiatives have been successful, subsidies on clean-combusting fuels and grants or cheap credit for new stoves remain necessary for the poorest households. Governments could also introduce regulations and provide incentives, such as tax incentives, to encourage private companies to cross subsidise. Given that continued dependence on traditional cooking practices contributes to climate change climate funds can also be used to improve the



access to clean-combusting cooking fuels and equipment

Developing credible monitoring and evaluation systems is also vital (Box 1). Government authorities need to put in place a regulatory framework and mechanisms to ensure that adequate standards (for safety and performance i.e. efficiency and emissions,) for new stove technologies are enforced and safeguarded. Training and extension programmes that build the capacity of local communities to undertake regular maintenance and repairs of new stoves are also critical for the sustainability of technologies as well as for consumer confidence.

Strong alignment across policy domains is important. Institutions in different sectors should take a proactive approach, and plan and implement innovative measures for addressing relevant challenges, such as ministries working in tandem to create awareness of the negative impacts of using traditional fuels on human health and the environment and educating the public about the need for, and benefits of, switching to cleaner and more efficient fuels and stoves. Engaging with local actors is also essential to ensure stove designs are tailored to local requirements.

### **Expanding Access to Rural Areas**

There is strong evidence that levels of energy poverty are consistently higher in rural areas than urban settlements across the developing world. 80% of households without access to modern energy services live in rural areas. As a result individuals, households and groups in remote rural areas and regions, which have low resource endowments, poor infrastructure and communications and there is limited government capacity to deliver services, are more likely to experience chronic poverty.

The conventional approach to providing electricity services is to develop large power stations and transmit the centrally-generated electricity to consumers across the country. In rural areas with poor and dispersed populations, though, the cost of extending access to electricity through a centralised grid can be greater than decentralised alternatives.

Off-grid or decentralised rural electrification is crucial to achieve universal access to electricity and can be through stand-alone systems or mini-grids (IEA 2011). Successful mini-grid development requires regulatory systems which enable decentralised solutions, including through the promotion of local

energy plans. This can be achieved through carefully considered local economic, social and environmental conditions along with the development of viable financial models, which are also context specific. Combining electricity access with skills development and involving local communities to promote income generating activities, can also have an impact on poverty reduction (Box 2).

#### **Box 2: Nepal: Community mobilisation and off-grid approaches**

The Rural Energy Development Programme (REDP) aims to expand access to energy services into remote rural areas, through focusing on decentralised, off-grid approaches. Access to electricity is an 'entry point' for REDP programmes, but other initiatives are also implemented to enhance rural development benefits in remote villages. Training and skills development are important components. Community organisations focus on interests including income generating activities, forestry, biogas and poultry farming.

Source: Legros et al. (2011)

Decentralisation of responsibility for the promotion and regulation of electricity could also help enable uptake of decentralised energy systems for rural areas. Stand-alone systems provide a limited amount of power but can be appropriate for isolated off-grid households, businesses and public services and access to such systems for the poorest households will require subsidies and end-user financing.

Poor quality and unreliable modern energy supplies seem disproportionately to affect the poorest people and regions. Decentralised energy provision can be one way to address these quality issues by making use of local resources and capacities. However, improving the reliability of energy supplies remains a big challenge that will require focused attention, additional investments to expand infrastructure and delivery capacity, and broader developments that strengthen the voice of poor consumers and communities. Policies should focus on improving the effectiveness of regulation in the energy sector to ensure more accountability; diversifying sources of supply to reduce dependence on specific sources; strengthening transmission and distribution systems, and promoting energy efficiency; which can help reduce gaps between supply and demand, which lead to supply interruptions.



## **Providing Electricity for Local Businesses and Employment**

Lack of electricity is a constraint on production and enterprise growth. Improving working conditions in labour markets, as well as increasing productivity in self-employment, are important to contribute to escapes from poverty. Mechanical power is a key component to enhancing the productivity of labour in many activities that are fundamental to poor people's livelihoods.

The overall availability of jobs is related to economic growth, which is closely correlated with total energy and electricity consumption. Access to electricity can increase employment opportunities, particularly in rural areas, through enabling the expansion of a range of services for manufacturing, communications, mechanical power and lighting. Access to electricity for enterprises can increase productivity, improve production, while reducing costs in production, in addition to contributing to the establishment of new businesses. However, the employment benefits of electrification are greater when accompanied by complementary interventions such as business development support services, and investment infrastructure (Gibson and Olivia 2010).

## **Achieving Sustainable Energy for All: Following Coordinated Approaches**

Ensuring energy access to meet only essential energy needs will not be enough to enable the poorest households to escape poverty sustainably. For energy services to contribute to raising the incomes of chronically poor households, complementary interventions are necessary. These include grants and subsidies, such as those to increase access to electrical appliances, as well as employment opportunities, investments to improve access to information, and access to markets, business development services and capital (finance).

Public services which are critical for poverty reduction, such as health and education, also require access to modern energy services. An integrated approach to energy development should seek to exploit the interconnections with other sectors to maximise the human development and poverty reduction impact.

Governments are frequently committed to expanding access, but with little effort to monitor the quality of access or supply, or even what purposes electricity is

being used for. Energy access interventions can include objectives to contribute to increasing the incomes of poor households through the use of modern energy services, and developing the support services and institutions for this (policy frameworks, market development, training and employment opportunities).

## **Addressing Poverty in the Post-2015 Framework**

The post-2015 development agenda needs to reflect the essential role that access to adequate, reliable and affordable energy plays in poverty reduction, particularly if the objective is to eradicate absolute poverty.

National governments are frequently committed to expanding access, however, little effort is focused on monitoring the quality of access or supply, or even what purposes electricity is being used for. Governments should determine the minimum levels of energy access appropriate to their country situation and a set of indicators to measure progress. Governments should also define their own energy targets (e.g. for access to electricity, improved cooking technologies and mechanical power) and strategies to deliver these based on their own specific socio-economic and political contexts. These should recognise that to enable the chronically poor to escape poverty, access to adequate energy includes access to energy for productive uses.

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## **Resources**

Komives, K., Halpern, J., Foster, V., Wodon, Q. and R. Abdullah (2007) Utility Subsidies as Social Transfers: An Empirical Evaluation of Targeting Performance. *Development Policy Review* 25 (6): 659-679.

Barnes, D.F; Kumar, P. and K. Openshaw (2012) *Cleaner Hearths, Better Homes. New Stoves for India and the Developing World*. Oxford: Oxford University Press and Washington: World Bank.

Smith, K.R., Huang Kun, G.S. and Q. Daxiong (1993) One Hundred Million Improved Cookstoves in China: How Was It Done? *World Development* 21 (6): 941-961.

WHO (2006) *Fuel for Life: Household Energy and Health*. Geneva: World Health Organisation.

Legros, G., Kamal R. and B. Seyedi (2011) *Decentralised Energy Access and the Millennium Development Goals. An Analysis of the Development Benefits of Micro-Hydropower in Rural Nepal*. United Nations Development Programme, Alternative Energy Promotion Centre and Practical Action.

Gibson, J. and S. Olivia (2010) *The Effect of Infrastructure Access and Quality on Non-Farm Enterprises in Rural Indonesia*. *World Development* 38 (5): 717-726.

IEA, *World Energy Outlook 2011*. International Energy Agency. Paris: OECD.