Energy for all: delivering on the promise of universal access

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Large parts of humanity – billions of people – live without access to modern energy services. These are services that most of us take for granted, like light, fuel for heating and cooking, and mechanical power. Despite the efforts of many committed people working on excellent programmes, about 1.5 billion people still don't have access to electricity, and around 2.5 billion people rely on traditional biomass as their primary source of energy – a clearly unsustainable position. It is widely accepted that this lack of access to affordable, reliable energy services is a fundamental hindrance to human, social and economic development – and is thus a major impediment to achieving the Millennium Development Goals (MDGs). The issue is also a stark illustration of the deep inequity that exists between the rich and poor – roughly, the poorer three-quarters of the world's population use only 10 per cent of the world's energy. The rich countries aim for a secure, environmentally acceptable, and affordable energy supply – but what about the billions without access?

A few success stories do exist – countries such as China have improved the access for their citizens substantially in the last decades – but all across sub-Saharan Africa, and in parts of Asia, people are living without basic energy services. The demand for energy in these regions is expected to grow dramatically with increases in population and improvements in living standards adding to the scale of the challenges. It is stunning to realise that, if 'business as usual' conditions are maintained, over the next decades the total number of people without access to modern energy services will not decrease (IEA, 2009). Current efforts are insufficient in scale and scope, and attempting to address the issue in the same way that we have in the past is clearly not remotely adequate. This is why in April 2010 the UN Secretary-General's Advisory Group on Energy and Climate Change in its recommendations called on the adoption of a target to achieve universal access to modern energy services by 2030 (AGECC, 2010).

Energy for development

Energy services have a profound effect on productivity, health, education, safe water, and communication services. Therefore, it is no surprise that access to energy has a strong correlation to social and economic development indices (e.g. Human Development Index, life expectancy at birth, infant mortality rate, maternal mortality, and GDP per capita, to name just a few).

The obstacles to energy access are well known. These barriers, while complex, can be overcome, and international cooperation can help this process. What cannot be overstressed is that there are no fundamental technical barriers – we know how to build power systems, we know how to design good cooking stoves, and we know how to meet energy demand efficiently. Equally important is a clear understanding that local communities must be deeply involved in the planning, execution, and end-use of energy services. Energy access interventions must be guided by an awareness of local communities' unique situations and needs.

What is now required is a sustained political focus. Energy access must move up the political and development agendas to become a central priority.

Supporting existing plans

We need to focus support for delivery of national and regional plans and targets. A recent UNDP paper showed that 68 developing countries have electricity targets (Figure 1), but in order to meet their targets, these countries will require financial support, capacity development, and better regulation and governance structures.

Money matters

The goal of universal energy access is achievable, if the right elements are put in place. The capital investment required for a 'basic human needs' level of access (US$35-40 billion per year to 2030) represents only around 5 per cent of the total global energy investment expected during this period. While even more people need access to modern fuels for cooking and heating, the capital costs of closing this gap are substantially lower than for electricity. AGECC estimated that, on average, grant funding of around US$10-15 billion a year and loan capital of US$20- 25 billion a year will be

	All developing countries	*LDCs*	*Sub-Saharan Africa*
Electricity	68	25	35
Modern fuels	16	8	12
Improved cooking stoves	11	4	7
Mechanical power	5	0	5
Total no. of countries	140	50	45

Figure 1: Countries with energy access targets (UNDP, 2009)

needed, with the remainder self-financed by developing countries. The incremental investment required to provide sufficient energy for productive use would be almost entirely for concessional loan capital rather than grant funding. This is because the additional energy capacity will provide people with opportunities for income generation and therefore increase their ability to pay for the energy services, thereby increasing the financial viability of these services. It bears repeating that this issue will require a large suite of financial mechanisms with a focus on addressing a large array of real and perceived risks.

Service problem	*Sub-Saharan Africa*	*Developing countries*
Electricity		
Delay in obtaining electricity connection (days)	79.9	27.5
Electrical outages (days per year)	90.9	28.7
Value of lost output due to electrical outages (per cent of turnover)	6.1	4.4
Firms maintaining own generation equipment (per cent of total)	47.5	31.8

Figure 2: Impacts of unreliable infrastructure (World Bank, 2007)

Looking at the challenges at a regional level, the Forum of Energy Ministers in Africa in 2007 stated: "To turn around the performance of the power sector there are three major challenges to be addressed – replacing existing project wish lists with bankable projects; establishing regulatory policies that improve country investment attractiveness; and establishing institutions that have clear roles and are appropriately resourced."

More than just a light

It is essential to remember that providing reliable and secure energy services to those currently without access is not simply about supplying electricity for lighting or improved cooking stoves. To promote economic development and growth, these energy services need to be put to productive uses that positively affect livelihoods – providing power for industry, improving health care and education, and improving transportation.

It is clear that access to energy is about more than quantity. Quality is essential. This is true for both electricity and fuels. As an example, high costs and unreliable electricity service constrain economic activity in many countries, and constitute a severe obstacle to business operation and growth. The World Bank indicators (Figure 2) show the scale of the issue in terms of connection times, outages, the value of lost output, and the need for on-site generation.

A new direction

Building on the recommendations from the last Vienna Energy Conference in 2009 (and Brew-Hammond, 2010), what is needed includes:

- International recognition and prioritisation of the energy access issue;
- A robust international framework that clearly articulates an energy access target;
- A detailed implementation roadmap, with interim targets and milestones;
- A mechanism for building in-country capacity;
- A dedicated funding mechanism for ensuring investment toward universal access;
- Designing an ongoing global energy dialogue focused on this area;
- Improving the performance of public utilities is critical;
- A requirement for monitoring and reporting;
- Ensuring a focus on productive uses.

In order to coherently implement some or all of these findings, the AGECC recommended, in addition to a target, launching a Global Campaign for Energy Access and ensuring delivery of several focused public-private partnerships. In addition, a small but useful step may be to design and test a new framework for national measurement and reporting on energy access – this work is just beginning (Bazilian et al, 2010).

The information and telecommunications sectors demonstrated an unanticipated explosion of demand in the developing countries, and a technological leap-frogging from a situation of no access to state-of-the-art communications. This can be used as a precedent for modern energy systems as well. We are convinced that we can accomplish this task, and at the same time support strong new green economies – not doing so is not an option. The scale of the issue, like poverty itself, is enormous, and sometimes daunting to address. But access to energy may be the best 'entry-point' for effectively tackling the problem in the short term. Its importance is widely recognised. Now we must use this consensus to build on the effective models that exist, and create new ways to unlock the opportunities. ❑

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