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Discussion Paper

# Global renewable energy support programme

Globally funded payment  
guarantees/feed-in tariffs for electricity  
access through renewable sources





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Globally funded payment  
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## I. Introduction

The world needs bold, transformative solutions that can bend the present trajectories of sustained, and even worsening, energy inequalities while simultaneously addressing the escalating threats of climate change. We need real political leadership that can implement grand solutions, but in ways that allow and stimulate real people on the ground to build locally appropriate solutions for power generation from below. We need a different mode of conversation than the distrustful and non-imaginary impasse we are currently locked in, and that colours climate negotiations and much of international debates. And we need different development models that emphasise well-being, sufficiency and creativity.

This discussion paper on a *Global Renewable Energy Support Programme* presents one such approach. It is not the single answer – a silver-bullet – to all our problems, but it could, if implemented well, have a considerable impact at several different levels.

- It could provide a roadmap for access to affordable, clean electricity to all the 1.3 billion people currently lacking any access and the more than double who have a bare minimum. It could help promote a new, modern, decentralised energy model where people everywhere – in rural and urban centres – become more closely connected to energy production, and societies everywhere rid themselves of dependence on large, centralised and dirty fossil fuels.
- It could help societies in both North and South to effectively tackle climate change by accelerating the transition to renewable energy. Countries in the global North can get inspired and challenge themselves to redirect their current energy systems (and lessen consumption). Countries in the global South, supported by countries in the global North, can immediately embark on ambitious trajectories towards 100 per cent renewable community-oriented energy, thereby avoiding massive amounts of future emissions.
- It could help rebuild trust between North and South, by providing an example of a truly collaborative scheme with countries of the South in the driving seat. If initiated successfully, it could spur interest in similar bold, visionary public investment approaches in other sectors.

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**The Global Renewable Energy Support Programme is a bold initiative that emphasises well being, sufficiency and genuine development by simultaneously addressing energy access, climate change and collaboration between North and South**

Much is already happening. Several countries, including the Africa Group,<sup>1</sup> are promoting this idea within the United Nations Framework Convention on Climate Change (UNFCCC) space. Civil society is increasingly getting interested and is beginning to see this idea as one of the major outcomes of COP21 in Paris a year from now.

Having promoted this idea for several years, it is encouraging to note the interest that is building up, and to help foster the continued elaboration of, and support for, the idea.<sup>2</sup>

This discussion paper seeks to provide an overview of the various components of the detailed design options to serve as a basis for further discussions. It also seeks to generate further political support so that real action

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**The Green  
Climate Fund  
should help  
finance the  
transition to a  
renewable  
energy future in  
all developing  
countries**

and implementation can take place in the months and years to follow.

The paper follows a logic of first outlining the needs and visions, thereafter presenting the modern, decentralised, renewable energy model, highlighting the importance of payment guarantees and feed-in tariffs as key policy tools, and, in the second part, elaborating how international public financing is essential and can be set up to support all developing countries' quest for renewable energy and universal access to electricity. The paper ends with discussions on risks and safeguards, and concrete next steps.

The paper makes an argument at two levels simultaneously. At an overarching level it makes the case for the creation of global partnerships and the need and obligation of rich countries, with the Green Climate Fund as one central component, to finance the leveraging that is needed to enable a renewable energy transition in developing countries. At a more detailed level, it makes a strong case for so called "payment guarantees" and "feed-in tariff" systems to constitute the key policy tools that could drive much of such a transition. "Globally funded feed-in tariffs" or "G-FITS" therefore easily becomes shorthand for what we are presenting, but are clearly a subset of a larger approach. ●

## II. Challenges and vision

### ENERGY ACCESS

Energy and electricity access is inherently associated with well-being and development. While a large chunk of world population is grossly over-consuming and wasting energy, an astounding 1.3 billion people have no access to electricity at all. In India alone there are around 72 million households (more than 300 million people) without access to electricity.<sup>3</sup> In rural Sub-Saharan Africa only 14 per cent of the population has access to electricity.<sup>4</sup>

Close to three billion people – almost half of the world’s population – relies on traditional biomass as a primary source of energy, especially for cooking needs, and have either no or very scattered access to electricity. Current projections show no lessening of this energy deprivation – under “business-as-usual” a similar number of people is expected to continue lacking access to electricity even decades from now.<sup>5</sup>

There are few areas in which global inequalities are as strikingly absurd as in access to energy. The average American citizen consumes 250 times more energy than the citizen of Ethiopia.<sup>6</sup> A Swede consumes close to 200 times more electricity every day than a Tanzanian.<sup>7</sup>

While access to all forms of energy is of paramount importance, this report focuses particularly on the role of electricity. Access to adequate electricity means that people can have access to the many services most of us take for granted – indoor lighting, health-care, education, clean water, entertainment, and mobile phones and other forms of communication. Furthermore, electricity spurs the development of local economy and enterprise.

In addition, access to electricity vastly enhances resilience and capacity for adaptation *vis à vis* climate change becomes ever more essential as the situation worsens. From an adaptation perspective, access to electricity, particularly locally produced energy that is not vulnerable to centralised networks, is the key.

In short, our goal must be the provision of not only the bare minimum (such as minimum lighting), but round-the-clock supply of clean energy. The UN Sustainable Energy for All (SE4ALL) has formulated goals much less ambitious than these – we argue that anything short of 24/7 access to essential electricity services as outlined is not justifiable. The world must make a much bolder commitment to tackle the lack of access to electricity.

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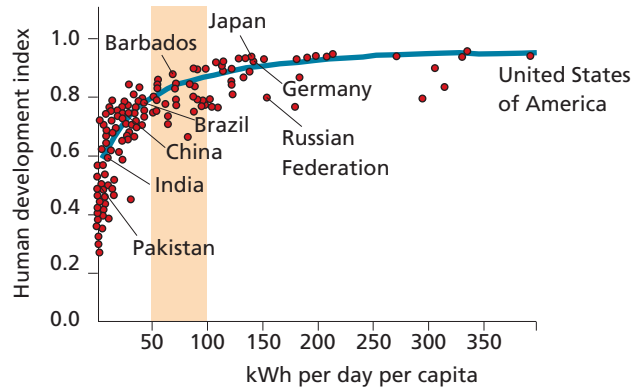
**The goal is to provide sufficient and clean energy for round-the-clock supply and not just bare minimum lighting**

### SUFFICIENCY, WELL-BEING AND EQUITY

Yet, we must simultaneously tackle the challenge from the other end. While billions of people need/aspire to increase their energy use manifold, the rich need to scale back energy use significantly, through both increase in energy efficiency and changes in lifestyle and the levels of consumption. The resulting much lower level of energy use needs to be provided as renewable energy.

Ultimately, total primary energy use globally must converge at a level that is reasonable and sufficient – in the order of 50-100 kWh per day per person or less (the area of ‘responsible well-being’ *See Figure 1*).<sup>8</sup> This speaks to a need to



**Figure 1: Correlation between HDI and primary energy use**

**A 100 per cent renewable energy future is possible and necessary to avoid climate catastrophe**

question the currently dominant development models centered on economic growth and ever-expanding trade and consumption as well as a much stronger focus on equity and quality of life.

### CLIMATE MITIGATION

Without an unprecedented shift in energy consumption and a transformation of our energy systems, we are sure to cross planetary boundaries and climate tipping points that will spin the planet into catastrophic warming and the breakdown of all societies, in North and South.

A sustainable future means a renewable energy future across the whole planet. Fortunately, a 100 per cent renewable energy future is possible, and carries with it a whole set of other benefits such as job creation, community empowerment, improved health and resilient economies – if carried out in appropriate community-oriented ways. It means ridding countries from dependence on fossil fuels, fluctuating oil prices and the risk of getting locked into stranded assets, i.e., fossil fuel infrastructure, that become impossible or too expensive to use.

Renewable energy exists everywhere and can be tapped by household owners, communities, cooperatives, small and medium enterprises as well as national utilities and companies – thereby creating resilience and undermining the unhealthy concentration of power in today's gigantic fossil fuel corporations.

Responding to climate change goes beyond the enormous challenge of providing good-quality electricity to billions of people. It also means transforming energy supplies for industries, urban areas and the already high-consuming middle class.

The imperative of climate change can help spur – and finance – the transition to decentralised and clean renewable energy in developing countries. Citizens in the global North need to enable a renewable energy revolution in the global South too, if they are to survive the climate crisis.

This report thus argues that a bold approach – a global 'Marshall plan' of sorts – is needed to enable developing countries to leapfrog to a renewable energy future.

The rich industrialised countries, who have caused most of the problem through centuries of emissions – and have the highest capacity to take action through their wealth and technologies – clearly have the largest responsibility to take the lead. ●

## Part 1: Energy models and support schemes at country levels

### III: The future energy model – decentralised, distributed and renewable

While the future must be one of ultimately 100 per cent renewable energy, there are different ideas of how to get there, and even more importantly what kinds of energy models are desirable and possible to implement.

There is a clear tendency among both politicians and decision-makers, as well as among large business interests, to promote an extension of the current fossil fuel dominated, centralised, grid-based energy model. This approach imagines a simple swap of centralised energy sources (coal, oil, natural gas, nuclear energy) with another set of large-scale renewable energy sources (large solar power, huge wind farms, large-scale biofuel plantations, large hydro-dams), all connected to the national grids and primarily run by the same oligopolistic large national utilities or large private energy corporations as today.

We argue that this model is flawed, and is neither sustainable nor desirable.

Fossil fuels are highly concentrated sources of energy that are easy to transport and distribute across the globe. Renewable energy cannot be produced in such concentration; it is dispersed by its very nature and thus favours decentralised distribution systems. Energy from sun, wind and small-scale hydro exists everywhere and does not need to get transported across continents. Attempts at producing large quantities of energy at single sources often have serious environmental impacts and require large areas (for solar mirrors and panels, wind farms, dams or biofuel plantations) that clash with local livelihoods and may lead to massive land-grabs. Furthermore, these kinds of large-scale renewable energy sources rely and feed into the national grids, and thus predominantly serve the parts of the populations that are already connected to the grid (with a clear bias to large industries and the well-off in cities).

The tide is turning, however. Increasing numbers of people are realising that the future, modern energy system will be very different from today's centralised energy supply. The future is largely distributed and decentralised renewable energy – both in the global North and South.

The German 'energiewende' provides a glimpse from a Northern perspective. Over the years, Germany has made a remarkable transition towards small-scale power generation with households and communities providing increasing proportions of the energy – both for themselves as well as feeding into the national grid. Consumers are becoming energy producers, and power production has become a local issue. In the South, Mauritius, for instance, provides an encouraging example of a country that has formulated a coherent vision and begun implementing distributed energy solutions as a model.

For countries in the South where access to electricity is a major concern, decentralised approaches that don't rely on the prohibitively expensive extension of the national grid indeed make more sense.<sup>9</sup>

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**Renewable energy is available everywhere. Therefore, the idea of decentralised distributed generation where people live makes full sense**

## MINI-GRIDS

A core component of our energy vision is, therefore, the immediate bold expansion of renewable energy **mini-grids** which involve small-scale electricity generation serving a limited number of consumers via a distribution grid that can operate in isolation from national electricity transmission networks. These can be set up in remote rural areas where people would otherwise not get connected for decades. By setting up renewable energy-based mini-grids, one can use the power produced for one's own consumption and distribute to the people who need power in the nearby areas. Such mini-grids supply adequate and reliable energy from a mix of renewable energy sources (solar, wind, small-scale hydro), and serve both public institutions (schools, health clinics etc), local businesses, as well as households that would all be connected together. These mini-grids may expand in generation capacity as demand grows, and may connect to other neighbouring mini-grids and exchange energy as net demand and supply shift back and forth. In some cases they may also connect to the national grid as it gradually expands, while in other cases the mini grids remain 'islands'.<sup>10</sup>

Mini-grids – both isolated and connected to the national grid – are quickly being recognised as a key part of the equation.<sup>11</sup> Even the International Energy Agency (IEA) anticipates that more than 50 per cent of the rural population

### Mini-grids in India

Energy poverty is one of the biggest development challenges India is facing today. India still has around 72 million households (more than 300 million people) that use kerosene for lighting. Out of these, 58 million households belong to six states in India - Uttar Pradesh, Bihar, Jharkhand, Odisha, West Bengal, and Assam. These states are paying huge developmental costs for this energy poverty – education, health and economic development are getting stymied.

In India, the approach towards solving the problem of energy access has been mainly related to extension of the main national grid. However, the flagship scheme - Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) has shown that the answer is not that easy. RGGVY has been very successful in extending the main grid to the villages, but has failed in providing electricity even for six hours a day to those who are connected to the grid.

Mini-grids in India have been looked at as an innovative solution to democratise generation and consumption of power. There are hundreds of renewable energy based mini-grids operating in India, which provide the basic lighting needs to the rural customers for a limited period of time on daily basis. Centre for Science and Environment (CSE) evaluated mini-grids operating in four states – Uttarakhand, Assam, Chhattisgarh and Bihar and found that there were several challenge facing them in fulfilling their potential:

1. They often fail to fulfill the aspirational needs of villagers. The power from these mini-grids is available for a limited period per day and is suitable only for basic lighting.
2. All mini-grids have been developed on government grants/subsidies, foreign grants or CSR funding.
3. Mini-grid developers always fear that their business will be wiped out if the main grid reaches the village. These mini-grids have not been designed to co-exist with the main grid.

CSE has proposed a model that would not only address these challenges, but also ensure that every individual receives at least 10 units of electricity every day. CSE envisions a case where every household which does not have at least 12 hours of electricity (144 million rural households\*) would be provided power with mini-grids using solar (50 per cent), biomass (30 per cent) and small-hydro technology (20 per cent) by 2022. Given the fact that solar, biomass and small-hydro operate at a capacity utilization factor of 19 per cent, 65 per cent and 35 per cent respectively, 1,016 GW of solar based mini-grid, 92 GW of biomass based mini-grid and 93 GW of small hydro-based mini-grid with a total capital cost of more than USD two trillion by 2022 is needed.

\*Government of India (2011), Lighting in India - Census of India

**Mini-grids – both isolated and connected to the national grid – are quickly being recognised as a key part of the equation**

currently without access to energy is best supplied with electricity via mini-grids. With concerted efforts, as outlined here, this share can be much higher.

In most developing countries, mini-grids are already being pursued and experimented with, but largely at the margins.<sup>12</sup> Few, if any, countries have been able to undertake a bold, concerted approach to support wide establishment of mini-grids that could bring electricity to large chunks of their population. We see a clear break of trend though – North and South are beginning to take interest in mini-grids in a very different and favourable light compared to just a couple of years ago.<sup>13</sup> What is lacking is clear political direction and financial support.

Mini-grids can also play a major role in urban areas. By setting up ‘smart’ mini-grids within cities, different technologies (such as rooftop solar, smaller wind installations, biomass gasification etc.) can support and balance each other, and effectively function as virtual power plants that feed the grid with the electricity that the mini-grid users don’t need themselves. Such mini-grids ‘within the grid’ can be based in neighbourhoods, industry and office clusters, or e.g. university campuses.<sup>14</sup> There is a huge potential for this kind of decentralised virtual power plants to provide significant proportions of countries’ energy demands and base loads.

### **SMALL-SCALE ELECTRICITY GENERATION**

Complementing wide establishment of different forms of mini-grids we see an increasing role for **small-scale electricity generation** – i.e. individual households and businesses feeding excess energy into the grid – and drawing on the grid when needed. This has been a significant part of the German model where decentralised renewable energy constitutes 25 per cent of the grid (of which 50 per cent is owned by ordinary citizens). Such “embedded” renewable energy generation can also play a major role also in developing countries, particularly among the relatively well-off urban middle classes. Already, investments in rooftop solar can be a direct saving, but policies need to be established that regulate and facilitate easy entry and guarantee safe investment conditions.<sup>15</sup> With the right policies in place, the number of producers of renewable energy can expand in extraordinary ways.

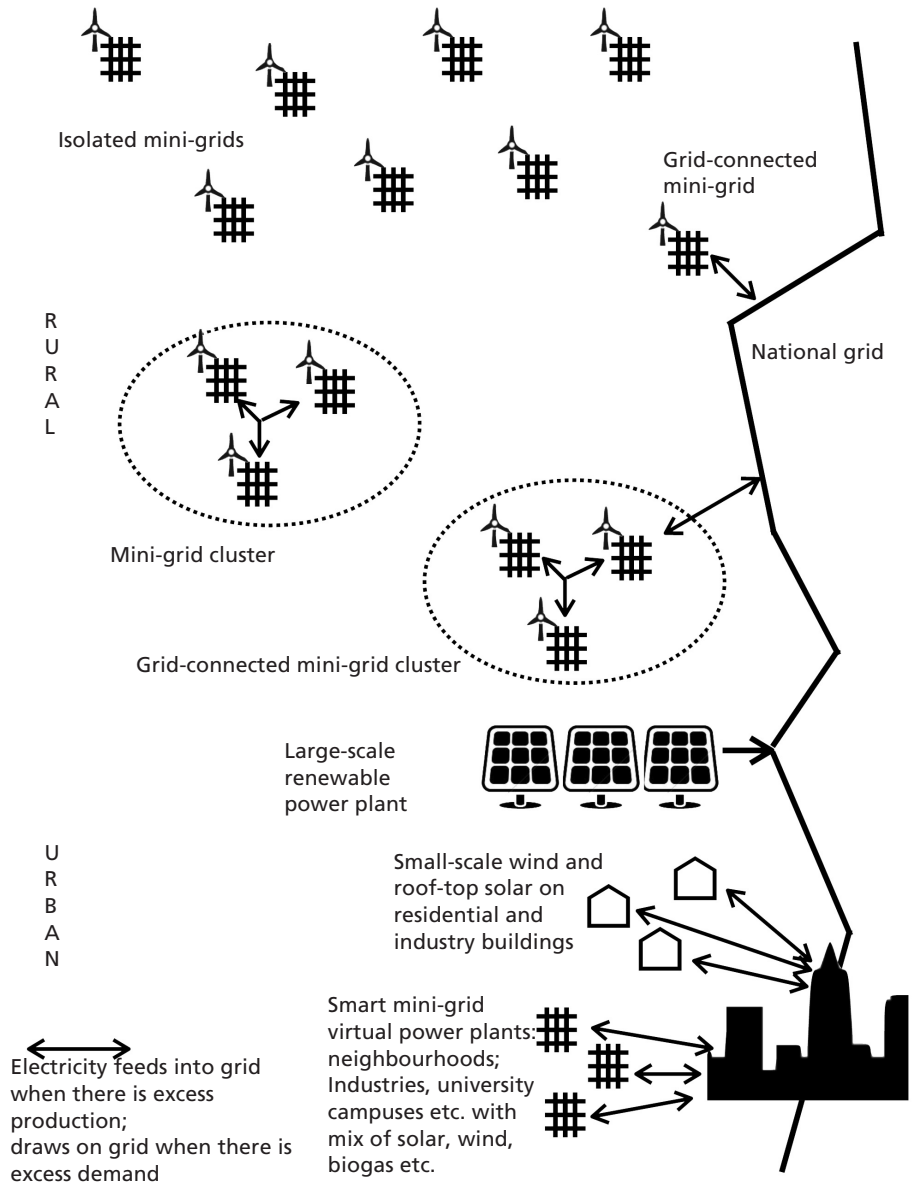
### **LARGE-SCALE RENEWABLE ELECTRICITY GENERATION**

There is still a case to be made for centralised **large-scale renewable electricity generation**.<sup>16</sup> However, there must be a clear understanding of the reasons for favouring such approaches over the first two kinds of renewable energy generation. We see a need and justification for large-scale generation to feed the few, exceptionally power-hungry industries (e.g. smelters) that may exist in countries, large-scale installations can also help ensure a balance and base load in the grid. However, this kind of installations are only acceptable if they are environmentally and socially appropriate, and do not lead to land-grabs and destruction of local livelihoods, which is often the case.

As a rule of thumb, we suggest these three approaches to renewable energy production be fairly similar in proportion, with an emphasis on the former two, although circumstances will naturally differ between countries.

Central to this vision of a decentralised, distributed energy future is the increased resilience from many small producers, the democratising and empowering role of energy when communities are directly engaged and can have a say in, or even own, their energy production, the lessened dependence

**Figure 2: Future energy systems: Distributed, decentralised renewable electricity**



**Communities have a large role to play in the future energy models, creating a web of electricity producers and consumers**

on risky and dirty fossil fuels, and the dynamic evolution of an energy system that expands from bottom up, with households and communities becoming both producers as well as consumers of energy.

As renewable energy alternatives gain ground, existing fossil fuel and nuclear power generation must be reduced and eventually completely phased out. Current subsidies for these outdated energy sources should be re-directed to help finance the transformation to decentralised renewable energy, although this needs to be pursued in ways that do not hurt the poor people dependent on consumer-oriented subsidies. ●

## IV: How to spur the renewable energy revolution?

How do we attain this energy vision? How do we spur a bottom-up energy revolution at scale?

While a lot is happening on the ground, with a myriad of inspiring, innovative and ground-breaking renewable energy developments, it is clear that the overall speed of transition is too slow, and the prevailing fossil-fuel oriented paradigm still dominates.

It is evidently clear that we need an ambitious and clear-sighted public investment effort. Through well-designed support systems countries can incentivise and make investments in decentralised renewable energy economically feasible, as outlined here. Just like the German “energiewende” has set in motion a new trajectory, all countries must be encouraged and enabled to take bold action.

We suggest that citizens, communities, business and governments in developed countries carefully consider the vision of a decentralised renewable energy system as outlined here, and learn and get inspired by the most successful and bold examples from forerunning countries. Given the scale and urgency of the task, the most efficient and appropriate policy tools must be adopted.

While the policy toolbox is extensive, one set of tools certainly stands out: *payment guarantees/feed-in tariffs*. While there is room and justification for lots of different policies, we are convinced that a broad-based adoption and support for different kinds of payment guarantees and feed-in tariff support systems need to play a central role.<sup>17</sup>

The efficiency and effectiveness of such policy tools have been widely documented by numerous studies and evaluations. The IPCC Special Report on Renewable Energy in 2012 concluded

*In summary, a number of historical studies, including those carried out for the European Commission, have concluded that well-designed and well-implemented FITs [Feed-in tariffs] are the most efficient (defined as comparison of total support received and generation cost) and effective (ability to deliver increase in the share of RE [renewable energy] electricity consumed) support policies for promoting RE electricity<sup>18</sup>*

and furthermore stated

*[Renewable energy feed-in tariffs] tend to favour ease of entry, local ownership and control of renewable energy systems...and thus can result in wider public support for renewable energy... Such ease of entry has also proved a powerful means for unleashing capital towards the deployment of renewable energy projects.<sup>19</sup>*

Today, more than 100 countries spread across both North and South have adopted some kind of payment guarantee/feed-in tariff system.<sup>20</sup> It has been estimated that a staggering 64 per cent of global wind installations and 87 per cent of global photovoltaic installed capacity have been driven by feed-in tariff systems.<sup>21</sup>

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**More than 100 countries across the globe have adopted payment guarantees/feed-in tariff mechanisms to encourage renewable energy**

Countries are continuously experimenting and learning how to best design these mechanisms to suit their national contexts and priorities. In some countries in the North, feed-in tariffs have been a key engine to a society-wide, extensive energy transformation. In some countries of the South as well, especially India and China, feed-in tariffs have played a major role in expanding renewable energy. However, in most countries, particularly in the South, feed-in tariffs initiatives have been limited and so far only marginally affected overall development plans and energy trajectories. Furthermore, they have generally been directed to larger, on-grid projects rather than mini-grids and household level support. Yet, it is clear that payment guarantees and feed-in tariffs are policy tools that are appealing to countries, and that many developing countries are craving to scale them up. In Africa, so far only 13 countries are currently running or implementing feed-in tariff systems.<sup>22</sup> ●

## V. What are payment guarantees/feed-in tariffs?

So, what are payment guarantees and feed-in tariffs? How do they work and why are they so effective?

There are many different versions and technical variations but the basic idea remains the same:

### GUARANTEED PAYMENTS

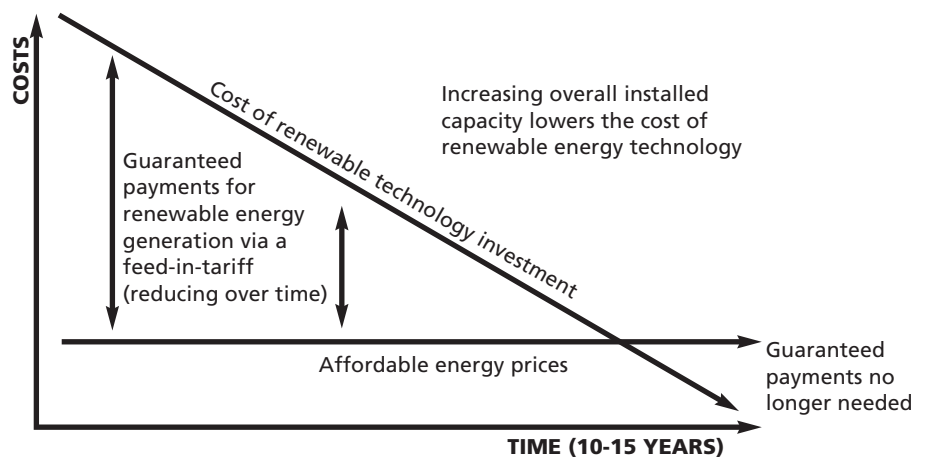
Developers of renewable energy installments are **guaranteed payments** that cover the difference between investment costs and the revenue from sales of the energy (at lower, affordable prices for the consumers), with a reasonable premium/profit. These guaranteed payments can be in the form of ‘feed-in tariffs’ where electricity is passed on to the grid, or ‘generation-based incentives’ when, for example, electricity is sold to consumers using a stand-alone mini-grid.

These payments are guaranteed for a fixed period of 10-20 years, and set so that the developers will be able to cover all their costs (including, e.g. interest rates on initial loans for upfront financing as well as grid construction and training and capacity building). In this way, developers of renewable energy projects (which can be a whole range of actors – from community organisations, cooperatives and local governments to local small and medium enterprises as well as larger corporations and utilities) can proceed with their projects immediately, knowing the investment will be safe as long as they deliver clean and affordable energy.

Ideally, there is no upper limit to how many can join the scheme. As long as projects are sound and fulfill existing criteria (and there are enough funds) developers are welcome to join and are guaranteed the payments (which are essentially well-targeted subsidies). This way, there tends to be an escalation of interest in joining, with more and more actors entering, inspired by seeing others benefitting from the scheme. As costs of renewable energy technologies decrease, the required subsidy for new entries also decreases. Smaller payment

With time, costs of generating power from renewable energy sources decline and the costs of power generated from fossil fuels increase. Renewable energy becomes the default, affordable choice

**Figure 3: Feed-in tariffs/payment guarantees and declining cost of renewable energy technology over time**





guarantees are thus required for new agreements over time, until no cost difference remains, and thus no need for further payment guarantees to incentivise developers to invest in renewable energy projects.

### RIGHTS TO FEED IN

These support systems often include a right to feed into another grid (usually the national grid) excess electricity that the producer does not consume him/herself, again at a guaranteed price. This way, renewable energy has priority in the market and producers will know that they can always sell all the energy they deliver, which again provides a secure investment environment. These **feed-in tariffs** mechanisms can be set up in different ways, depending on the particular circumstances of each case. In Germany, it has become very common that individual households produce electricity from solar PV or wind, and generate revenue from selling the energy they don't use themselves through favourable feed-in tariffs to the national grid.

Feed-in tariffs can be applied to mini-grids as well as larger power producers. Mini-grids connected to the national grids can be given the right to sell excess energy through feed-in tariffs, and larger renewable energy power plants can likewise be guaranteed to sell all their production at set prices through other sets of feed-in tariffs. Mini-grids that over time connect with each other can form clusters that exchange electricity amongst themselves depending on current supply and demand, and may eventually connect to the national grid through feed-in tariffs.

## Design options for payment guarantees and feed-in tariffs

Countries have taken different approaches when they set up their national payment guarantee/feed-in tariff systems. There is, therefore, considerable scope for learning and refining best practices through enhanced exchange and sharing, not least between countries in the South.

Design elements to consider, and further elaborate, include:

**Technology choices:** What technologies should be eligible? What technologies are not acceptable? What kinds of technology assessment and participatory processes are needed to ensure only socially and environmentally acceptable technologies are supported?

**Size:** What size instalments are eligible and do different sizes obtain different amounts of payment guarantees (reflecting that as the size increases, the overall cost of generation generally decreases due to economies of scale).

**Scope:** Is there any limit to how many new projects/overall funding the national payment guarantee system can accept each year?

**Guarantee payment period:** For how long will each project receive the guarantee payments/feed-in tariffs?

Typical time periods range from 10 to 20 years. The shorter the time, the larger the payments.

**Time period for allowing new entries:** For how many years will the overall support scheme exist, i.e., what will be the last opportunity for new entries? This decision may be adjusted over time, and reflect how fast the technology costs decrease. When real costs are less than conventional power (and at affordable levels for consumers) there is no longer need for payment guarantees for new instalments.

**Feed-in tariff calculation:** Deciding the quantum of support is the most crucial factor. Too little support will make power projects unviable whereas unnecessarily high assistance leads to unacceptable windfall profits to the developers. There are two general approaches: 1) set tariffs based on careful calculations, that are regularly updated and adjusted by the authorities 2) reverse bidding systems where project developers determine what support they need as a minimum and bid accordingly. Both methods have advantages and disadvantages that countries need to consider.

Continued...

**Technology-specific tariffs:** The size of the payment guarantees is usually technology-specific to allow all eligible technologies to be viable.

**Location-specific tariffs:** Should the tariffs for different technologies also be location specific? Wind potential is very location specific, and so is solar, which affects efficiency and utilisation. For example, India has different tariffs for wind projects based on the location and wind velocity.

**Tariff digression:** As the cost of renewable electricity generation is coming down and cost of conventional power likely will go up, each year new entries should be offered lower tariffs/payment guarantees. This can be achieved in two ways – First, once the benchmark is fixed, a percentage can be decided to reduce support every subsequent year. Second, there could be periodic reviews based on actual market conditions to decide how much support will be required.

**Electricity charge to the consumers:** Countries have different approaches to price setting for electricity. A very low charge will lead to abuse of the costliest energy and a high charge will raise the issue of energy equity and ability of customers to pay higher tariffs. Countries may choose to set justifiable prices for consumers as no more than the cost of alternative fuels or based on monthly expenditures on energy. It is also possible for countries to set differentiated electricity charges, where low consumption is cheap, and increasing consumption levels get more expensive.

**Source of financing:** The prevailing model of feed-in tariffs passes on the costs of the tariffs on all energy

consumers, essentially cross-subsidising renewable energy. While a viable model in rich countries, such a financing model cannot drive wide deployment in poor countries and does not work at all for isolated mini-grids, hence the need for a central fund and international financing. Countries may, however, provide different proportions of the required funding from their own means.

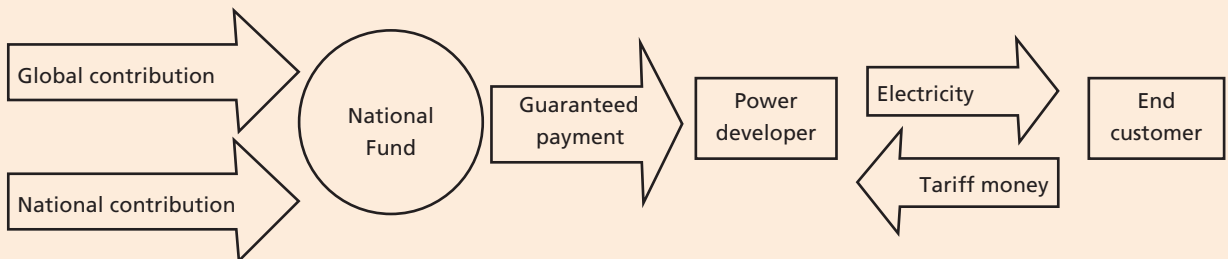
**Purchase obligations:** It is essential that developers are confident they will be able to sell the electricity they produce. For grid-connected instalments, there needs to be purchase obligations and regulations that provide a legal right to feed in to the grid. For isolated mini-grids, there may or may not be purchase obligations of excess electricity. There must also be clarity that they can feed into the grid on favourable terms if it arrives.

**Local content:** Enhancement of local manufacturing capacity of renewable energy instalments should be integral to the support schemes. Countries may choose different ways to encourage this, ranging from quotas to differentiation of tariff levels and other means.

**Local ownership:** Local ownership of renewable energy instalments is generally beneficial, and can be promoted through a range of means – from active advice and support to legal requirements.

**Energy efficiency:** The renewable energy that is produced is a precious resource that cannot be squandered away. Different kinds of energy efficiency requirements, rules and incentives should be made integral to the electricity generation provision.

**How the mechanism will work**



**UPFRONT FINANCING**

The guaranteed payments provide by their very nature a sound and safe basis for investments and generally facilitate the obtaining of credit to cover initial, upfront investment costs. A robust nationally based feed-in tariff system as guarantee can often enable credit from commercial financing institutions on quite favourable terms (and with international, UN-based funding backing these national systems, it should be even more favourable). However, countries

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**Payment guarantees and feed-in tariffs are result-based and spread over the whole or large part of the lifetime of a renewable installation**

may also opt to set up public, government based favourable soft-loans to facilitate up-front financing in order to streamline and scale up investments. In cases and for actors who may have difficulties obtaining commercial credit, government soft loans, grants, capital subsidies, development aid and other kinds of grants and support can also provide the necessary upfront costs.

Contrary to policy tools such as capital subsidies, payment guarantees/feed-in tariffs are result-based and spread over the whole or large part of the lifetime of the renewable energy installation. This lessens the risk of projects not getting set up or resources disappearing along the way: the developer must quickly get the system in place to begin delivering electricity; only then will the user tariffs and the payment guarantees be trickle in to cover the initial loans.

The support is directly tied to the successful delivery of clean and affordable electricity, which also has the tremendous benefit of clearly showing to those who provide the funds how the money is spent, and what are the direct benefits.

In practice, particularly for resource-poor developers, such as low-income communities, there can be a mix of both grants for parts of the upfront financing, as well as the 10-20 year guaranteed payments.

Clearly, different payment guarantees/feed-in tariff arrangements can be applied in a country to simultaneously stimulate the development of mini-grids, embedded production as well as large-scale single point generation (where the last category, in all likelihood, needs this kind of support the least). ●

## VI. Benefits of payment guarantees/feed-in tariffs

In summary, payment guarantees/feed-in tariffs have a number of clear benefits and design elements that make them stand out.

- They have proven to be effective; this is no risky experiment with unknown outcomes. They rely on the most effective and efficient policy tools we have.
- There is no upper limit to achievements (unlike, e.g., quotas), but rather around crowding in of participants in the schemes. Their success generates further interest and a snowballing effect.
- They are time bound public investment interventions over a set period of time to solve a specific problem. The investments redefine economic realities to deliberately create vastly more favourable conditions for future investments.
- Public investment through the payment guarantees is a marginal cost that leverages much larger public and private investments on the whole. The support scheme tilts the balance and makes renewable energy investments viable and attractive.
- They are results-based and measurable by their very design, rather than externally imposed “Monitoring Recording and Verification” obligations.
- Affordability and access to electricity is at the core. As prices for consumers are delinked from the actual production costs, prices for consumers can be differentiated depending on levels of consumption, and kept affordable. It is even possible to cross-subsidise within the scheme so that well-off, high-usage consumers effectively support the poorer, low consuming ones.
- It is a common sense public investment effort that in addition could spur corresponding action in other areas (e.g. housing and public transport). ●

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**Payment guarantees/feed-in tariffs are the most effective and efficient policy tools we can rely on**

## Part 2: International financing

The renewable energy revolution may already be underway. Over the last few years we have seen costs for renewable energy technologies rapidly decrease and investment in it grow. Investments in renewable energy amounted to USD 212 billion in 2013 and constituted 43 per cent of new installed electricity capacity (excluding large dams). Installation of solar photovoltaics continue to rapidly increase in number while dropping in price.<sup>23</sup>

We are seeing a positive spiral of rapidly reducing costs of renewable technologies, which accelerates investments that in turn press down technology costs further.

However, despite these positive trends we must realise two things:

- The transition to renewable energy is still way **too slow and modest**. Renewable energy contributed only 22.1 per cent (out of which 16.4 per cent is hydro-power) of the total power generation in the world in 2013<sup>24</sup> and the world's fuel consumption is dominated by fossil fuels about 86.7 per cent.<sup>25</sup> Furthermore, in 2013, for the first time ever renewable energy investments in developing countries decreased compared to the previous year.
- Developing countries experience **fundamental financial bottlenecks** in doing the right thing. While they can and should cross-subsidise and pass on the costs to the wealthier and high-consuming parts of the population, contrary to Northern countries, this will not suffice to fully finance an energy transformation of this scale. Furthermore, to cater to small-scale, community-oriented energy, there are fixed costs associated with training, capacity and participatory decision-making and governance that are not affected by reduced costs in hardware and call for additional targeted financial support.

To rectify the first point, all countries must do their utmost to set in place the most potent regulations and incentives (such as payment guarantee systems) to spur renewable energy investments while simultaneously stopping further fossil fuel investments, begin shifting fossil fuel subsidies and, particularly in developed countries, begin to decommission existing plants before their lifetime is over.<sup>26</sup>

To address the second point, we must create partnerships across North and South and set in place a well-designed, substantial international finance mechanism to enable the kind of renewable energy future as outlined here. This is precisely the kind of transformative solutions the Green Climate Fund was set up to enable.

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**Renewable energy transition is slow and modest and suffers from severe financial impediments**

## VII. Who should pay?

### NATIONAL CONTRIBUTIONS

The principle of “common but differentiated responsibility and respective capabilities” (CBDR-RC) that is enshrined in not only the UNFCCC but all of the Rio sustainable development outcomes is crystal clear: developed countries, who largely created the problem of climate change in the first place, and furthermore have the largest financial and technological capacity to take action, must take the lead. More specifically, article IV of the convention makes it clear that developed countries must, in addition to their own rapid emissions reductions, cover the incremental costs associated with both emissions reductions (mitigation) and adaptation in developing countries.

For developed countries, this means a transformation of their societies’ energy, transportation, housing and industrial systems at a scale and speed never seen before . Developed countries must immediately begin investments plans for a transition to 100 per cent renewable energy future, prepare for decommissioning of existing fossil fuel plants, and stop investment plans for new, dirty fossil fuels and nuclear energy. Likewise, stringent energy efficiency standards, housing standards and massive expansion of public transportation are necessary.

Yet, this is not enough to prevent catastrophic warming. To keep within a (still very risky) two-degree emissions budget, most developing countries will need to peak their emissions with a lag of just one to two decades, and then embark on about as steep reduction curves as developed countries – while still needing to expand energy use, and with most infrastructure still yet to be built. This is utterly unfair, but the inescapable reality of climate change. The atmospheric space that developing countries should be entitled on equity has already been consumed by the rich countries.

On grounds of both equity and necessity, developed countries must, therefore, in addition to the most radical emissions reductions conceivable within their own countries, make possible for own countries, and enable developing countries to forgo fossil fuel based development trajectories, and thereby avoid otherwise quickly growing future emissions. This means, among other things, that they will have to enable socially and environmentally appropriate renewable energy to be the default choice in all developing countries.

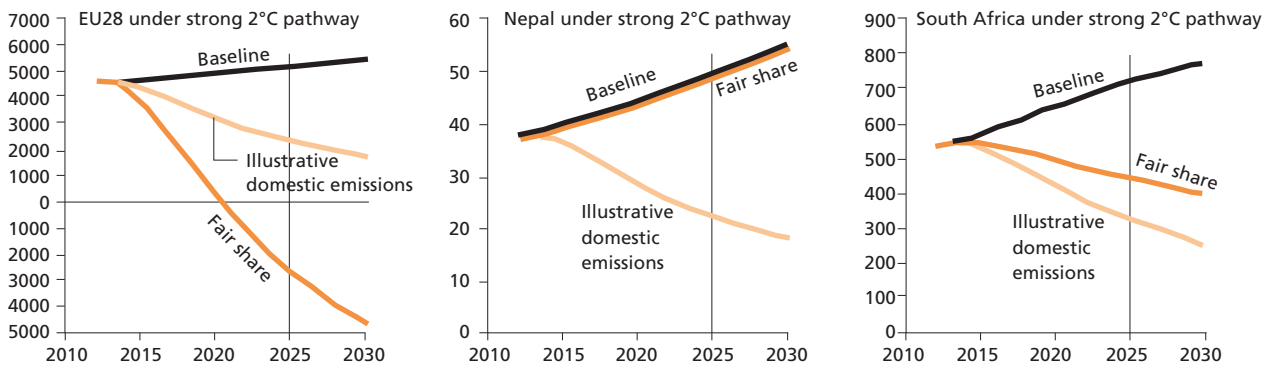
How much each country should contribute to and receive from climate financing is at the core of current debates and negotiations on equity, effort sharing and differentiation.

Regardless of what exact formula or metric one applies, it is clear that the scale of financing needed to make it possible to keep within the risky two-degree budget vastly exceeds what is currently being discussed and pledged.

A robust fair shares framework that considers historical responsibility and current capacity for all countries applied on a two-degree emissions budget generates the graphs in Figure 4.<sup>27</sup> For example, even if EU would significantly increase its mitigation ambition and reduce emissions *within* EU (no offsets) by 70 per cent by 2030, EU’s fair share means it also, on top of this, needs to enable twice this amount of emissions reductions to take place in developing

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**Developed countries must, in addition to the most radical emissions reductions conceivable at home, make possible for the developing countries to forgo fossil fuels**

**Figure 4: Emissions trajectory under strong two-degrees emission budget**

Source: Ecequity and Stockholm Environment Institute

countries. A substantial part of this commitment would need to constitute financing for a transformation towards renewable energy in countries of the global South. In addition to this, financing for adaptation must also be made available at similar or larger scale.

Conversely, for a least developed country such as Nepal, almost all the emissions reductions from a business-as-usual trajectory would need to be financed by other countries. More wealthy developing countries with their relatively high emissions, such as South Africa, would also be entitled to considerable financial support, but need to fund a substantial part of the reductions on their own.

The exact metric and formula for determining what proportion of countries either receive support for, or contribute to, the energy transformations in developing countries will need to reflect outcomes of the general equity negotiations. It is, for example, reasonable to also take into consideration factors such as countries' current rate of access to electricity, electrification, ecological footprint and human development indicators.

These discussions on how to operationalise equity will need to be deliberated upon and determined once the global support mechanism is up and running and increasing numbers of developing countries are requesting support. Most important, at this early stage, is to set the scheme in motion by substantial commitments from one or several developed countries as a clear response to the calls from African and other developing countries that are already being voiced.

**More wealthy developing nations would be entitled to considerable financial support, but would need to fund part of reductions on their own**

#### INTERNATIONAL FINANCING

In addition to direct, assessed contributions by individual countries, there is also considerable scope for international taxation and other innovative sources, as long as these are pursued in respect of CBDR-RC.

By establishing an international financial transaction tax, USD 650 billion per year could be raised from the financial markets without any noticeable negative impact, and with the added benefits of slowing down speculation and risks of financial bubbles.<sup>28</sup>

Another potential source of substantial funding is the IMF Special Drawing Rights which could be used to make available considerable funds for the common good. It should be possible to make available over USD 100 billion without affecting inflation.<sup>29</sup> ●

## VIII. How much support is needed?

CSE and What Next are currently deliberating and pursuing work to estimate both funding as well as training/capacity building and technology access needs according to different approaches and levels of ambition.

Naturally, funding needs will begin modestly and increase as more countries decide to join and request support through Nationally Appropriate Mitigation Actions (NAMAs).

United Nations Department of Economic and Social Affairs (UN-DESA) made a rough estimate of USD 100-150 billion per year for a full-fledged feed-in tariff support system when they launched the idea of globally funded feed-in tariffs in their report “World Social and Economic Survey 2009: Promoting Development – Saving the Planet” as a direct input to COP15 in Copenhagen.

A subsequent study by UN-DESA in 2010 estimated costs for a programme of globally funded feed-in tariffs that would serve all developing countries immediately and provide all their citizens with a minimum of 10 kWh per day.<sup>30</sup> Based on renewable energy cost levels at the time, the study landed at similar average cost levels as earlier, recognising that during the peak year, significantly higher sums would be required, with costs quickly falling after the peak (and costs climbing steadily from zero to peak over the first 15 years). Requirements at peak would correspond to approximately twice the current level of foreign aid, and indicates how the scheme would be a significant undertaking, indeed a “Marshall plan”.

However, during the six years that have passed since Copenhagen, the costs of renewable energy technologies have decreased considerably. While the financial bottleneck is significant, overall financing needs may be smaller. One should also note that some of the costs would be carried out by developing countries themselves.

While it may be difficult to gain a firm commitment to this kind of long-term financing immediately, we are convinced that as the support scheme gets set up and running, proves itself, and has increasing number of developing countries request to join, financial commitments from developed countries will be ratcheted up.

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**Genuine investments early on will help bend the curve and avoid much costlier actions later, thereby freeing up climate finance for adaptation**

A 20-40 year transition that relies to a large extent on payment guarantees as outlined in this report (10-20 years during which energy developers are invited to enter agreements that ensure payment guarantees) will have a front-loaded finance requirement curve. Financing requirements will peak relatively early and taper off very quickly towards the end (at which point only late entries remain and their subsidies will have been much reduced due to falling costs. See Figure 5).

This is a logical and sound approach: genuine investments early on helps bend the curve and avoid much costlier actions later, thereby freeing up climate finance for adaptation needs over time as the effects of climate change get increasingly serious.

Furthermore, the programme is time-limited. After the 20-40 year period there will be no more (or very little) need for continued support. By then costs for



renewable energy will likely be lower than today’s cost of fossil fuels and the default, affordable choice also without incentives such as payment guarantees. Developing countries will be on track towards becoming fully renewable energy using societies.

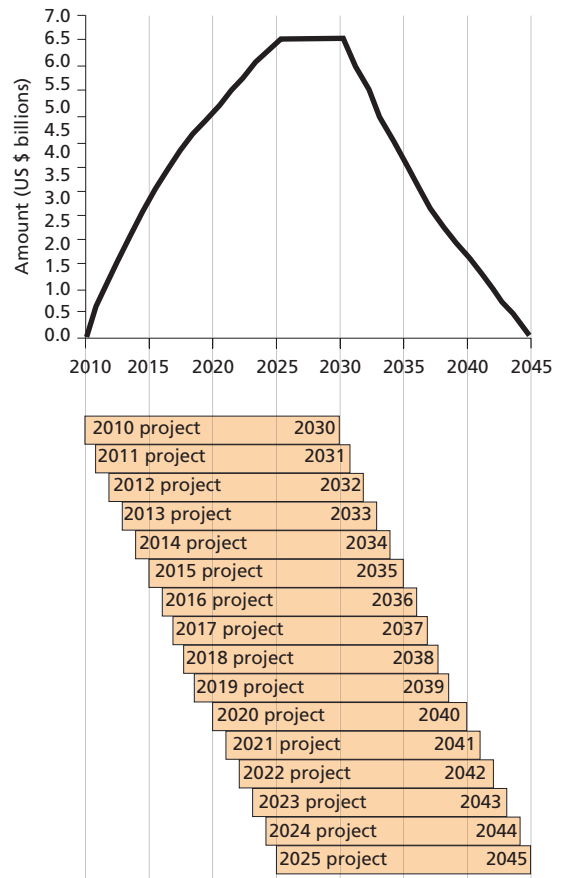
This cost reduction will also significantly benefit developed countries in their transition to renewable energy. Northern countries such as Poland, which is almost completely dependent on coal, will undergo a much cheaper transition as renewable energy technologies become the cheapest, default choice. Policy-makers in the North can legitimately explain to their taxpayers that the climate finance supporting developing countries’ renewable energy transition is also a real investment for their own countries’ transition.

Furthermore, the support scheme as outlined here is a perfect example of how limited public funding can effectively leverage much larger sums of both public and private investment. The guarantee payments are the marginal inputs that are needed to tilt the balance and catalyse large sums of investment flows to renewable energy rather than fossil fuels.

While the financial requirements may appear high at first glance, they also help inform the overall climate finance discussions which have now become stuck in a highly unambitious and muddled conversation around USD 100 billion a year by 2020 as a combination of public and private contributions. Looking back to COP15 in Copenhagen, G77 called for 1.5 per cent of developed countries GDP in public finance which corresponds to USD 600 billion a year. The Africa group demanded five per cent which corresponds to approximately USD 2000 billion a year. It may also help in putting the investment needs in perspective with other expenditures. For example, during 2014, global ice-cream sales amounted to USD 50 billion, and 2014 world military expenditures to USD 1,739 billion. In 2009, the bank CEO bonuses accounted for USD 32 billion<sup>31</sup> even in the midst of the financial crisis. Government banks’ bailout and support to the financial system during the crisis has been estimated at a staggering USD 16 trillion.<sup>32</sup> ●

**After 20-40 years, there may no longer be a requirement of payment guarantees for renewable energy**

**Figure 5: Total subsidy needs**



## IX. A global financing scheme through the Green Climate Fund

How can a global support mechanism be set up and implemented? How can considerable sums of climate finance be channeled to real projects on the ground that truly benefit communities and foster people's control of their energy? Money and finance needs to be complemented by training, institutions, continuous learning and improvement of the scheme through true partnerships. How can we ensure only environmentally, socially and culturally appropriate renewable energy projects are supported?

While the support mechanism will require some new institutional set-ups, we believe this can be achieved through meagre methods. We can build on existing institutions to a considerable extent.

At *national* levels one *Central government authority/agency* with a coordinating role that also works as an interface *vis à vis* the Green Climate Fund (GCF) needs to be identified. In many countries these institutions already exist, in other countries new institutions may be set up. Ideally, countries would inscribe their intentions to initiate or scale up payment guarantee/feed-in tariff systems in their Nationally Appropriate Mitigation Actions (NAMAs) plans.

At the global financing level we suggest making use of the newly established *Green Climate Fund*. The proposed support mechanism fits perfectly with all the different criteria and goals of the GCF. If the fund can be made to operate in a manner that ensures a focus on distributed, decentralised renewable energy with environmental integrity, it should be a main source of funding.

Existing *UN and other institutions* can be drawn on for technical and detailed work, e.g. the UN Climate Technology Centre and Network (CTCN) and International Renewable Energy Agency (IRENA).

*Civil society and community organisations* as well as renewable energy *business associations* need to be deeply involved in the whole chain of activities – from needs assessments and planning to implementation and continuous learning.

In addition to all this, we propose that a *new coordinating body* eventually be set up. This institution can be designed and placed in a variety of ways, but must be fully accountable to the UNFCCC and its principles of CBDR-RC.

### NATIONAL AUTHORITIES/AGENCIES

Different countries have different institutional set-ups for managing energy, including renewable energy. In some countries specific ministries and government agencies handle all energy related matters. In other countries there is a division of responsibility. In India, for example, there is both a Ministry of New and Renewable Energy and a Ministry of Power dealing with on-grid energy; both catering to rural electrification.

A global programme must not only respect this diversity but also encourage extensive and continuous South-South exchange and learning to encourage countries to refine and evolve their systems over time in the best possible ways.

Even with separate ministries/authorities within countries, it makes sense to

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**Implementation of the support mechanism can be achieved through meagre methods, largely building on existing institutions**

**National strategies and assessments should involve social movements, civil society, academics, and industry along with the relevant government agencies**

have one designated, coordinating authority to handle all the financial flows between international and national level mechanisms for disbursement of different kinds of payment guarantees and other support.

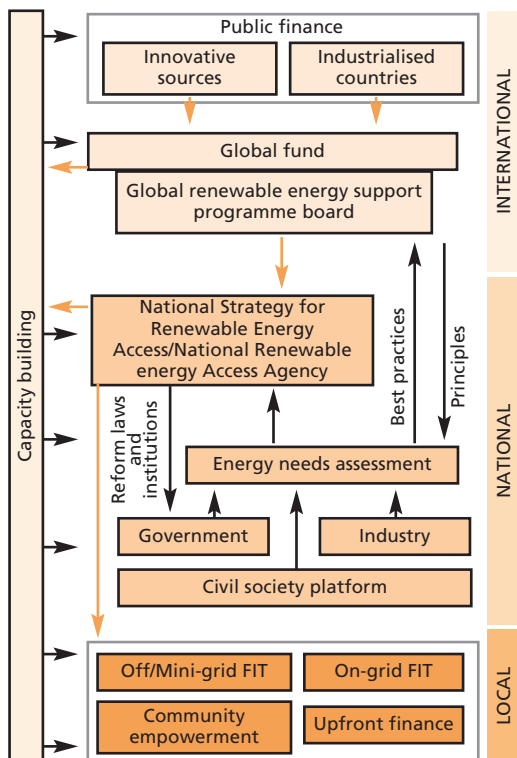
For some developing countries it would make more sense to use already established entities, while for others it may make sense to set up a new ‘National Renewable Energy Access Agency’. In countries where there is an institutional division between off-grid and on-grid energy, there is a need of coordination to ensure the country as a whole requests financial support with a sensible balance between off-grid and on-grid energy, and there is a clear focus on the community. We suggest that as rule of thumb at least 2/3 of the global financing be devoted to support distributed solutions such as the mini-grids and small-scale electricity installments described earlier. The proportion devoted to off-grid solutions will necessarily vary from country to country, since electrification rates and national grid connections vary vastly between developing countries (from a few per cent to almost universal connection). In countries with a high proportion of the population without electricity and grid connection, most financial support should be devoted to catering to their needs.

**NATIONAL STRATEGIES, NEEDS ASSESSMENTS AND PARTICIPATION**

To ensure success, sustainability, and truly distributed, decentralised renewable energy solutions broad-based approaches involving all relevant stakeholders must be implemented. We suggest that as a prerequisite for

funding, countries preparing national strategies, needs and technology assessments should involve social movements, civil society organisations, local governments, small and medium enterprises, the academic community, larger utilities and power providers as well as relevant government ministries and agencies. How these processes are conducted and set up may differ between countries, but should be enhanced and facilitated through a concerted global effort to share best practices, experiences and approaches. There needs to be particular emphasis on community control of energy solutions as well as technology assessments to ensure only environmentally and socio-culturally acceptable renewable energy technologies are supported. It would be highly desirable to connect these processes to the on-going discussions around technology facilitation and technology assessments that are now being conducted in the General Assembly as a direct outcome of the Rio +20 negotiations.

**Figure 6: Institutional set-up for the mechanism**



From Reclaiming Power: An energy model for people and the planet. Friends of the Earth EWNI (2012).

**CAPACITY BUILDING**

Local-level capacity building is essential and has the benefit of bringing down medium-term project costs at a far greater rate than technological development.<sup>33</sup> Yet, training and capacity building carries fixed costs in the early stages and must be factored into the overall project costs to be covered. Experience has shown that it is essential that projects are locally ground for them to be successful. It will take considerable time and effort to engage with

communities, formulate shared visions and enhance peoples' capacity to become active participants in the design, operations and management of their energy systems. As renewable energy investments spread, the scope for local as well as regional exchange of experiences and best practices increases. It is also essential that there are efforts and support to build local and domestic capacity to manufacture renewable technologies – and to contest any trade rules that prevent preferential support.

### **RISKS AND SAFEGUARDS**

Like with any other scheme, there are associated risks in this mechanism. In the case of payment guarantees/feed-in tariffs, the policy tool is very potent, with misuse potentially more harmful. Unless the support programmes are planned and implemented in appropriate ways, there is a risk of:

- Promoting socially and environmentally harmful technologies
- Increasing inequity and disrupting well-functioning communities
- Facilitating land-grab and concentration of power
- Opening the door for undue foreign investments and foreign control of local resources
- Setting in motion 'development' that leads to harmful overconsumption and reduced well-being
- Disproportionate promotion of large-scale technologies and grid-centered approaches
- Corruption
- Too fast roll-out. Lack of appropriate capacity-building and local grounding, acceptance and participation
- Wrong indicators promoting wrong action

Safeguards must be deliberated upon and put in place from the outset, with civil society involvement from the very beginning. Approaches building on, for example the experience of The Forestry Law Enforcement, Governance and Trade Action Plan may be of relevance.<sup>34</sup>

### **THE PRIVATE SECTOR AND COMMUNITIES**

There must be a broad understanding of the many different roles and forms of private sector engagements. Our model strongly emphasises the importance of locally based private sector actors and recognises the importance of community organisations and cooperatives as primary initiators and managers of energy initiatives in many areas. In other places, local social entrepreneurs as well as national small and medium enterprises play key roles. The financial support is not intended, however, to facilitate foreign direct investments and opening of markets for large corporations from donor countries.

### **THE UNFCCC TECHNOLOGY MECHANISMS**

The UN Climate Technology Centre and Network (CTCN) and the Technology Executive Committee (TEC) have recently been set up as the technology mechanisms under UNFCCC, with a particular role of supporting and advising developing countries in technology related matters. They should ideally play an important role in helping to set up and develop the proposed mechanisms.

### **THE GREEN CLIMATE FUND**

The decision to establish GCF was made at COP16 in Cancun 2010. During subsequent negotiations, the governing instrument for the fund has been deliberated upon and a secretariat set up in Songdo, South Korea.<sup>35</sup> As of October 2014, the fund is operational and, in principle, able to both receive and

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**Financing of decentralised, community-oriented renewable energy fits the main criteria of the Green Climate Fund perfectly**

**Developing countries can now approach GCF with proposals to fund national systems for supporting renewable energy-based mini-grids**

disburse funds. The fund is in its initial resource mobilisation phase, with approximately USD 10 billion pledged for 2015-2018 at the recent pledging meeting in Berlin on 20-21 November 2014. A formal replenishment process will commence once 60 per cent of these initial pledges have been received. The process of accrediting the national, regional and international entities that will disburse GCF resources is now open, and it is expected that the Fund will start to consider proposals by June 2015.

Financing of decentralised, community-oriented renewable energy fits the main criteria of the fund perfectly. According to the GCF, governing instrument the GCF's vision is to "Promote a paradigm shift towards low-emission and climate-resilient development" and "Induce a change in daily decisions investors and consumers make", i.e., to finance projects and programmes with a transformational and systemic impact. The funding is supposed to be guided by the potential impact, possibility of paradigm shift, prospective sustainable development benefits, the needs of the recipient, country ownership and its efficiency and efficacy.

National payment support mechanisms/feed-in tariff systems tick all these boxes. They are fully nationally owned initiatives, responding to very clear public finance bottlenecks to enable leveraging of much larger investments, cater to the demonstrably most efficient and effective policy tools for renewable energy scale-up, adheres as much to real development needs as climate concerns, and are geared to a paradigmatic transformation of energy systems of developing countries.

They also adhere to the notion of developing country "direct access" while being, by design, results-based in that all electricity is measured, payments are made upon delivery of the electricity, and both access to electricity and avoided emissions are possible to calculate precisely. As the GCF's 'investment framework' and 'performance measurement' are still under negotiation, it would make sense for countries to ensure these are made as conducive as possible to the proposed support mechanism.

Nothing prevents national renewable agencies or other government bodies from rightaway seeking accreditation as 'implementing entities' of the GCF, and to subsequently present bold proposals to fund national systems as outlined in this report. In fact, this may be one of the most useful actions developing countries could take in the lead-up to Paris as a way of taking leadership and generating further momentum for real action.

### **GUIDING PRINCIPLES FOR THE GCF IN RELATION TO ENERGY SUPPORT**

A number of prerequisites and principles should define the GCF's activities in relation to energy support as outlined in this report.

- The support for the payment guarantee subsidies must be **fully grants-based**, in line with the thrust of climate finance and the UNFCCC convention (article IV). These subsidies constitute the incremental investments that leverage and redirect much larger overall investments into appropriate renewable energy (and ensure that any initial loans/credits will be possible to pay back).
- Depending on circumstances, GCF may be requested to also provide means for **up-front financing** for the initial construction of the installations. Such funds may be in the form of concessional loans (which could also be

### Is there a role for GCF Private Sector Facility (PSF)?

During the operationalisation of the GCF, countries have agreed to set up a special Private Sector Facility of the GCF. These negotiations have been challenging, and much remains to be done to bring clarity to exactly how and for what the PSF will function. The possibility of channeling fund through PSF for renewable energy investment (such as support for national feed-in tariff systems) has been proposed by some actors.<sup>36</sup>

While recognising this as one possible option, we caution against focusing on PSF as the main delivery channel. We maintain that the main thrust of governance for the suggested global support scheme cannot be under a private sector-only entity, but must be under GCF and the UNFCCC more broadly. While many of the individual projects that will ultimately be supported by the payment guarantees will be carried out by different kind of private sector actors (including cooperatives, community organisations, and small and medium enterprises) many will also be carried out by public sector entities such as local governments, municipalities and state utilities. Furthermore, all the funding from the GCF to developing countries will go through the publicly governed national coordinating entity, which in turn channels funds to both private and public project developers.

There is currently no clarity as to what the PSF should do. We maintain that, in agreement with civil society and the governments of the developing countries, the PSF should be supporting small and medium enterprises within developing countries (not be an investment vehicle for foreign corporations to enter developing country markets); that it should be under the same overall governance structures and principles as the rest of the GCF; and that it should have clear local development objectives and actively contribute to enhanced local/national capacity to manufacture and develop appropriate technologies and solutions. It should not drive foreign investments, and it should not be a tool for risky financial speculation to generate increased funding through financial markets as some have proposed.

Given these uncertainties, to use the PSF for the kinds of community-centered renewable energy investments we propose here would be very risky. Only when the PSF has been clearly defined and made operational according to the points above, can it possibly play a role. But even under such scenarios it would necessarily have a limited role; the main thrust should be placed on the main mitigation window of GCF. Decisions whether to fund countries' national payment guarantee/feed-in tariffs schemes should not be handled by the PSF alone.

obtained through commercial banks/credit institutions, government or development banks depending on country contexts and the standing of individual developers).

- While having considerable development and resilience and adaptation co-benefits, these support schemes are mitigation actions at the core, and should therefore only draw the 50 per cent share of GCF financing that is intended to be allocated to **mitigation**.
- The approval of funds must include firm, **guaranteed commitments** for funding over the 10-20 years that the developing countries in turn guarantee the renewable energy developers in their countries. This means that replenishment of the GCF needs to be guaranteed over time, and not be vulnerable to donor governments failing to keep their commitments, e.g., through guarantees coupled to IMF Special Drawing Rights.
- **None** of the avoided emissions made possible by such schemes can be sold as **carbon credits**. The GCF is a means to support developing country mitigation and adaptation, not mitigation for the developed countries (which is what off-sets are). Selling the mitigation achievements would also mean obtaining double funding for the same thing – both through the grants-based tariff support and the offsets. In addition, given the drastic emissions reductions that need to take place *within* developed countries (while supporting developing country mitigation), there is no room for offsets

**Structures and rules must be set up with a particular emphasis on local and community-based entities within both the public and private sectors**

**Forerunning countries in both North and South can take a lead by concrete, joint formulation of principles and working models**

anymore. Maximum reductions need to take place both through domestic action by developed countries and international support.

- A **diversity of actors/investors** within developing countries must be targeted through the schemes. Structures and rules must be set up with a particular emphasis on local and community-based entities within both the public and private sectors – including community organisations, cooperatives, small and medium enterprises and municipalities/local governments.
- Monitoring and evaluation criteria must reflect multiple benefits, and thus broaden the currently narrow array of **indicators** that guides GCF.<sup>37</sup>
- **Participation and technology assessment** must be assured, to ensure that the renewable energy investments are not leading to new problems.
- Funding must be able to cover costs for **capacity building**, training and other needs that are essential for long-term success,

**NEW, COORDINATING BODY**

Over time, it would likely be useful to set up a new coordinating body to effectively handle and streamline an increasing number of requests from developing countries to have similar schemes funded.

We suggest such a body – a ‘Renewable Energy Investment/Partnership Board’ be eventually established by a UNFCCC COP decision, and placed as a separate entity spanning/bridging the GCF, technology and capacity-building mechanisms as well as the Workstream 1 (post 2020-actions) and Workstream 2 (pre 2020-actions) under the Durban Platform. This board should be governed by a majority of the representatives of the developing countries, including renewable energy experts (with a particular emphasis on expertise in decentralised, distributed energy models, and payment guarantee/feed-in tariff systems) and should also include representatives of civil society.<sup>38</sup> The Board would have several tasks:

- To set up and adhere to guiding principles (listed already)
- To facilitate sharing of experiences and active encouragement of developing countries to consider establishing various RE support mechanisms through multi-stakeholder engagement.<sup>39</sup>
- To handle and assess requests of developing countries, including dialogue on, and facilitation of, South-South exchange to further enhance proposals.
- Allocate funds for renewable energy investments from available funds within the GCF mitigation window, according to clearly defined equity formula/principles (listed later).
- Request and argue for additional GCF funds (directly from GCF as well as contributing countries) when requests of developing countries exceed existing funds.
- Evaluate and follow-up on-going funding through qualitative engagement as well as a set of appropriate criteria and results-based indicators.

We realise it would be difficult to immediately negotiate terms for such a new body under the convention. We rather propose that a number of forerunning, progressive countries in both North and South take initiative to set this kind of approach in motion by concrete, joint formulation of principles and working modes that can serve as templates for later institutionalisation. ●

## X: What next – moving forward

The idea of a renewable energy partnership that funds decentralised renewable energy in the global South is one of the few really promising initiatives within current climate politics – with major resonance both within the formal negotiations as well as on the ground, among social movements and civil society.

A considerable momentum is building up, with several countries taking the lead. Most notably, the Africa Group has taken a strong leadership. The group made a formal submission to UNFCCC on 31 May 2014,<sup>40</sup> calling for the establishment of a global Renewable Energy Partnership, explicitly highlighting the promises of globally funded feed-in tariffs. The group is also proposing further strengthening of the ‘Workstream 2’ process and the establishment of a Technical Experts Process (TEP) under the pre-2020 negotiations of the Durban Platform, where this idea has already been discussed under the ‘Technical Experts Meetings’ and generated considerable enthusiasm.

An increasing number of developing countries is starting to see the attractive potential and attractiveness of a transformed energy system, not in the least how decentralised, people-oriented mini-grids could bring substantial, desirable change that promotes development and well-being for large sections of their population.

Correspondingly, there is an increasing buzz among civil society, both climate justice and mainstream environmental organisations. This momentum must be kept and significantly boosted between now and Paris. The establishment of a decentralised renewable energy support mechanism as outlined in this report could become a leading unifying call for solutions by civil society in the lead-up to COP21.

As the formal negotiations towards COP21 in Paris are riddled with challenges and distrust between rich and poor countries, the promotion of a Global Renewable Energy Partnership as outlined in this report could be the most tangible and positive outcome of the negotiations.

In fact, it is difficult to imagine significant progress in the UNFCCC negotiations without breakthroughs in the form of concrete, collaborative and substantial initiatives like this. Only real commitments with real financing and genuine ambition will start to abate the existing deep-rooted mistrust. The present promising initiative by the Africa Group matched by commitments from progressive developed countries could therefore also be a key to unlock broader progress in the UN negotiations.

In concrete terms, forerunning developing countries that seek support are encouraged to formulate investment plans for how to end energy poverty in their countries and inscribe these in their NAMAs, explicitly calling for support through the kinds of mechanisms presented here. The investment plan should detail the incentives that the countries want to offer to enhance investment in renewable energy and mini-grids in particular. It should also show how much of it would be based on payment guarantees/feed-in tariffs, whether support would also be lent to grid extension and large-grid connected projects, how much capital subsidy (if any) would be dispensed and what



criterion the disbursements would be based on. Moreover, there should be details on how appropriate safeguards and processes to ensure substantial participation by a multitude of stakeholders – civil society, communities, business – will be ensured. In order to formulate such investment plans it would likely be of great value to exchange experiences and ideas across developing countries through various South-South collaborations and exchange.

To get the idea rolling and tested, it is also possible to conceive of a smaller demonstration initiative where one or several developed countries set up a trust fund, with criteria and principles developed in collaboration with one or several developing countries. Such an initiative could be a precedent for expanded action, which in a later step could be moved into UNFCCC and the GCF.

Whichever approach is taken, the time for moving this bold, visionary idea to real action and implementation is now. This kind of transformative public investment approach can set a pathway for decisive action in many other areas and show the power of action for the public good. ●

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