# The Challenge of Energy Access

# Comments made at World Energy Conference 2009

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It is a pleasure and an honor to be here with you today. I would like to express my sincere thanks to Dr Harold Oh for inviting me to make a few closing remarks. I apologize for not being able to attend the rest of the conference, but my colleagues have been here, and Andy Yager has kept me up to date on your deliberations.

This is a very timely conference, not only because it bears so closely upon the climate challenge just three weeks before the UN Climate Summit and a mere 96 day before the Copenhagen Conference, but also by its focus on Energy Access, what is perhaps the dimension of the challenge best suited for finding an integrated solution to the multiple challenges we face today. It is an excellent example of the "sustainable development approach", whose very ethos is to build bridges between different agendas and different communities: between environment and development most obviously, but also between the North and the South, between governments and civil society and business, between the short term and the long term, between efficiency and equity, and between visions of the good life and practical action. While the approach seeks to identify practical steps, it is also required to maintain a strong grip on long term trends. This is why we like to think in terms of transitions that may require sustained changes over generations. We know of the demographic transition, which is bringing human kind back towards sustainability in regard to population growth. Over the course of the next several decades we will need similar transitions in the domains of energy, materials use, transport, and others.

Energy access plays precisely the bridging role envisaged by sustainable development, and enables us to understand the nature of the transition. It provides the foundation in the real world for the concrete discussion of other energy agendas (energy efficiency and renewable energy). Recall that the most significant enhancement of energy efficiency is in the shift from traditional to modern forms of energy. Similarly, if we ignore the brute reality of energy poverty and (inadequate) energy access, it is not difficult to find painless and unproblematic ways to promote renewable energy; the real-life agenda, which requires us to think and strategize, and integrate, and synthesize, is the one where energy access is treated as a co-equal priority with climate change.

Turning to the subject at hand, I would like to raise a brief definitional point before turning to my main recommendation. On definitions, it is a cliché to keep referring only to the 1.5 to 2 billion without access to modern energy services. Access to modern energy services (and energy in general) is distributed hugely unequally in the world, and this inequality is directly correlated with the levels of human development, including the achievement of the MDGs, and the assurance of a decent quality of life. Mentioning only the population without *any* access to modern energy services sidesteps the situation of those with inadequate, intermittent, and low-quality access to such services.

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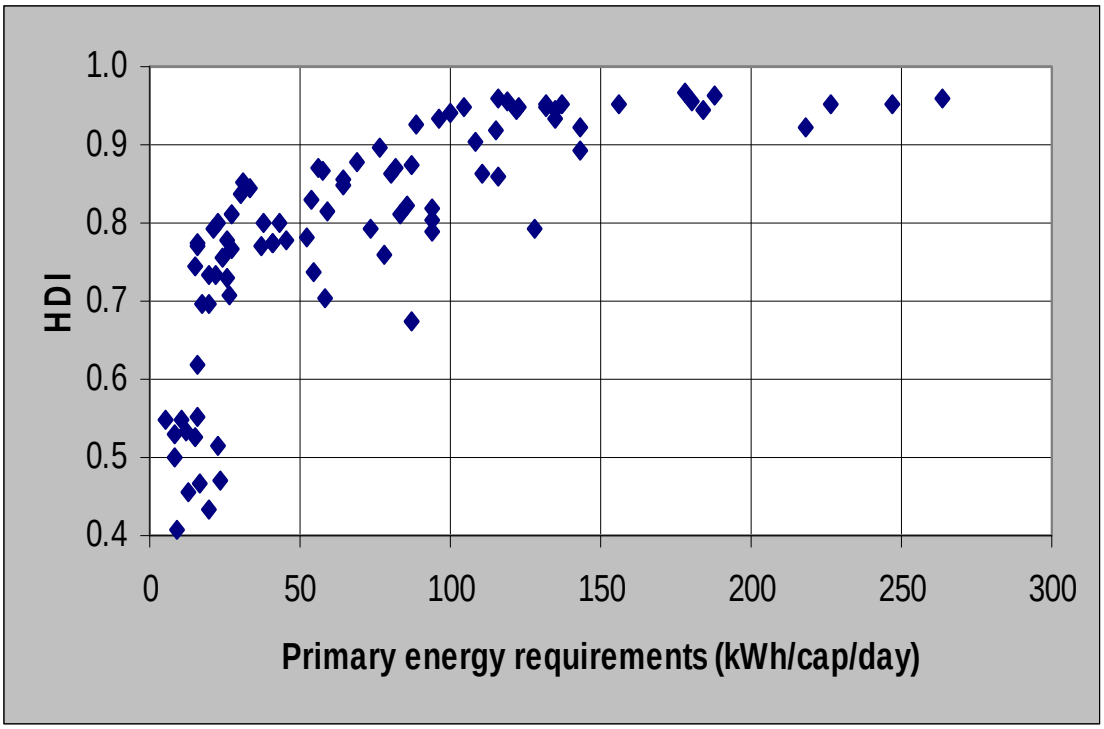
In this regard, I am delighted to hear of the work presented here from the World Bank by Doug Barnes and his colleagues on definitional questions regarding energy poverty. While




we have taken a different approach and come up with different numbers from the Bank, the motivation is the same. The main difference in our approach is that we use the word "poverty" to refer not to destitution but to the inability to achieve a decent level of human development. Energy consumption is strongly correlated up to a point with human development, as measured for instance by the Human Development Index (other measures of human development give similar results). In the vast majority of developing countries, energy consumption is less than 35 kilowatt hours per capita per day (kWh/cap/day). As can be seen from the extreme left panel in the graph below, even small increases in energy availability can lead to high payoffs in terms of human development. In middle income countries, in the second panel from the left, energy consumption ranges between 50 and 100 kWh/cap/day. Here too increased energy availability is correlated with improvements in human development, although the rate of improvement is much less than for the first group. Finally, all industrialized countries and a few others consume over 100 kWh/cap/day, but beyond this level there is no correlation between energy consumption and HDI.

Based on this figure, we would set the lower threshold of energy poverty at 50 kWh/cap/day, and the lower threshold of energy affluence at 100 kWh/cap/day. While the differences between countries appear huge, recent experience suggests that they can be overcome within a relatively short period. China's experience in particular shows a dramatic expansion of energy services within a single decade, and correspondingly in levels of income and human wellbeing. Several other emerging economies have also registered high growth rates, though not at the same level as China. Keeping this in view, it is important to think not only about ameliorating the lot of the destitute, but also to find the quickest way to help countries reach

a level of development that is consistent with the realization of key human development goals.

This has become especially important as we look to the challenges likely to emerge during the rest of this century and beyond. Over two decades ago, the Brundtland Commission Report argued that while there was no timeline to the emergence of an ecological crises, it was important that the world achieved a degree of equity in access to resources before the crisis happened. The first ecological crisis, the climate crisis, has already begun to unfold, and the world is engaged in an attempt to find a fair, effective, and equitable way of addressing it. Energy Access is an insight into such a solution.

Turning to the path ahead, we know a lot on these questions. We know the challenges, we have countless examples of what has worked in practice, we know the policies that have been successful, and we know how successful initiatives can be scaled up. Rather than continuing to belabor the point that we know all this, our time would be well spent in asking how to put this knowledge into action. This group is ideally suited to pointing the way forward. Let me mention three such ideas, which will resonate with you because of the remarks of several of the speakers.

*National Programs*: Many countries have established national programs in the areas of our interest, including energy efficiency and renewable energy in the context of energy poverty. We need to applaud these programs, propose some core elements and minimum standards, ask for a commitment of national governments, including the allocation of a minimum per cent of the development budget, support the need for knowledge sharing including South-South cooperation to refine and improve the programs, and seek additional support to scale them up and make them effective.

*Knowledge transfer* and the green revolution model (transfer and scaling up of successful practices): This option pertains largely (though not exclusively) to what has been called the win-win options, and might be most relevant to energy efficiency questions. I understand that the comments made by John Bryson included description of practices that were deployed in the Californian energy transition. We need to propose a bold global program that will diffuse such knowledge to governments, utilities, and business managers across the world. An example to which I would like to refer explicitly is that of the green revolution, a process in which knowledge was transferred in less than a decade from the hands of a few hundred scientists to those of millions of farmers, the vast majority of whom were illiterate. This was done through a mosaic of institutions, including agricultural research, education, credit, supplies, and marketing, but above all, *agricultural extension*. We need to ask whether we can flesh out the concept a bit more in the domain of energy efficiency, including the ideas of regional technology centers linked to national institutions of higher education and research, extension systems (both national and global), and credit and financing options. In the domain of extension systems, perhaps we should consider proposing a global version of the New Deal's Civilian Conservation Corps, namely a corps of experts and extension agents providing assistance and backup to tech transfer initiatives. This has parallels to the Peace Corps initiative launched under the Kennedy administration in the US, as well as some prominent volunteer initiatives (not only the most often mentioned *Medecins sans Frontieres*, but also the smaller but promising Engineers Without Borders). In the 21st century, much of this work might not require physical presence as much as web-based backup.

*Renewable Energy*: We should think in terms of a global feed-in-tariff program for renewable energy in poor countries. Renewable energy in large volumes is not affordable by developing countries. Even existing energy services are not affordable at market rates by the majority of these countries' populations. Currently, most developing countries subsidize energy services for social reasons. However, if energy costs rise beyond a certain point, governments cannot afford to provide the requisite subsidies. A sustainable solution to the climate-energy-development imbalance requires us to lower the cost of renewable energy as quickly as possible. This is being tried by individual countries, including Brazil, China, India, as well as the leading industrialized countries, but it is not clear that the uncoordinated solution will deliver adequate results within the time window. The ideal solution is to establish a global feed-in-tariff program to guarantee a predetermined (and declining) tariff to renewable energy generators, and sell the energy to national and local grids at prices established on the basis of their income levels (and rising over time). The goal should be to aim for the elimination of the subsidy altogether (through the combination of declining generation tariffs and rising end-user tariffs) within 10 to 15 years. Three additional factors add to the attractiveness of this scheme. First, in this mechanism, all financial transfers will take place based on outputs rather than inputs, which will make it more straightforward to demonstrate the achievement of climate as well as development goals. It will also reduce the costs of surveillance and elminate the need for extensive conditionalities on funds flows. Second, this system will be institution-light, in the sense that the resulting investments would largely be undertaken by existing the private sector enterprise, and financial flows could be managed through existing financial institutions, including international financial institutions. Third, the strategy can be used in a very targeted and focused manner, e.g., by targeting particular groups of countries or impoverished regions within countries (as the TVA did for a backward region within the US during the New Deal), on technologies with the greates promise of rapid cost-reduction, and on nationally appropriate strategies (e.g., solar in some cases, wind in others, biofuels in yet others).

Support for such programs may need to come from existing (including an enhanced CDM, ODA, GEF) as well as new sources earmarked specifically for climate action.

Ladies and gentlemen, if we can move forward on these practical areas of work, we will be able to achieve results that would make the climate challenge far more amenable to policy intervention as well as global agreement.

As Goethe said, "It is not for man to solve all the problems of the universe. It is for him to put his finger upon the problem, and then remain within the realm of the comprehensible."

Energy access is the most urgent challenge of our time, and I applaud you for putting your finger on this problem and then remaining within the realm of the comprehensible.

Thank you.