

RECLAIMING POWER: AN ENERGY MODEL FOR PEOPLE AND THE PLANET



**Friends of
the Earth**

*~ANTHONY RAE
FOUNDATION~*

ABOUT THIS REPORT

This report is for the policy community involved in negotiating and agreeing how to tackle climate change and energy access at a national, regional and international level.

It shows that the way we currently produce energy is not working for people or the planet. Our fossil fuel dependency is driving dangerous climate change yet still fails to serve the energy needs of 40 per cent of the world's population.

In this document, Friends of the Earth England, Wales and Northern Ireland proposes a new energy model built around globally funded feed-in tariffs. We can transform our energy system and move beyond fossil fuels through universal access to affordable and sustainable energy.

Authors

Lead author:

Pascoe Sabido, Friends of the Earth England, Wales and Northern Ireland

Contributing authors:

Asad Rehman, Friends of the Earth England, Wales and Northern Ireland

Niclas Hällström, What Next Forum

Acknowledgements

Many thanks to everyone who gave help and advice in the writing, editing and production of this report: Karen Orenstein (Friends of the Earth US), Bård Lahn (Naturvernforbundet, Norway), Oscar Reyes (CarbonTradeWatch), Srinivas Krishnaswamy (Vasudha Foundation, India), Bobby Peek (groundWork South Africa), Frank Muramuzi (NAPE, Uganda), Anabela Lemos (Justiça Ambiental), Kate Dooley (FERN), Lucia Ortiz (Núcleo Amigos da Terra), Michael Keania (ERA, Nigeria), Tristen Taylor (Earthlife Africa), Patrick Bond (Centre for Civil Society, South Africa), Mano Mylvaganam (Foundation Graphic Design). From Friends of the Earth England, Wales and Northern Ireland: Martin Cullen, Jenny Rosenberg, Adam Bradbury, Amelia Collins, Sarah-Jayne Clifton, Ciaran Hogg.

And we would like to thank the Anthony Rae Foundation for their financial support that has enabled the production of this report.

Cover image: Bringing power to Tanzania: putting up new solar panels, Idodi Health Center
www.flickr.com/photos/pritheworld/4907980716

CONTENTS

THE CURRENT ENERGY SYSTEM IS BROKEN	3
CAUSING CLIMATE CHANGE	3
NOT DELIVERING ENERGY ACCESS	3
DESTROYING PEOPLE'S HEALTH	3
DESTROYING PEOPLE'S LIVELIHOODS	4
LOCKED IN BY THE WORLD BANK	4
MOVING AWAY FROM FOSSIL FUELS	5
A CLEAN ENERGY FUTURE	5
UPFRONT INVESTMENT IS NEEDED	5
A TRANSFORMATIVE SOLUTION: THE CASE FOR FEED-IN TARIFFS	5
A MODEL FOR ENERGY ACCESS BUILT ON GLOBALLY FUNDED FEED-IN TARIFFS	7
FEATURES OF OUR MODEL	7
BENEFITS OF OUR MODEL	7
DANGER OF FALSE SOLUTIONS	8
HOW WE GET STARTED	9
BEGINNING NOW	9
DIGGING DEEPER: POTENTIAL FEATURES OF A MODEL BUILT ON GLOBALLY FUNDED FEED-IN TARIFFS	10
GLOBAL LEVEL	10
NATIONAL LEVEL	11
LOCAL LEVEL	13
REFERENCES	14



Friends of the Earth



~ANTHONY RAE FOUNDATION~

THE CURRENT ENERGY SYSTEM IS BROKEN

As the world's governments gather in Durban, South Africa for the 2011 UN climate conference our energy system is driving dangerous climate change and inadequately serving 40 per cent of the world's population. By the time governments reconvene in Rio for the 2012 Earth Summit, they need to have agreed a new model is needed to replace the current broken one, which is:

Causing climate change

Burning fossil fuels for energy is responsible for over 60 per cent of the CO₂ in the atmosphere and a major driver of climate change.¹ The impact is being felt already. Floods have devastated Pakistan for a second consecutive year, wiping out 73 per cent of food crops. Asian Development Bank (ADB) labelled over 30 million people climate migrants in 2010 in Asia alone, a figure predicted to rise.² Drought-prone East Africa has exceeded average temperatures by more than 1°C for the past eight years, unprecedented in even a single year before 2003.³ Increasing ocean temperatures have depleted local fisheries throughout Tuvalu.⁴ Effects are spread across the globe but disproportionately affect the poorest and most vulnerable.

Analysis by the United Nations Environment Programme (UNEP) shows that current pledges to reduce our greenhouse gas (GHG) emissions will still cause up to 5°C of average global warming, with catastrophic consequences.⁵ However, Africa could experience up to 8°C of warming.

According to the Intergovernmental Panel on Climate Change (IPCC)'s Fourth Assessment Report, fossil fuel use needs to drop by at least 80 per cent by mid-century to keep global temperature rises to 2°C⁶ and close to

100 per cent to avoid breaching what many scientists see as the critical threshold of 1.5°C. This would not only have devastating impacts on Africa, the small island developing states and other vulnerable countries such as Bangladesh, but also on our planetary ecosystems.⁷ To keep within 1.5-2°C, research by Friends of the Earth shows steep emissions reductions are needed immediately in high per capita-emitting countries, with medium-emitting countries like China peaking within five years.⁸ Yet global fossil fuel consumption – particularly coal – continues to rise.⁹ A transformational alternative is needed immediately.

Not delivering energy access

Access to clean, reliable energy – like electricity or clean cooking fuels – is a prerequisite for tackling poverty, opening up access to clean water, health, education and other basic needs.¹⁰ Yet the International Energy Agency (IEA) reports 1.3 billion people worldwide are without access to electricity, while 2.7 billion still rely on traditional biomass like firewood or dung, or even coal for cooking, heating and other needs.¹¹ Some 84 per cent of sub-Saharan Africa is without electricity,¹² mainly in rural areas, while 400 million people in India lack electricity.

Lack of access results from our current energy production model: large, highly centralised and fossil fuel-based, relying on expensive grids which make extending access to remote, rural areas or to those with low consumption rates expensive. However, the IEA predicts that to achieve universal energy access, 70 per cent of the rural population will need to be serviced by decentralised energy systems. The urban poor are equally affected but often mistakenly

included in official electricity access figures – while technically having access to electricity many cannot afford to use it.

In coal-fired South Africa, host to the 2011 UN climate talks, the Government undertook a massive electrification programme via pre-paid meters but the price barrier remains: by 2014 residential tariffs will have experienced a 140 per cent real increase in six years.¹³ Meanwhile, South Africa's heavily polluting industries enjoy the world's cheapest electricity, subsidised by state-owned energy company Eskom.¹⁴ Poor communities have taken to the streets in protests. With 57 per cent of the population below the poverty line and 40 per cent unemployment, many poor residents are reconnecting to the grid illegally, causing stand-offs and even violence between communities, utility employees and private security forces (see box 1).

Destroying people's health

Without access to reliable or affordable energy, billions continue to rely on traditional biomass. In Ethiopia 93 per cent of the population cook with it. Smoke inhalation, particularly among women and children, causes more deaths than malaria, tuberculosis or HIV/AIDS.¹⁶ Indoor coal use – particularly prevalent in China and among the urban poor in Africa – not only causes respiratory diseases but is the major cause of residential fires in informal settlements.¹⁷ UNEP has also identified the burning of traditional fuels as a source of black carbon (soot) and tropospheric ozone, both harmful air pollutants which accelerate climate change. Scientists say tackling these could reduce temperature rises by up to 0.5°C.¹⁸

BOX 1: SHOOTINGS BY PRIVATE SECURITY FORCES OVER ELECTRICITY ACCESS

Extract from the Daily News in Durban, South Africa, 8 August 2011¹⁵ “I heard gunshots and that there was some problem with the people and illegal electricity connections,” said [Mlalumi Bango] the Grade 8 Lakehaven Secondary School pupil. He was then hit three times, once on his arm and twice on his back. His mother, Nomonde, said that she was worried about her children walking the streets. “What if this happens again? And what if he is killed the

next time?” she asked.

‘Nozuko Hulushe, Bango’s aunt, who witnessed the incident, said she saw members of a private security company raiding dwellings and removing cables that had been used to illegally connect electricity. “Members of the community got angry because we need the electricity – it is a basic need that has not been provided by the municipality,” she said.’

Source: Daily News, South Africa

Destroying people’s livelihoods

Communities living near fossil fuel extraction sites, like the oil wells in the Niger Delta, see their local environment destroyed and livelihoods ruined, often without compensation (see box 2). Dirty power plants wreak similar havoc, polluting local water, air and soils. Next to the Sipat Super Thermal Power Project in Bilaspur, India, villagers complain that polluted water from the plant seeps up through

the ground to contaminate the village and surrounding fields, disrupting agriculture and livestock.¹⁹ Similar stories are heard across the globe.

Locked in by the World Bank

The World Bank and other international financial institutions (IFIs) promote the spread of large centralised energy systems, particularly those powered by dirty fossil fuels. While the World Bank’s stated policy aim is to accelerate the transition to a low-

BOX 2: BIG OIL IN THE NIGER DELTA

Multinational oil companies are destroying the lives and livelihoods of people living in the Niger Delta through the devastation of the Delta’s rich ecosystems.

“Fishing, farming and weaving, which used to be our people’s mainstay are no longer profitable because of oil pollution. Before oil exploration there were fish everywhere. The stream, our only source of drinking water, has been

polluted by the oil companies. Our people are dying of strange sicknesses as a result of gas flaring. The government and oil companies are aware of this but have chosen to respond to our plight by killing, molesting and detaining us for speaking out.”

Larry Bowoto, of the Ilaje Yoruba people in Ondo State, Nigeria²⁰

Source: Environmental Rights Action (Friends of the Earth Nigeria)

carbon economy, 2010 saw it invest US\$6.6 billion in fossil fuels, with US\$4.4 billion in coal alone – a 356 per cent increase on 2009. Meanwhile, funding for renewable energy rose by only 11 per cent to US\$1.58 billion, still less than a quarter of total fossil fuel investments.²¹

Earlier this year the World Bank approved a US\$3.75 billion loan to South African energy company Eskom for a new coal-fired power station. The Medupi plant will produce at least 25-30 million tonnes of CO₂ per year – set to be one of the biggest sources of greenhouse gases on the planet, alongside Eskom’s other new plant, Kusile, producing another 35 million tonnes of CO₂ per year.²² The extra capacity has been earmarked for industrial users, despite chronic energy poverty suffered by many residents. However, the cost of the project – already a third over budget – will be repaid through residential tariff hikes.²³

Research by Oil Watch International reveals that none of the 26 fossil fuel projects undertaken by the World Bank in 2009-10 targeted access to energy.²⁴ Meanwhile, an assessment by the Bank’s own independent evaluation group (IEG) of the International Finance Corporation (the Bank’s principal lending arm to the private sector) found that fewer than half the projects examined were designed with poverty alleviation objectives in mind and only 13 per cent of projects “had objectives with an explicit focus on poor people.”²⁵

The continued promotion of centralised, fossil fuel-based energy by global financial institutions has, Friends of the Earth believes, failed to tackle poverty and weakened efforts to tackle climate change by locking countries into 40 to 50 years of dirty energy use through new projects.

MOVING AWAY FROM FOSSIL FUELS

A clean energy future

Tackling poverty through clean energy is central to today's political agenda. UN Secretary General Ban Ki-moon has called for a "clean energy revolution" ahead of Rio+20, 2012 will be the Year of Sustainable Energy for All and Norway has just launched the Energy+ Partnership to address "energy poverty and the climate agenda."²⁶ However, current approaches that focus on accelerating business-as-usual solutions lack the ambitious and transformative approach needed to simultaneously tackle energy access and climate change.

A complete shift away from fossil fuels is needed. Stanford University scientists Jacobson and Delucchi show in their paper *Providing all Global Energy with Wind, Water and Solar Power* that technically, all our energy could come from renewable technologies by 2050,²⁷ while the IPCC and Ecofys demonstrate that 80 and 95 per cent respectively are within reach using existing policies.²⁸ The latest UN World Economic and Social Survey shows the right technology is already available, but needs to be transferred and deployed.²⁹ Research consistently concludes that the problem is not technical – or even economic – but socio-political. Yet positive, practical examples of effective policy responses already exist: Germany abandoning nuclear in favour of renewables and energy efficiency; and China's solar feed-in tariff – predicted to increase solar capacity tenfold.³⁰ However, the right policy framework and finance to scale up a global renewable transition are lacking.

Upfront investment is needed

Without substantial policy guidance and public investment, markets alone are unlikely to deliver the

"Grid extension in rural areas is often not cost effective. Small, stand-alone renewable energy technologies can often meet the electricity needs of communities more cheaply and have the potential to displace costly diesel-based power generation options."³¹

International Energy Agency, World Energy Outlook 2010

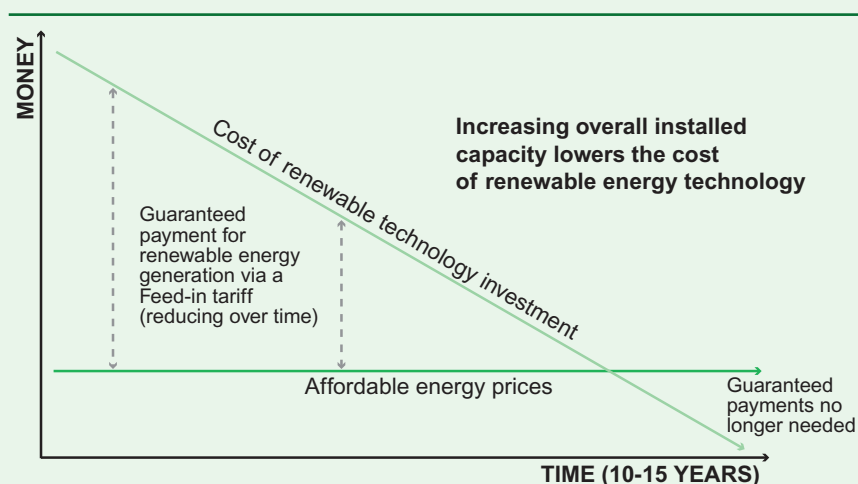
scale of renewable deployment at the necessary speed to tackle climate change and poverty. Industrialised countries need to provide upfront public finance in line with their legal obligations enshrined in the UN Framework Convention on Climate Change (UNFCCC). These contributions would also be medium-term investments: wide-scale upfront investment in renewable technology – done correctly – would dramatically and quickly lower global costs, making the low-carbon transition for industrialised and industrialising countries cheaper and more politically feasible. According to the UN Department for Economic

and Social Affairs (UN-DESA), public investments of US\$100 billion a year for 10-15 years would make renewables cheaper than fossil fuels, allowing renewables to become the default choice for energy generation everywhere.³² The *Stern Report* recommended spending 1 per cent of current GDP on tackling climate change now – revised upwards to 2 per cent – to avoid 20 times that in the future.³³ The alternative to not lowering the cost of renewables is continued fossil fuel extraction and the ballooning price of tackling climate change.

A transformative solution: the case for feed-in tariffs

National-level feed-in tariffs (FITs) – guaranteed payments for renewable energy generation – have delivered dramatic increases in renewable capacity across the world, and are seen by the IPCC as a key enabling policy.³⁵ Deutsche Bank similarly concludes that feed-in tariffs are by far the most effective policy tool for promoting renewable energy.³⁶ Around 90 per cent of the expansion of wind power in Europe since 1995 has been

BOX 3: UPFRONT PUBLIC INVESTMENT BRINGS DOWN COST AND MAKES RENEWABLE ENERGY DEFAULT CHOICE



in countries with feed-in tariffs,³⁷ while China's wind capacity has doubled every year since the introduction of a FIT in 2006.³⁸ However, most countries lack the resources of the EU or China, limiting the scope of their FIT: India has vastly scaled back the ambitions of its solar energy mission from lack of funds; in poorer developing countries, the biggest barrier remains access to finance on the ground.

A bold public investment programme over 10-15 years linking developing country on- and off-grid FIT plans to a global fund could drive the transition to renewable energy. Direct

access to upfront capital through a national agency would enable local community organisations in rural and urban areas to generate and distribute their own clean, affordable decentralised energy, paying back the cost of the appropriate renewable technology through guaranteed payments for generation. Capacity building and grassroots empowerment at the local, national and international level would ensure energy access remained a core component of the FIT, while promoting community-centred models of governance such as co-operatives (see box 4).

BOX 4: SUCCESS OF CO-OPERATIVES IN THE US AND BRAZIL

United States: Most of rural America was electrified through locally-owned co-operatives – and at break-neck speed.³⁹

- In 1936, nine out of 10 rural homes were without electricity.
- Franklin D Roosevelt created the Rural Electrification Agency, a federal lending programme that kick-started most locally-owned rural electric co-operatives.
- By 1953 more than 90 per cent of US farms had electricity, despite having the distraction of the second world war.
- Today more than 900 rural electric co-operatives bring electricity to 42 million members and continue to outperform all alternative management models.

Rio Grande do Sul, Brazil: local co-operatives help small-scale farmers achieve energy and food sovereignty in the face of environmentally and socially damaging agribusiness.⁴⁰

- COOPERCANA (Cane Growers' Cooperative) promotes micro-distilleries that produce ethanol for local vehicles, but only secondary to food production.
- CRERAL (Rural Electrical Cooperative) has 6,230 associates, providing electricity to its members through micro-hydro and an ethanol micro-distillery; sugar cane is limited to 1 hectare per member, with sugar-cane fibre used for feed-stock and fertiliser.
- COOPERBIO (a Small-scale Farmers' Movement Cooperative) produces ethanol in conjunction with milk, allowing its members to profit from small-scale cultivation.

Source: The National Rural Electric Cooperative Association (NRECA); Amigos da Terra Brasil

A MODEL FOR ENERGY ACCESS BUILT ON GLOBALLY FUNDED FEED-IN TARIFFS

Features of our model

The idea of globally funded feed-in tariffs is supported by a range of organisations: Greenpeace,⁴¹ the World Future Council,⁴² Swedish Society for Nature Conservation,⁴³ UN-DESA⁴⁴ and Deutsche Bank.⁴⁵ However, each approach differs, depending on the desired outcome and focus. Deutsche Bank's investor-led focus (ie removing barriers to investment in renewables rather than stimulating development) potentially misses many developmental benefits and ignores important social and environmental safeguards. Friends of the Earth believes that by including key stakeholders and core social and environmental principles in the design and implementation, a model built on globally funded feed-in tariffs can tackle climate change and energy access through a bottom-up energy transformation.

Any mechanism would be time bound and operate at the following levels:

International

- A multi-stakeholder global fund for national FITs and upfront finance for technology.
- Setting principles to guide national plans.

National

- A multi-stakeholder assessment of national energy needs, resulting in a national energy strategy with a FIT.
- Creation or development of appropriate institutions and legislation to enact the strategy.

Local

- Clean energy access projects, with a focus on community ownership, funded through a FIT and direct access to finance for clean technology, including clean cooking stoves, which could be incorporated into the scheme.

- Capacity building and empowerment to ensure full local participation.

Civil society participation at all levels and in all stages of mechanism design and implementation will ensure it addresses the community priority of energy access, as well as climate change.

Benefits of our model

Within 15 years, this mechanism could transform the way we think about and produce energy, catalyse development, accelerate the renewables industry globally, and keep fossil fuels in the ground. All countries could benefit.

Developing countries

- **Avoid the worst impacts** of climate change through mitigation.
- **Tackle poverty** through increased access to clean, affordable energy (see box 5).
- **Avoid 2 million deaths** from indoor air pollution as clean cooking fuels and electricity replace dirty, inefficient fuels like coal, paraffin and firewood.⁴⁷
- **Avoid resource conflicts** both in developed and developing countries.
- **Greater resilience and adaptation** to climate change through

access to energy, improved living standards and reduced reliance on climate-vulnerable ecosystems.⁴⁸

- **Job creation and industry** from locally adapting, manufacturing, installing, operating and maintaining labour-intensive renewable technology (see box 6); stimulation of local enterprises through access to energy and local finance.
- **Break the monopoly** of the current fossil-fuel intensive power providers by decentralising energy generation and access.
- **Democratising energy and strengthening local governance** by supporting structures of self-organisation to voice and address local concerns including and beyond energy (see box 4).

Developed countries

- **Global mitigation of climate change** by moving away from fossil fuels.
- **Own transition cheaper and easier** by lowering global cost of renewables and avoiding rising costs of fossil fuels.
- **Lower adaptation costs** at home and in climate finance to developing countries.

BOX 5: COMMUNITY SOLAR IN UTTAR PRADESH, INDIA

Until 2009, drought-prone Rampura was among the 45 per cent of India lacking electricity. The village now has one of India's first community-managed solar power plants, with 60 panels and 24 batteries.⁴⁶

"Solar power is a blessing as we can now also study at night time", says Shanno, Class 4 student at the village's primary school.

With the success of the solar power plant, the village is now

setting up a biogas project.

"A biomass gasifier project [is needed by the village] to meet its energy needs for irrigation purposes in times to come, the fuel for which will come from the large cattle population being reared by the villagers." Thakur Das Yadav, head of the Village Development Committee concludes.

Source: Vasudha Foundation, India

BOX 6: JOBS CREATED BY FUEL SOURCE

Energy source	Construction, manufacturing and installation person years/MW	Operation and maintenance jobs/MW
Coal	7.7	0.1
Gas	1.5	0.05
Wind	15	0.4
Solar PV	38.4	0.4

Source: Greenpeace International/EREC⁴⁹

- **Encouraging green jobs and industry** by kick-starting domestic green transformations (see box 6).
- **Upfront public climate finance becomes an investment** by saving money in the medium term in domestic and international mitigation and adaptation.
- **Greater climate finance accountability** as the FIT is only paid on generation.
- **Rebuild trust within the international system** as rich, industrialised countries demonstrate

leadership, cooperation and respect for UNFCCC principles.

Danger of false solutions

A model built on globally funded feed-in tariffs has great potential but needs the right features to effectively tackle climate change and energy access.

- **The wrong technology** deployed on the wrong scale could cause social and environmental damage. For example, the IEA suggests Africa has 92 per cent of its big hydropower reserves untapped,⁵⁰ but experience

to date shows such projects have negative social and environmental impacts (see box 7).

- **The wrong focus** could mean centralised grid extensions that do not deliver access. The inclusion of coal giants Eskom and Duke Energy on Ban Ki-moon's High Level Group on Sustainable Energy for All highlights this risk.

- **The wrong goals** of only tackling energy access and not climate change. The UN is calling for universal access to "modern energy," which includes fossil fuels. This will not challenge fossil fuel dependence and misses the opportunity for a global energy transformation. Clear policy links must be made between climate change and energy access.

- **The wrong funding sources** via carbon markets could remove stability, starve it of funds, and undermine genuine climate benefits. Carbon offsets do not reduce emissions, but move reductions from one place to another at best.

- **The wrong investors** in the form of multinational corporations creating new monopolies and benefiting from public subsidies at the expense of local and national entities – public and private. Clear regulations are needed to ensure a diversity of investors, and in particular decentralised, bottom-up initiatives.

- **The wrong trustee** in the World Bank – as Deutsche Bank wants – whose links to fossil fuels, Northern governments and carbon markets will inhibit a collaborative environment. Nor should funding pass through financial intermediaries (such as private equity funds), which introduce new layers of investment risk, reduce accountability and bypass environmental and social lending criteria.⁵¹

BOX 7: WORLD BANK PROJECTS FAILING POOR IN UGANDA

Only 1 per cent of rural Ugandans have access to electricity, yet the World Bank, African Development Bank and Ugandan Government see large, centralised hydroelectric projects as the solution.

"Rather than bringing sustainable development, rural electrification and poverty alleviation as [IFIs and the Government] claim, the reality has been more chronic power shortages, more load-shedding, more debt and more absolute poverty.

"Despite their continued failure, the Ugandan Government and the World Bank continue to believe that large-scale infrastructure projects will deliver rural electrification and poverty alleviation. All the while, they ignore Uganda's plentiful renewable resources that could provide the majority of citizens with affordable and abundant electricity."⁵²

Frank Muramuzi, Executive Director of NAPE/Friends of the Earth Uganda

How we get started

Support for a global scheme requires evidence of success. Establishing a bilateral or small multi-lateral pilot initiative between willing and progressive countries in the North and South could embed the right principles and mechanisms, while advocacy and multi-stakeholder engagement alongside the pilot would ensure a participative process in the eventual design of the fund and how it operates. Once global support is secured, the scheme should be scaled up and incorporated under a UN framework.

Beginning now

The window to tackle catastrophic climate change is closing, while the political momentum for universal access to energy is growing, making this the key moment for a model built on globally funded feed-in

tariffs. These policy goals require a comprehensive and coherent approach to maximise and amplify benefits across both objectives. Conversely, a lack of cohesion could further entrench current trends towards fracking for shale gas or deep-sea Arctic drilling, resulting in severe environmental and social costs.⁵³ IEA and IPCC research indicates that current policies are failing to adequately address climate change and energy access and lack the framework for the critical, transformative action needed.

Transformation requires tackling those economic and political forces with a vested interest in reproducing the same ineffective energy model. A study commissioned in Mozambique found that renewable resources could easily provide enough energy for the 80 per cent of the population

without access to clean, affordable sources, yet national energy policy is based on an expansion of fossil fuels and large-scale hydroelectric power.⁵⁴ Similar examples are common throughout the global South. We need political leadership to break our fossil fuel dependency; doing so could transform the way we think about and use energy, allowing the world to develop cleanly and sustainably. A model of globally funded feed-in tariffs represents the most cost effective way of achieving this. Delaying the transformation has severe financial costs: according to the IEA, each year that passes without embarking on an ambitious and necessary path of emissions reductions adds another US\$500 billion to the bill, more than double total investment in green technology in 2010.



A family using solar panels to generate off-grid energy in Tarialan soum, Uvs Aimag (Uvs Province), Mongolia.

UN Photo/Eskinder Debebe

DIGGING DEEPER: POTENTIAL FEATURES OF A MODEL BUILT ON GLOBALLY FUNDED FEED-IN TARIFFS

Global level

Global fund

The global fund would ensure stable, guaranteed flows of finance over its lifespan. It would allocate country funding based on an agreed framework, recognising common but differentiated responsibility (CBDR). The eventual level of funding should not inhibit energy access ambitions or climate goals, but instead provide an indication of how much extra finance would need to be generated.

Form

A model for civil society participation in a global fund is the multi-stakeholder Global Fund to Fight AIDS, Tuberculosis and Malaria. The Fund ensures transparency, accountability and greater sustainability through a collective sense of ownership from the involvement of those whose needs it serves.⁵⁵ The fund will provide FITs payments and upfront finance for communities to purchase appropriate technology through direct access via national agencies. Capital will also be available for capacity building.

Principles

Participation for developing countries is voluntary. However, globally agreed principles will provide the parameters for the national energy needs assessment and the resulting strategy. This ensures key goals and priorities are met, eg prioritising off-grid energy access, ensuring environmental safeguards and social integrity of projects and technology, and guaranteeing democratic participation.

Governance

Similar to the Adaptation Fund, the multi-stakeholder fund board would have equitable and balanced

regional representation, but also include civil society and technical members. The World Bank's poor record on development, environmental integrity and social justice make it an unsuitable participant if the fund is to gain widespread support. Before scaling up to a global level, the fund should begin as a pilot between a small number of donor and recipient countries. It could then be incorporated within the UN framework.

Scale of financing

The IEA sees an additional US\$18 trillion investment in low-carbon energy technologies needed by 2035 to stand a 50 per cent chance of avoiding 2°C. Scientists now say even 1.5°C of warming will have major consequences.⁵⁶ The IEA also says we need to spend an extra US\$50 billion a year – five times current spending – to achieve universal energy access.⁵⁷ Tackling both simultaneously could bring double dividends. Lowering the cost of renewables to grid parity – the same price as other fuels – is predicted to cost an additional US\$100 billion a year for 10-15 years, a small sum compared to the IEA's predictions. If combined with upfront soft loans and grants to purchase technological hardware, infrastructure and capacity building, universal energy access could also be achieved. UN Development Programme research on scaling up decentralised energy access programmes shows the importance of budgeting for capacity development, which accounted for between 56 and 68 per cent of total budget with the remainder spent on hardware.⁵⁸ Sums could begin small and be ramped up as successful pilot initiatives build credibility and generate interest. Feed-in tariffs are proven

to crowd-in investment, meaning initial public investment would prompt a dramatic surge in interest and investment from non-state actors.

Sources

In accordance with legally binding obligations under the UNFCCC, the fund should receive new and additional public finance from rich, industrialised countries. In addition to assessed tax-based contributions, research by Friends of the Earth shows that even conservative estimates put potential revenue from "innovative sources" of climate finance between at least US\$400 and US\$600 billion.⁵⁹ For example, a leaked report by the World Bank and the IMF in preparation for the 2011 G20 summit shows diverting fossil fuel subsidies and a levy on aviation and maritime fuels both bring in considerable sums, although they would need to adhere to common but differentiated responsibilities (CBDR) principles. According to the European Parliament, a financial transaction tax like the one currently operating in Brazil to curb speculation could bring in as much as US\$650 billion a year if applied globally.⁶⁰ IMF Special Drawing Rights could bring in an additional US\$100 billion a year without affecting inflation. All would provide upfront public capital for governments to invest rather than resorting to carbon markets – which are unreliable sources of capital and ineffective at reducing emissions.⁶¹ Carbon markets also try to drive up the price of fossil fuels to make renewables competitive, when the opposite – bringing down the cost of renewables – is required to ensure affordability.

National level

National Strategy for Renewable Energy Access

Each country that chooses to participate would create or amend a national agency, linking the fund to local energy needs through a National Strategy for Renewable Energy Access (NSREA), based on national needs but adhering to internationally agreed principles.

Energy needs assessment

The NSREA would be the outcome of a national energy needs assessment, a multi-stakeholder process bringing government, industry and civil society together as equals to agree national energy and energy access priorities and the necessary laws and institutions to fulfil them. Renewable energy is already on the agenda of many developing countries: REN21 – the Renewable Energy Policy Network for the 21st Century – identifies at least 119 countries with some form of national renewable policy.⁶² However, UNDP experience in Asia-Pacific shows most countries are failing to integrate poverty reduction and environmental protection into their energy policies.⁶³ Rural electrification is likely to figure prominently in any assessment, yet while many African countries have rural electrification plans, detail around renewables is lacking and most still favour large-scale centralised grids.⁶⁴ Social, cultural, economic and technical barriers will have to be identified at all levels to ensure the assessment leads to an effective strategy. Including all key stakeholders (government, industry and civil society), as with the Forestry Law Enforcement, Governance and Trade (FLEGT) Action Plan that tackled illegal

logging (see box 8), increases buy-in, legitimacy and also scrutiny of all parties, leading to better outcomes.⁶⁵

Civil society participation

Enabling processes and on-the-ground capacity building will ensure genuine civil society involvement. Much legislation around participation, community and environmental rights already exists internationally but may need to be incorporated in law or reflected in policy. Again, a good example is the FLEGT process, which created a national network of shared civil society platforms in Cameroon, Congo and Ghana. Through grassroots capacity building, knowledge sharing and advocacy among local NGOs, civil society voices were represented at the national level (see box 8).⁶⁶

Access via national strategy

The assessment and resulting NSREA, if designed appropriately, should release the global financing for FITs and enabling policies. Capacity building and the lending of expertise

and resources from the Fund to countries completing NSREAs should ensure a smooth process, building strong bonds between donor and recipient countries and feeding expertise and best practice.

Appropriate technology

The NSREA should decide appropriate national technologies, based on overall Fund principles and local knowledge of needs and resources that respect local communities and the environment. Institutions and nationwide networks will therefore need the capacity to pass on such information. Intellectual property rights will have to be relaxed, and technology hubs should share information and best practice to adapt technology to local conditions through innovation, leading to local industry and job creation. Technology options will not necessarily be high-tech or electrical, and should include clean cooking and mechanised technologies which could also be brought into the FIT, for example through cross-subsidisation. Participatory technology

BOX 8: FLEGT AND MULTI-STAKEHOLDER DECISION MAKING

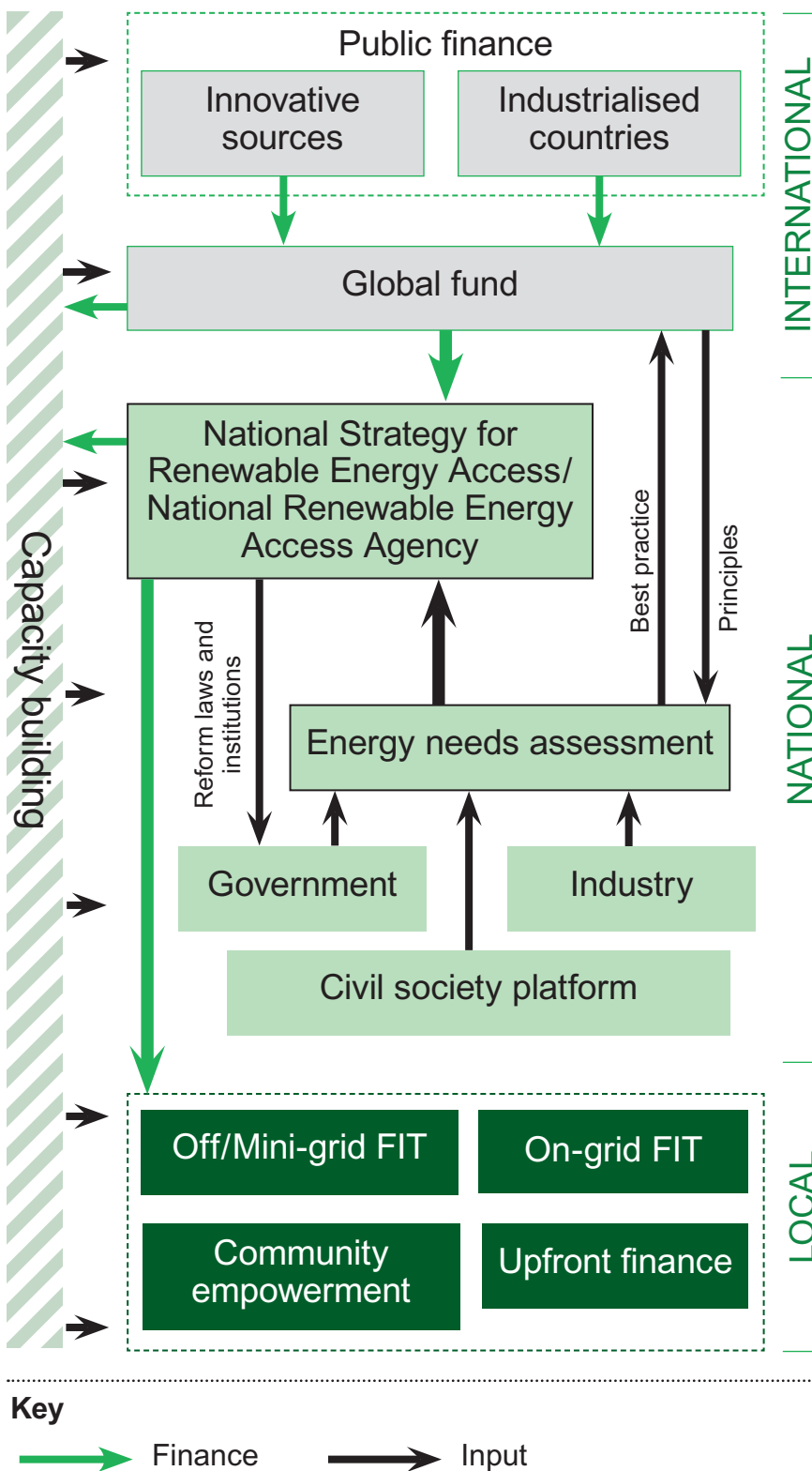
Under the Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan, Voluntary Partnership Agreements (VPAs) are signed between the EU and timber-producing countries to combat illegal logging.⁶⁷ VPAs:

- Set out commitments and actions of both parties, including measures to increase participation of non-state stakeholders and rights holders, recognise rights of communities to the land and address corruption.

- Depended upon the approval of national stakeholders, including NGOs, forest-dependent communities, indigenous peoples and the timber industry.
- Saw the creation of nation-wide networks of civil society platforms through wide-spread capacity building, knowledge sharing and advocacy.
- Have been negotiated between the EU and Cameroon, Congo and Ghana and adopted with all stakeholders involved – a first.

Source: FERN

ELEMENTS OF A MODEL BUILT ON GLOBALLY FUNDED FEED-IN TARIFFS



An illustrative diagram of the potential features of a model built on globally funded feed-in tariffs

International:

- **Finance:** New and additional upfront public finance from industrialised countries, incorporating innovative sources and in line with Common But Differentiated Responsibility.
- **Fund:** equitable regional representation of governments, civil society and technical experts; mandates sustainability principles and collates international best practice.

National:

- **Energy needs assessment:** jointly undertaken and approved by government, civil society and industry.
- **National strategy/agency:** result of energy needs assessment, outlining course of action, including institutional and legislative reforms; principle mechanism to access and redistribute finance once strategy approved by global fund.

Local:

- **Finance:** payments for on-, off- and mini-grid FITs upon generation, creating greater transparency and accountability; upfront finance through soft loans and grants to local communities and small businesses for clean technology.
- **Community empowerment:** enables local communities to take advantage of the scheme; avoids further privatisation of energy services.

Capacity Building

- **All levels:** capacity building ensures a bottom-up process focused on community energy needs; enables all other processes to function effectively.

assessments will need to critically examine technologies from a health, environment and social risk perspective and make it possible for a country to exclude any inappropriate technologies. Ensuring energy efficiency should also be an integral part of the overall model.

Payments for generation

Payments should be long-term and stable, so communities and local businesses can invest in their futures securely. However, the rate for new FITs should reduce over time, reflecting falling technology costs and risk. Such a mechanism exists in the German FIT, known as a digression rate, and ensures renewable generation targets are met but without the Government overpaying. It would provide greater certainty to international donors on predicted expenditure and prevent unexpected tariff changes as in the UK over solar PV.⁶⁸ Rates should be set according to technology and local conditions as well as the model, ie higher rates to encourage off-grid or mini-grids and recognition of different needs and ability to pay.

Local level

FIT model

The feed-in tariff will have the flexibility to deliver on and off grid depending on a country's needs, emphasising access. Most African countries will focus on off-grid rural electrification, while many Asian countries will generate affordable and reliable on-grid and decentralised energy. For both continents, renewably powered decentralised mini-grids for single or multiple villages are now usually cheaper and more reliable than extending the national grid, partly due to cheaper technology but also rising

diesel prices for single or communal generators.⁶⁹ While hybrid mini-grids (more than one energy source) often use diesel generators as a reliable backup, smart mini-grids that combine more than one renewable source can avoid this option. Mini-grids may eventually be connected to the national grid, feeding any excess back in. On-grid models can substitute the dirty sources currently used by energy-intensive industries and consumers, but must not catalyse a large-scale privatisation of energy generation and distribution.

Soft loans

Soft loans will be channelled to local communities and small businesses through a multi-stakeholder national implementing agency, guided by the national strategy – the key lesson from the Adaptation Fund is the importance of capacity building to ensure finance reaches where it is most needed.⁷⁰ The primary focus of the loans will be on off-grid and the poorest by providing upfront credit for technology and clean cooking facilities. These can be paid back through guaranteed payments through the FIT, while avoiding the risks associated with commercial loans.

Models of governance and ownership

Different kinds of investment, ownership and management – private, public, social or a combination – will need to be explored in each country to see what is locally appropriate. Local ownership should be given preference to prevent land grabbing and the widespread expansion of existing or new energy monopolies. Co-operatives have been encouraged by the IEA as the most effective way to spread decentralised mini-grids.⁷¹ In

the United States, 90 per cent of rural America gained electricity access via co-operatives in 17 years (see box 4). Studies by the EC Joint Research Centre show electricity co-operatives have lower energy costs and higher levels of local participation – key for project sustainability.⁷² Positive examples in Bangladesh and Nepal point to their effectiveness both at increasing rural electrification and stimulating micro enterprises through their local development focus and access to finance.⁷³

Capacity building

Local-level capacity building will be essential, bringing down medium-term project costs much faster than technological change.⁷⁴ Grassroots empowerment should ensure local communities' energy priorities are reflected in the energy needs assessment, rather than assuming them: in many cases domestic electricity will come after other communal needs such as a solar-powered water pump for irrigation and clean drinking water.⁷⁵ Empowerment can be through training and knowledge sharing, legal advice, advocacy and technical support.

Knowledge receiving and sharing

Technical training and support would pass knowledge down and up, ensuring best practice is shared nationally and between countries in the global South. It allows more effective transfer of technology, as success is dependent on soft (systems and expertise) as well as hard technology if it is not to fall into disrepair.⁷⁶ Networks – local and regional – can facilitate this, as well as adapting technologies to local conditions, stimulating local job creation and development.

REFERENCES

- 1 UN-DESA (2011) *World Economic and Social Survey 2011*, http://www.un.org/en/development/desa/policy/wess/wess_current/2011wess.pdf
- 2 ADB (2011) *Facing the Challenge of Environmental Migration in Asia and the Pacific*, ADB Briefs No. 9, September, <http://beta.adb.org/sites/default/files/adb-brief-09-environmental-migration.pdf>
- 3 World Meteorological Organization (2011) *WMO statement on the status of the global climate in 2010*, http://www.wmo.int/pages/prog/wcp/wcdmp/documents/WMO_1074_EN.pdf
- 4 Department of Environment (2011) *Tuvalu's National Adaptation Programme of Action*, <http://unfccc.int/resource/docs/napa/tuv01.pdf>
- 5 UNEP (2011) *Emissions Gap Report: Are the Copenhagen Accord Pledges Sufficient to Limit Global Warming to 2° C or 1.5° C?*, http://www.unep.org/publications/ebooks/emissionsgapreport/pdfs/EMISSION_GAP_REPORT_LOWRES.pdf
- 6 IPCC (2007) *Fourth Annual Report: Climate Change 2007 Synthesis Report*, http://www.ipcc.ch/publications_and_data/ar4/syr/en/main.html
- 7 Smith et al (2009) *Assessing dangerous climate change through an update of the Intergovernmental Panel on Climate Change (IPCC) "reasons for concern"*, <http://www.pnas.org/content/106/11/4133.full.pdf+html>
- 8 Friends of the Earth (2010) *Reckless Gamblers*, http://www.foe.co.uk/resource/reports/reckless_gamblers.pdf
- 9 Carbon Dioxide Information Analysis Centre (2011) *Fossil-Fuel CO2 Emissions*, Department of Energy, http://cdiac.ornl.gov/trends/emis/perlim_2009_2010_estimates.html
- 10 DFID (2002) *Energy for the Poor: Underpinning the Millennium Development Goals*, DFID: London, <http://ti-up.dfid.gov.uk/uploads/public/documents/Key%20Documents/energyforthepeer.pdf>
- 11 IEA (2011) *World Energy Outlook 2011 Special Report – Energy for all: financing access for the poor*, http://www.iea.org/papers/2011/weo2011_energy_for_all.pdf
- 12 IEA (2010) *World Energy Outlook 2010 Special Early Excerpt – Energy Poverty: How to make modern energy access universal?*, http://www.iea.org/weo/docs/weo2010/weo2010_poverty.pdf
- 13 Eskom (2011) *Annual Report 2011*, http://financialresults.co.za/2011/eskom_ar2011/downloads/eskom-ar2011.pdf
- 14 groundWork (2009) *The World Bank and Eskom: Banking on Climate Destruction*, <http://www.groundwork.org.za/Publications/worldbankeskom09.pdf>
- 15 Daily News (8 August 2011) *Kennedy Road: teen hurt*, <http://www.iol.co.za/dailynews/news/kennedy-road-teen-hurt-1.1114006>
- 16 IEA (2010) *World Energy Outlook 2010 Special Early Excerpt – Energy Poverty: How to make modern energy access universal?*, http://www.iea.org/weo/docs/weo2010/weo2010_poverty.pdf
- 17 Earthlife Africa Johannesburg (2011) *Second Class Citizens: Gender, energy and climate change in South Africa*, <http://www.earthlife.org.za/wordpress/wp-content/uploads/2011/03/EARHLIFE-MAG-MARCH-FOR-WEB-2011-AAA-1.pdf>
- 18 UNEP (2011) *Integrated Assessment of Black Carbon and Tropospheric Ozone: Summary for decision makers*, http://www.unep.org/dewa/Portals/67/pdf/Black_Carbon.pdf
- 19 Personal testimony collected by the Vasudha Foundation, New Delhi
- 20 Personal testimony collected by Environmental Rights Action/ Friends of the Earth Nigeria, <http://www.eraction.org/component/content/article/127>
- 21 Mainhardt-Gibbs, H. (2010) *World Bank Energy Sector Financing Update*, <http://www.bicusa.org/en/Document.102339.aspx>
- 22 groundWork (2009) *Letter to the World Bank regarding proposed 3.75 billion USD loan by World Bank to South African power utility Eskom*, <http://www.groundwork.org.za/Publications/EskomFinalDocs/lettertoWB%20ED.pdf>; Greenpeace South Africa (2011) *The True Cost of Coal*, <http://www.greenpeace.org/africa/Global/africa/publications/coal/TrueCostOfCoal.pdf>
- 23 groundWork (2009) *The World Bank and Eskom: Banking on Destruction*, <http://www.groundwork.org.za/Publications/worldbankeskom09.pdf>
- 24 Mainhardt-Gibbs, H., Bast, E. and Kretzmann, S. (2010) *World Bank Group Energy Financing: Energy for the Poor?*, Oil Change International, <http://priceofoil.org/wp-content/uploads/2010/10/ociwbgenergyaccessfin.pdf>
- 25 IEG (2008) *Assessing International Finance Corporation's Poverty Focus and Results*, Washington D.C.: World Bank, http://ieg.worldbank.org/content/dam/ieg/IFC/ifc_poverty_full_eval.pdf
- 26 Energy+ Partnership, <http://www.osloenergyforall2011.no/>
- 27 Jacobson, M. Z., and Delucchi, M. A. (2010) *Providing all global energy with wind, water, and solar power, Part I: Technologies, energy resources, quantities and areas of infrastructure, and materials*, *Energy Policy*, 39: 1154–1169
- 28 IPCC (2011) *Special Report on Renewable Energy Sources and Climate Change*; WWF (2011) *The Energy Report – 100% Renewable Energy by 2050* http://assets.wwf.org.uk/downloads/2011_02_02_the_energy_report_full.pdf
- 29 UN-DESA (2011) *World Economic and Social Survey 2011*, http://www.un.org/en/development/desa/policy/wess/wess_current/2011wess.pdf
- 30 Financial Times (August 1, 2011) *China backing for solar power*, <http://www.ft.com/cms/s/0/50f42d70-bc42-11e0-80e0-00144feabdc0.html#axzz1TrY3uAza>
- 31 IEA (2010) *World Energy Outlook 2010 Special Early Excerpt – Energy Poverty: How to make modern energy access universal?*, http://www.iea.org/weo/docs/weo2010/weo2010_poverty.pdf
- 32 AtKisson, A. (2009) *A Global Green New Deal for Climate, Energy, and Development*, http://www.un.org/esa/dsd/resources/res_pdfs/publications/sdt_cc/cc_global_green_new_deal.pdf
- 33 Stern, N. (2006) *Stern Review on The Economics of Climate Change*, HM Treasury, London, http://www.hm-treasury.gov.uk/sternreview_index.htm; The Guardian (26 June 2008) 'Cost of tackling global climate change has doubled, warns Stern', <http://www.guardian.co.uk/environment/2008/jun/26/climatechange.scienceofclimatechange>
- 34 Kost, C., and Schlegl, T. (2010) *Study: Renewable energy electricity generation costs*, <http://www.ise.fraunhofer.de/veroeffentlichungen/studie-stromgestehungskosten-erneuerbare-energien>
- 35 IPCC (2011) *Special Report on Renewable Energy Sources and Climate Change*, http://srren.ipcc-wg3.de/report/IPCC_SRREN_Full_Report.pdf
- 36 DB Climate Change Advisors (2009) *Global Climate Change Policy Tracker: An Investor's Assessment*, http://www.dbadvisors.com/content/_media/1113_DetailedAnalysisOfTargetsByRegionAndCountry.pdf
- 37 AtKisson, A. (2009) *A Global Green New Deal for Climate, Energy, and Development*, http://www.un.org/esa/dsd/resources/res_pdfs/publications/sdt_cc/cc_global_green_new_deal.pdf
- 38 Bloomberg (2011) *Global Trends in Renewable Energy Investment 2011*, <http://bnef.com/WhitePapers/download/50>
- 39 NRECA (2011) *History of Electric Co-ops*, <http://www.nreca.coop/members/History/Pages/default.aspx>

- 40 Amigos da Terra Brasil (2007) *Building Energy and Food Sovereignty*, <http://www.natbrasil.org.br/Docs/publicacoes/sovereignty2.pdf>
- 41 Greenpeace/EREC (2010) *Energy [R]evolution: A sustainable World Energy Outlook*, <http://www.greenpeace.org/international/Global/international/publications/climate/2010/fullreport.pdf>
- 42 World Future Council (2009) *Unleashing renewable energy power in developing countries: Proposal for a global renewable energy policy fund*, <http://digital.library.unt.edu/ark:/67531/metadc13718/m1/10/>
- 43 SSNC (2009) *A Green Energy Revolution for Climate and Development*, http://www.naturskyddsforeningen.se/upload/Foreningsdokument/Klimat/Knackfragor/GER_feed-in-tariff_compilation.pdf
- 44 AtKisson, A. (2009) *A Global Green New Deal for Climate, Energy, and Development*, http://www.un.org/esa/dsd/resources/res_pdfs/publications/sdt_cc/cc_global_green_new_deal.pdf
- 45 Deutsche Bank Climate Change Advisors (2010) *GET FIT Program: Global Energy Transfer Feed-in Tariffs for Developing Countries*, http://www.dbadvisors.com/content/_media/GET_FIT_-_042610_FINAL.pdf
- 46 Oil Change International (2011) *Access to Energy for the Poor: The Clean Energy Option*, <http://priceofoil.org/wp-content/uploads/2011/06/Access-to-Energy-for-the-Poor-June-2011.pdf>
- 47 World Health Organisation (2011) *Health in the Green Economy: Health co-benefits of climate change mitigation – Housing sector*, <http://www.who.int/hia/hgehousing.pdf>
- 48 Johnson, F. X., and Lambe, F. (2009) *Energy Access, Climate and Development*, Commission on Climate Change and Development, http://sei-international.org/mediamanager/documents/Publications/Climate/ccd_energyaccessclimateanddev2009.pdf
- 49 Greenpeace/EREC (2010) *Energy [R]evolution: A sustainable World Energy Outlook*, <http://www.greenpeace.org/international/Global/international/publications/climate/2010/fullreport.pdf>
- 50 IEA (2011) *World Energy Outlook 2011 Special Report – Energy for all: financing access for the poor*, http://www.iea.org/papers/2011/weo2011_energy_for_all.pdf
- 51 Friends of the Earth US (2011) *Leveraging Private Finance: Lessons for Climate and Development Effectiveness*, Submission to the Transitional Committee of the Green Climate Fund, <http://www.foe.org/sites/default/files/9-11%20TC3%20issue%20brief%2C%20priv%20fin.pdf>
- 52 Personal testimony collected by the author
- 53 Anderson, K. (2011) *Climate Change: Going beyond numbers*, presentation, <http://www.slideshare.net/DFID/professor-kevin-anderson-climate-change-going-beyond-dangerous>
- 54 Hankins, M. (2009) *A Renewable Energy Plan for Mozambique*, http://www.internationalrivers.org/files/Clean%20Energy%20for%20MZ%2030_9_09.pdf
- 55 Fortier, E. (2007) *An Evolving Partnership: The Global Fund to fight AIDS, Tuberculosis and Malaria*, Geneva: Global Fund to fight AIDS, Tuberculosis and Malaria 2007, http://www.theglobalfund.org/en/files/publications/civilsociety/AnEvolvingPartnership_en.pdf
- 56 IEA (2010) *World Energy Outlook 2010 Special Early Excerpt – Energy Poverty: How to make modern energy access universal?*, http://www.iea.org/weo/docs/weo2010/weo2010_poverty.pdf
- 57 IEA (2011) *World Energy Outlook 2011 Special Report – Energy for all: financing access for the poor*, http://www.iea.org/papers/2011/weo2011_energy_for_all.pdf
- 58 UNDP (2011) *Capacity Development for Scaling Up Decentralized Energy Access Programmes*, <http://cleancookstoves.org/wp-content/uploads/2011/02/UNDP-Capacity-Development-Energy-Access-Full-Report.pdf>
- 59 Friends of the Earth (2010) *Clearing the Air*, http://www.foe.co.uk/resource/reports/clearing_air.pdf
- 60 European Parliament (2010) *Draft Report on Innovative Financing at Global and European Level*, <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+COMPARL+PE-450.744+01+DOC+PDF+V0//EN&language=EN>
- 61 Friends of the Earth (2009) *A Dangerous Distraction*, http://www.foe.co.uk/resource/briefing_notes/dangerous_distraction.pdf
- 62 REN21 (2011) *Renewables 2011 Global Status Report*, http://www.ren21.net/Portals/97/documents/GSR/GSR2011_Master18.pdf
- 63 UNDP (2009) *Energy in National Decentralisation Policies*, http://www.undp.org/energy/docs/Energy_Decentralization_r8.pdf
- 64 GVEP International (2011) *The History of Mini-Grid Development in Developing Countries*, http://www.gvepinternational.org/sites/default/files/policy_briefing_-_mini-grid_final.pdf
- 65 FERN (2011) *Lessons Learned from FLEGT for REDD*, http://www.fern.org/sites/fern.org/files/Lessons%20from%20FLEGT%20summary_internet.pdf
- 66 FERN (2011) *Lessons Learned from FLEGT for REDD*, http://www.fern.org/sites/fern.org/files/Lessons%20from%20FLEGT%20summary_internet.pdf
- 67 FERN (2011) *Lessons Learned from FLEGT for REDD*, http://www.fern.org/sites/fern.org/files/Lessons%20from%20FLEGT%20summary_internet.pdf
- 68 Department for Energy and Climate Change (2011) *FITS Review*, http://www.decc.gov.uk/en/content/cms/meeting_energy/renewable_ener/feedin_tariff/fits_review/fits_review.aspx
- 69 IEG (2008) *The Welfare Impact of Rural Electrification: A Reassessment of the Costs and Benefits*, Washington D.C.: World Bank
- 70 Brown, J., Bird, N., and Schalatek, L. (2010) *Direct Access to the Adaptation Fund: realising the potential of National Implementing Entities*, <http://www.odi.org.uk/resources/download/5175.pdf>
- 71 IEA (2011) *CO2 emissions from fuel combustion, Highlights (2011 Edition)*, <http://www.iea.org/co2highlights/CO2highlights.pdf>
- 72 ECJRC (2008) *A New Scheme for the Promotion of Renewable Energies in Developing Countries: The Renewable Energy Regulated Purchase Tariff*, http://www.energy.eu/publications/LDNA23284ENC_002.pdf
- 73 Yadoo, A. and Cruickshank, H. (2010) 'The value of cooperatives in rural electrification', *Energy Policy*, 38 (6): 2941-2947
- 74 UNDP (2011) *UN Energy Access Facility: Expanding Access to modern and clean energy services "beyond the grid"*, presentation, <http://content.undp.org/go/cms-service/download/publication/?version=live&id=3166560>
- 75 IIED (2011) *Powering Change in Low-Income Energy Markets*, <http://pubs.iied.org/pdfs/17093IIED.pdf>
- 76 IEG (2008) *The Welfare Impact of Rural Electrification: A Reassessment of the Costs and Benefits*, Washington D.C.: World Bank

RECLAIMING POWER

This report aims to provoke public debate around a global mechanism that moves the planet away from fossil fuels towards a future of affordable and sustainable energy for all.

The report shows the way we produce energy is not working for people or the planet and needs to change:

- Dependence on fossil fuels is driving dangerous climate change.
- The traditional energy model is fossil fuel-intensive, highly centralised and grid-focused; yet over 1 billion of those currently without electricity will never be reached by national grid expansion.
- 40 per cent of the world's population is inadequately served by the traditional energy model and still uses traditional biomass, impacting health and development.
- Current policies and investments are not moving us beyond fossil fuels.

In this report Friends of the Earth England, Wales and Northern Ireland proposes a global energy model that:

- Tackles climate change by shifting our energy system beyond polluting fossil fuels.
- Delivers a low-carbon, decentralised model of energy generation through a series of globally funded but nationally designed on- and off-grid renewable energy tariffs.
- Addresses poverty and development through achieving universal access to clean, reliable, affordable energy, a key catalyst in improving quality of life.
- Uses upfront public investment to rapidly lower the global cost of renewables, making the transition to a low-carbon economy cheaper and easier in industrialised and industrialising countries.

This report draws on the longstanding experience of Friends of the Earth England, Wales and Northern Ireland as an environmental justice campaigning organisation and on the rich experience and analysis of our sister organisations in Friends of the Earth International, the largest grassroots-to-global federation of environmental justice campaigning organisations in the world.

Friends of the Earth is:

- the UK's most influential national environmental campaigning organisation
- the most extensive environmental grassroots network in the world, with around 2 million supporters across five continents, and more than 70 national organisations worldwide
- a unique network of campaigning local groups, working in more than 200 communities throughout England, Wales and Northern Ireland
- dependent on individuals for over 90 per cent of its income.



Friends of the Earth

Making life better for people by inspiring solutions to environmental problems

Friends of the Earth England, Wales and Northern Ireland
26-28 Underwood Street
London N1 7JQ
www.foe.co.uk
Tel: 020 7490 1555
Fax: 020 7490 0881

♻️ Printed on paper made from 100 per cent post-consumer waste using vegetable-based inks and by a printer with environmental accreditation ISO 14001

November 2011