PAPER 6: ENERGY RESOURCES & SERVICES

ACHIEVING UNIVERSAL ACCESS TO ENERGY AND A LOW CARBON, HIGH WELL-BEING ECONOMY

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ABOUT GLOBAL TRANSITION 2012

Global Transition 2012 is a collaborative initiative between Stakeholder Forum and nef (new economics foundation) that focusses on the Green and fair Economy theme towards the UN Conference on Sustainable Development in 2012 (UNCSD), also known as 'Rio+20' and 'Earth Summit 2012'.

GOAL

To achieve an outcome from the UNCSD 2012 that catalyses a 'Global Transition' to an economy that maximizes wellbeing, operates within environmental limits and is capable of coping and adapting to global environmental change.

PURPOSE

To build a global civil society and stakeholder movement to promote alternative models of economy that can deliver sustainable development to people, countries and generations that builds on the three pillars of sustainable development: social, environmental and economic.

THE INITIATIVE CONSISTS OF THE FOLLOWING ACTIVITIES:

- Research and Thinking and Policy and Advocacy: to **commission** and **publish** a series of research reports and think-pieces that will provide the evidence based analysis and address critical components of a Global Transition and translating research and thinking into key policy outputs towards Rio+20 and beyond and organising workshops with governments to discuss policy options; and **building capacity** and **developing tools** for countries to institute policies and systems that move towards a Global Transition;
- Coalition Building and Dialogue: **building a coalition** of actors and organisations from the global North and South committed to the principles and objectives of a Global Transition;
- Submissions: making **official submissions** to the Rio+20 process based on think pieces and dialogue;
- Information and Resources: publishing informative **guides** and **briefings** on aspects of the green economy; in particular developing a 'how to guide' for the green economy Roadmap work that is underway in a range of sectors and contexts.

ABOUT STAKEHOLDER FORUM

Stakeholder Forum is an international organisation working to advance sustainable development and promote stakeholder democracy at a global level. Our work aims to enhance open, accountable and participatory international decision-making on sustainable development. Stakeholder Forum works across four key areas: Global Policy and Advocacy; Stakeholder Engagement; Media and Communications; and Capacity Building. Our Global Transition 2012 initiative sits within our work on Global Policy and Advocacy.

ABOUT nef

nef (the new economics foundation) is an independent think-and-do tank that inspires and demonstrates real economic well-being. nef aims to improve quality of life by promoting innovative solutions that challenge mainstream thinking on economic, environment and social issues. We work in partnership and put people and the planet first.

MORE INFORMATION

If you would like to provide feedback on this paper, get involved in the Global Transition 2012 initiative, or put yourself forward to write a paper/blog, please contact Kirsty Schneeberger, Senior Project Officer at Stakeholder Forum: **kirstys@stakeholderforum.org**

PAPER SUMMARY

Three perspectives frame this challenge paper: 1) energy is at the very core of sustainable development, and not just a sector among others; 2) the combined challenges of inadequate access to energy among the world's poor, the imperative to avoid climate catastrophe and the need to deal with rising and volatile energy prices require an unprecedented, fundamental transformation of the world's energy system, and 3) that there are technological solutions that already exist that can effectively tackle these challenges over the course of 10-15 years.

The wide development benefit from access to modern energy services, specifically electricity, implies this is a vital social investment. As such increase access to modern energy services should not be assessed on just the financial costs and benefits alone, but rather a framework that takes into account the multiple additional benefits and/or costs of different energy sources. In the following paper, we argue that it is not simply access to energy services that matters, but *how* that access is delivered from the planning, installation and operation stage.

Further, we propose a bold, transformative approach to set up a global programme of national feed-in tariffs formulated by UN-DESA and supported by an increasing number of organisations. We argue that:

- Public policies can help produce a decline in the global price of renewable energy that will make it affordable within a decade.
- A "big push" in investment to scale up renewable energy will lead to rapid cost reduction, technology improvement, and learning by doing. This will generate a "virtuous cycle" of additional investment, economic growth, employment generation, etc.
- In the first decade, investments will have to be subsidized through globally funded guarantees or price supports (e.g. feed-in tariffs). The "virtuous cycle" will then make renewable energy the default option for new energy investment worldwide.
- Price supports will be complemented by a global extension program: research, technical, and policy support designed to accelerate the process.

Energy and the kind of solution we outline here must be at the centre of the Earth Summit 2012 process, and that, as a minimum, it provides an impetus to move along the lines we sketch out here.

INTRODUCTION

The contribution of energy to human progress has been phenomenal. The development that the world has witnessed over the past 250 years or so has been inextricably linked to ever increasing use of energy. The discovery of how to access the concentrated energy contained in fossil fuels utterly transformed our societies. It gave us clean water, hygiene and health, the ability to manipulate our surroundings in an unprecedented way.

While there have been multiple benefits, the use of fossil fuels has damaged local and regional environments, are the dominant cause of climate change and have locked the developed world into energy intensive lifestyles. Energy use is responsible for some 75 percent of total greenhouse gas emissions, and emissions from this sector are rising much faster than aggregate emissions. This is especially the case in developing countries, where growth in energy use outruns improvements in energy efficiency (IEA, 2010).

Although energy use is essential for a whole range of human development indicators, access to energy is unequally distributed, both between and within nations. This is particularly true in developing nations (Jacobson *et al*., 2005). Thus, solving the development challenge will depend on the continued expansion of energy services in developing countries. This inequity is not due to inertia in installation of energy systems, but affordability.

Finally, energy is an area in which there is tremendous momentum and consensus due to growing concerns of energy security and geopolitics. Focusing attention on energy thus becomes an obvious choice as an critical intervention point to initiate transformational changes that are necessary for a *Global Transition to a Green Economy.*

Challenge #1: Ensuring energy access

The most recent World Bank estimates indicate that almost 1.4 billion people (one in four) in the developing world still live below US$ 1.25 a day. While poverty in East Asia fell from nearly 80 per cent of the population living below SU$ 1.25 a day in 1981 to 18 per cent in 2005, in sub-Saharan Africa, the poverty rate remains at 50 per cent in 2005, the same level as 1981.

At the same time, *The World Energy Outlook 2010* reports that 1.4 billion do not have access to electricity, an even grater number have limited and/or costly access and 2.7 billion rely on traditional biomass for cooking and heating as their primary source of energy (IEA, 2010). By 2030 it is expected a further 1.4 billion will be at risk of being without access to modern energy services (IEA, 2010).

There is a broad consensus that access to modern energy services (*viz*. electricity) is necessary to meet basic human needs (e.g. lighting, cooking, space comfort, mobility and communication and MDGs) and to serve productive processes (DFID, 2002; Halsnæs and Garg, 2011; Edenhofer *et al*., 2011; Markandya and Wilkinson, 2007; Meier *et al*., 2010; UNEP, 2005).

Both infant mortality and life expectancy – two of the most fundamental human development indicators – are associated with increasing energy consumption (Wilkinson *et al*., 2007). For example a 2001 World Bank study found that in urban areas, linking households to electricity is the only key factor that reduced both infant mortality rate and under-5 mortality rate (Wang, 2001). This effect was significant, large and independent of incomes. However, this relationship is also believed to follow a familiar saturation curve; similar to per capita GDP and wellbeing (Martínez and Ebenhack, 2008).[3]

Given this, in countries with high infant mortality and/or low life expectancy, large gains are associated with relatively small increases in energy consumption. Indeed, according to one estimate, substantial improvements in quality of life can be achieved by providing as little as 100 Watts per capita (Reddy, 2002). Whilst Martínez and Ebenhack (2008) conclude that,

> '*…the addition of some 400 kg of oil equivalent (kgoe) per capita from modern energy for the people in the poorest nations (with current HDI values less than 0.4) could support a doubling of HDI – well into the transition region*.'

Limited or no access to energy is, therefore, a significant barrier to development.

[3] See Challenge Paper #3: Beyond GDP

For rich countries, the challenge is to radically reduce energy use, both through changed lifestyles and energy efficiency, and to then transform the remaining energy use to 100% renewable energy (water (hydro, tidal, wave), wind and solar). For poor populations and countries, the challenge is to *increase* energy use dramatically. This means the key challenge is to ensure energy is both widely available and *affordable*. Affordability is a fundamental issue from a development perspective.

In a world facing climate change, the challenge of providing access to affordable energy is urgent. In a climate constrained world all societies will need to more or less go 100 % renewable energy within a few decades time. However, renewable energy is generally *more* costly than polluting, fossil energy sources, although it is becoming increasingly competitive (Bloomberg New Energy Finance, 2011). Given this, energy solutions that are not climate-friendly and undermine the increasing affordability of renewable energy and will stymie the goal of achieving universal energy access.

We note there is also a strong need to address health impacts and ensure the long-term sustainability and accessibility of traditional biomass for heating and cooking by the rural poor, taking into account gender aspects. While this, too, is a key issue, the primary focus of this paper is universal access to electricity. This is something that we would recommend is examined further in future challenge papers.

Challenge #2: The imperative of 100% renewables

While addressing energy poverty, the world faces a desperate and time sensitive challenge of cutting emissions of greenhouse gases before atmospheric concentrations lead to a level of risk that means catastrophic climate change by the end of the century is more likely than not.

Rather than the political goal of maximum 2 ˚C warming, many scientists and well over 100 countries argue that global average surface temperature should not be permitted to exceed 1.5- 1.7 ˚C (Hansen, 2005). And even this lower temperature threshold still carries considerable risk (Hansen *et al*., 2008). Non-linear effects – tipping points – such as drastic melting of arctic ice could send the planet into runaway warming with devastating societal and biogeophysical consequences (Lenton *et al*., 2008). There is no assurance that a warming below even 1.5 ˚C will prevent these unacceptable scenarios from happening. Given this, every fraction of a degree warmer increases the likelihood of these "discontinuities".

Added to this, in a sadly ironic and immediate sense, it is clear that the impacts of climate change already are hitting those most vulnerable who have contributed the least to the problem the worst. As such, both adapting to and mitigating against climate change is viewed as part of a broader development agenda (Halsnæs and Shukla, 2007; Simms *et al*., 2005, 2007, 2009).

While there are multiple causes of climbing greenhouse gas concentrations in the atmosphere, energy is clearly at the core. Currently fossil fuels make up 85 per cent of the global energy mix and are responsible for almost 57 per cent of all anthropogenic greenhouse gases (Edenhofer *et al*., 2011). To keep within 2 ˚C this must decrease to zero as soon possible. This will need to occur more immediately if there is any intention to keep within the lower 1.5 ˚C threshold. Added to this, there are also multiple other negative consequences of current fossil fuel dependence – ecological and health effects on communities (often indigenous communities) where extraction takes place, war and violence derived from commercial interests and geo-political strategic interests (see for example, Amunwa and Minio, 2011; Downing, 2002; Saha, 2010).

A 100% renewable energy future is for all these reasons an absolute imperative, and we need to get there as soon as possible.

Challenge #3: Volatile energy prices and the need to tackle costs

Energy use is at the core of an increasingly shaky world economy (e.g. Hall *et al*., 2001). The recent rise in oil and gas prices have once again drawn attention to both the global economy's dependence on these non-renewable resources and the growing body of scholarship around 'peak oil'. Peak oil theory predicts that world oil production will soon reach a peak, level-off and then rapidly decline. The actual global peak will only be known when it is passed, but most estimates suggest that we are either at, or very close to this point. At most it is one or two decades away.

Whether or not recent oil price volatility is related to speculation or a precursor to peak oil (Pollin and Heintz, 2011) such variability has a huge impact on developing nations and particularly the poorest communities by exacerbating the depth of their poverty (Wilkinson *et al*., 2007; Ghosh, 2011). But the implications are global – every economy will be severely constrained and suffer from escalating energy prices. The oil crisis and cost hikes of the 1970s still have ramifications of the global economy. We are now fast approaching a similar crisis, but magnitudes of order more severe.

Much of mainstream and orthodox economic (neo-classical) thinking is obsessed with the notion of 'prices', with the theoretical underpinning that internalising earlier unaccounted 'externalities' through, for example, a carbon tax or various carbon trading arrangements, will automatically solve the problem by making the bad alternatives more expensive.

Although peak oil may *de facto* cause such "internalisation" of costs by gross price hikes, and consequent reduction of fossil fuel emissions, it does nothing to solve the problem of access to affordable energy to those in need, and will throw economies into severe crises and global recessions. It has also triggered the exploitation of lower grade fossil fuels (e.g. tar sands, bitumen, brown coal) in areas that carry higher social and environmental risk (e.g. deep water drilling). And, absurdly, an estimated US$ 550 billion per year is still provided as public subsidies for fossil fuel extraction and production.

A continued over-reliance on the price mechanism, the "cost of carbon" and supposedly efficiency of markets – much at the core of current thinking around "the Green economy" – will not provide the kinds of transformative solutions we need. Rather, we need to invest ourselves into a new, redefined future, where the good, renewable energy is made considerable cheaper. This paper consequently argues for considerable front-loaded, public investment strategy for sustainable development, with energy at the core.

IT IS POSSIBLE TO ADDRESS THESE CHALLENGES

The good news is that there are ways out of the present impasse. All the challenges above can likely be met. There is, however, a rapidly shrinking window of opportunity, in particular driven by the ruthlessness of the climate crisis. Once we cross fundamental tipping points, it may be impossible to set the course right, regardless of costs and ambition in the actions we take. It therefore makes sense to pursue the most ambitious, front-loaded approaches we can conceive of *now.*

A 100% renewable energy future is possible

While 100 per cent renewable energy systems are still viewed with some scepticism, a growing number of studies suggest that not only is it possible, barriers are primarily political and social rather than technological and economic (Jacobson and Delucchi, 2011; Mathiesen *et al*., 2011; Bloomberg New Energy Finance, 2011; Centre for Alternative Technology, 2010). For example, Jacobson and Delucchi (2011) demonstrate that all new energy for all purposes (electric power, transportation, heating/cooling etc.) can be produced by wind, water and sunlight sources of renewable energy by 2030, and replace pre-existing energy by 2050.

Similarly, the Intergovernmental Panel on Climate Change 's (IPCC) recent *Special Report on Renewable Energy Sources and Climate Change* reported that renewable energy could account for 80 per cent of the world's energy supply by 2050 requiring only 1 per cent of global GDP. However, this 80 per cent only represents 2.5 per cent of the estimated renewable energy potential, thus implying that 100 per cent renewable energy is possible.

Furthermore, the University of Kassel has shown that through the integrated control of small and decentralised plants it is possible to provide reliable electricity in accordance with needs. The energy system included a mix of biomass/biogas, solar PV, wind and storage (pumped storage, compressed-air reservoirs, and batteries). This German study shows that, technically, there is nothing preventing 100 per cent renewable energy systems.

Technically, nothing prevents us from a renewable energy future; mainly it is a question of dealing with relative costs.

There are ways to put pro-poor/appropriate solutions at the centre

While increasing access to energy for billions of people is a clearly needed, there are a number of factors at the micro and macro levels that influence whether in the end positive benefits come through and really benefit the energy poor. When tackling the challenges of energy access, a number of requirements much be taken into full consideration.

These include:

- Affordability: As already noted, affordability is a key factor. Access to grid connection does not in itself guarantee use of modern energy services (Winkler *et al*., 2011);
- Ownership: Appropriate ownership models are essential in determining whether or not communities experience the full value of the energy system (Devine-Wright, 2010; Hoffman and High-Pippert, 2007; Barnes, 2011). Law and regulations that actively promote community participation and local ownership, such as the past Danish experience, should be carefully considered (Bassam and Maegaard, 2004; Mendonça *et al*., 2009);
- Level of engagement of the user group: in order to meet community needs, involvement of communities in shaping how electrification and other energy programmes are implemented is more likely to lead to maximum benefits;
- Decentralised energy systems: The World Alliance for Decentralised Energy distinguishes between centralised generation (generates electricity in large remote plants and power must then be transported over long distances at high voltage before it can be put to use) and decentralised generation (electricity production at or near the point of use irrespective of size, technology or fuel used – both off-grid and on-grid). Decentralised energy systems can be particularly attractive in rural areas currently lacking modern energy infrastructure and services. Indeed, in rural areas of the developing world the choice of energy sources must be, *inter alia*, '*decentralised/locally available to strengthen self-reliance and to empower people/communities*' (Reddy, 2002). Furthermore, a number of studies have demonstrated the wider economic and social benefits of decentralised energy systems (Hoffman and High-Pippert, 2007; Kelly and Pollitt, 2011);
- Consideration of both environmental and social costs and benefits: Not all alternative energy sources are environmentally or socially benign. In the rush towards renewable energy it is crucial to apply the precautionary principle and ensure that potential impacts on local communities, livelihoods as well as health and environment are carefully considered, with local participation. The case of biofuels is a striking and now well-known example of a renewable energy source with often considerable negative consequences. Biofuels have placed additional pressure on scarce agricultural land, (Fargione *et al*., 2008) and the diversion of cereal to biofuels production has also inflated the price of food (Mitchell, 2008). Likewise, it is important to make the distinction between large-scale hydropower that consistently displaces peoples and have large ecological and social consequences from potentially well working small-scale and micro hydro projects. The need for broad-based technology assessments is evident.

All these factors are critical in order to support pro-poor low carbon development by providing climate-friendly modern energy for electrification as an alternative to traditional fuels and fossil fuels, increase energy security, encouraging a more sustainable use of forests and land use whilst improving local environmental quality. Additionally, stimulating local economic development and community participation will enhance adaptive capacity to acute (price shocks, unexpected climate events or increased climate variability) and longer-term global environmental change. Furthermore, investing in renewable energy, which has a greater employment potential than centralised power plants, can lead to in job creation, whilst encouraging research and development and technological innovation (Midilli *et al*., 2006). However, in order to capture and maximise the pro-poor benefits of

low carbon development, the roll-out of renewable energy needs to be done in a specific way, meeting the criteria outlined above.

The implications of not meeting this challenge include: the locking of developing nations to high carbon trajectories for decades into the future (e.g. Unruh, 2000), increased vulnerability to and negative socio-economic impacts from volatile global energy prices (Ghosh, 2011; Wilkinson *et al*. 2007), and the failure to meet development goals and priorities, such as decreasing poverty and hunger, and improving health and education. All three have the potential to undermine adaptation to global environmental change in addition to increasing poverty levels in the global south.

THE PROPOSITION

Although there exist many ideas and proposals for the necessary energy transformation, one approach with perhaps the most potential – and in line with the challenges outlined above – is the approach presented by UN-DESA in its 2009 World Economic and Social Survey (WESS) report and subsequent material.

The summary of this idea as presented here consists mainly of extractions of material produced to promote this idea by the Swedish Society for Nature Conservation, which builds on the original UN approach. From our experience, there is an increasing interest in the approach from civil society, social movements, academics, and countries – both North and South. Due to the challenges outlined above, there will be increasing attention and political pressure for a transformation of the energy sector in general, and we hope, this idea in particular, in the lead-up to the Earth Summit 2012 and beyond. Organisations with global reach are refining the idea from a climate justice perspective, and will likely develop global campaigns in favour of the scheme. Individual members of the UNFCCC Transitional Committee tasked to design the new global climate fund have expressed support for the idea, and increasing numbers of governments are exploring the approach. The proposal also resonates in several ways with ideas put forth earlier by other organisations and institutions.[4]

A global system of guarantee prices (feed-in tariffs) coupled to a global fund[5]

Any solutions to tackle the challenges outlined above must be integrated so that they both cater to meeting the needs of poor people, while simultaneously driving a transformation to renewable energy. Much of the current discourse on climate and development are stuck in a zero-sum game framework, where increased energy access runs in conflict with the emission reduction needs, something that colours much of the present deadlock in the climate negotiations. This bold, public investment strategy has the clear advantage of turning a zero-sum game framework into a positive-sum game, creating a win-win scenario for countries in both north and the south where the imperatives of development/energy access and emission reductions through a quick transition to renewable energy are mutually supportive and in fact truly integrated.

The core idea in the UN DESA proposal is to create a step-change in demand for sustainable, renewable energy in developing countries. The key tool is to introduce guaranteed prices, or feed-in tariffs, for sustainable renewable energy. Feed-in tariffs have already been introduced in approximately 50 countries – both north and south – and have contributed to significant increases in renewable energy in, for example, Germany, Denmark, China and Spain. Many analysts have concluded that feed-in tariffs are by far the most effective policy tool/system for crowding in investments for renewable energy (see for example several Deutsche Bank reports).

The core principle is that, through national price guarantee/feed-in tariff systems set up in each developing country who wants to be part of the scheme, those who invest in renewable energy are guaranteed to sell the energy at agreed prices that allows for a small margin. The price for consumers is then decided with consideration of what poor people can afford. The cost difference is covered by a subsidy ultimately financed by the rich countries through a global climate fund. According to the UN estimation, about US$100 billion would be needed annually during 10-15 years – the time period needed in order to cut the production costs to a level where the subsidies are no longer needed and renewables have become cheaper than fossil fuels.

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[4] For example, both Greenpeace the World Futures Council as well as Deutsche Bank have put forward policy proposals with feed-in tariffs at the core.

[5] This section consists of extracts from a formal Submission to the UNFCCC Transitional Committee of the Green Climate Fund (2011) "The case for establishing a global system of national feed-in tariffs linked to the Green Climate Fund" (Stockholm: The Swedish Society for Nature Conservation (SSNC)) 8 June.

The proposed idea is thus a substantial public investment programme for both climate and development. It is in perfectly in harmony with the UN Framework Convention on Climate Change (UNFCCC) core principle of common but differentiated responsibilities where the rich "Annex 1" countries have made a binding commitment to support poor countries through financing both a transition to low or zero-carbon societies and adaptation to the impacts of climate change.

The proposal for subsidized feed-in tariffs has several qualities that speak in favor of why it has major potential to gain traction among both developing and industrialised countries.

- The system is output based: The subsidy is only provided when the new, renewable energy is delivered. The energy will be metered in any case when it is sold, and the subsidy is then instantly provided through the national feed-in system, which in turn is coupled to the global climate fund. No money is dispersed for the actual construction of renewable energy projects – it is up to the investor to ensure that production costs are kept within the budget. There is thus little risk for corruption and misuse of funds;
- There is a time limit for the program: The quicker the costs for new investments decreases, the quicker the need for the subsidies also diminishes. The program will not go on forever, but will last 10-15 years to take the world over the threshold to a renewable future;
- Diminishing costs and increased demand: will create jobs, benefit progressive companies and facilitate/lower the costs for the necessary energy transition in both developing and industrialized countries;
- Compatible with existing finance structures: The proposal is fully compatible with the developing countries' demand for public financing through the creation of the new Green Climate Fund, while at the same time tackling the rich countries' reluctance to provide funds with direct access. The proposal builds on mutual, cooperative agreements on how to use and disperse a substantial part of the money to meet clearly defined goals (promotion of renewable energy and improved access to affordable energy for the poor); and
- Implemented collaboratively: The proposal speaks in concrete terms about what can be done in collaboration between industrialised and developing countries, and would therefore be an important stepping stone for rebuilding trust between north and south.

Technology

The public investment proposal does not require new, uncertain technological breakthroughs. On contrary, the core idea is to mainly promote the refinement of and increase demand and cut costs for the kind of renewable energy solutions that already exist.

A system of feed-in tariffs means that societies are actively picking the winners by actively promoting the kinds of energy solutions that are desirable. It is therefore essential that a system and procedures are designed, from the very beginning that guarantees that technologies are assessed and scrutinized in a reliable and thorough manner, with participation of civil society and affected groups.

Society must ensure that the technologies, which are promoted, do not lead to undesired, negative effects for people and the environment (e.g. large hydro, biochar, biofuels, nuclear energy should not be eligible for feed-in tariffs). Assessments must be made at several levels, from the local to the global. It is particularly important to analyze how different technologies impact on the poorest and most vulnerable groups in society.

Bottom-up energy revolution

A global system of feed-in tariffs could and should encourage and enable a bottom-up, people-driven transition to renewable energy. For example, a cooperative, a municipality, or a group of communities could come together and decide they should construct their own solar energy system and set up a small, local grid. With a feed-in tariff law in place, they would be able to take a commercial loan, or obtain state grants to begin the construction process almost immediately, knowing they are guaranteed the feed-in subsidy over the whole 10-15 year period. The proposal thus has a potential to spur a massive true small-scale, bottom-up renewable energy revolution across the world.

At the same time, also private actors – both nationally and internationally – can make investments from a profit-motif. It is, however, essential that the various national feed-in laws and systems become promoters of local,

people-based solutions and that measures are designed from the beginning to avoid dominance by, for example, large, foreign corporations.

The way forward

Ideally, the Earth Summit 2012 should place the issue of energy at the centre of the agenda, and agree on a work plan in line with the UN DESA proposal outlined above.

Simultaneously, developing countries should be encouraged to consider these ideas for their National Appropriate Mitigation Actions (NAMA)[6] plans, which would provide a strong case for setting up the appropriate mechanisms and funding.

As a way forward, a smaller number of countries in both north and south could immediately take leadership and form a pilot project that implements the approach at smaller scale. A few years later it could be scaled up to the full UNFCCC level.

Other complementary solutions/suggestions

Although one of the few truly transformative ideas, the UN DESA programme would need to be complemented by a number of other interventions.

1: Remove subsidies for fossil fuel use and extraction

Absurdly, an estimated US$ 550 billion per year is still provided as public subsidies for fossil fuel extraction and production. The world community should immediately tackle the issue of perverse fossil fuel subsidies. A large part of the subsidies are directed to companies in rich countries, and can be removed immediately. Other subsidies have direct correlation to cost levels and affordability for poor people. Their phase-out must therefore be simultaneously replaced by other means to ensure affordability.

The shifting of subsidies from fossil fuels could give considerable revenue for climate finance. Just one fifth of the current subsidies would be sufficient to operationalise the global system of guarantee prices/feed-in tariffs. It would make considerable sense for progressive governments to bundle the two schemes as a political demand for the Earth Summit 2012.

2. Energy efficiency and energy use

It is essential that any efforts to increase the expansion of renewable energy also, in as integrated ways as possible, incentivises and ensures that the energy is used in the most efficient and prudent manner. With complementary efforts in place that ensures that for example new renewable energy developments also encourage or demand “smart” mini-grids and efficient appliances will have much more effect and reach many more people. Although crucially important, it is also essential to realise the limits of energy efficiency as long as overconsumption and energy use as such are not effectively tackled. Often the “rebound” effect from energy savings to increased spending on goods with other, hidden energy costs can neutralise the supposed gains.

Additionally, while renewable sources such as solar, hydro, wind and tidal are abundant, the environmental impacts, time, resources and expenses required to capture their energy means that a longer-term goal should be to live on ‘sufficient’ energy rather than simply meeting demand. This inevitably will lead to smarter planning of infrastructure and communities at a variety of different scales. And, a key question for society to address is ‘how much is enough’.

CONCLUSION

Electrification alone cannot solve all development problems; at the same time, poor people cannot take full advantage of other forms of development assistance without access to an electricity supply.

[6] The purpose of NAMAs is to create national mitigation options which are developed in the context of sustainable development, supported and enabled by technology, financing and capacity building, in a measurable, reportable and verifiable manner.’

Meeting current development challenges require large investments, technology transfer, as well as human and social capacity building. A global feed-in tariff coupled with a framework for decision-making could meet this challenge.

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