HEINRICH BÖLL STIFTUNG

World Future Council

POWERING AFRICA THROUGH FEED-IN TARIFFS

ADVANCING RENEWABLE ENERGY TO MEET THE CONTINENT'S ELECTRICITY NEEDS

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Powering Africa through Feed-in tariff Policies
Advancing renewable energy to meet the continent's electricity needs

Executive Summary

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A Study for the World Future Council (WFC), the Heinrich Böll Foundation (HBF) and Friends of the Earth England, Wales & Northern Ireland (FoE).

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EXECUTIVE SUMMARY

Africa is facing an energy crisis: the existing production capacity cannot meet the growing demand for electricity. The electricity needed to power and grow the economy, drive local development and tackle urban and rural poverty is simply not there. In addition, traditional sources have become unreliable, unaffordable or increasingly unacceptable. Energy has been described as the 'missing millennium development goal' that enables others to be achieved, yet according to the World Bank less than 25% of Sub-Saharan households have access to electricity, falling to 10% in rural areas. The traditional energy solution has relied on fossil fuels, yet not only are they becoming unaffordable, but their historic consumption by rich, industrialised nations is driving dangerous climate change. On the continent that has done least to cause it, the effects are already evident, increasing the frequency and severity of floods and droughts and impacting people's livelihoods. This has also undermined the generation capacity of one of the continent's major energy sources – hydropower, which has also come under pressure because of its negative impacts on people and ecosystems.

In finding a sustainable, affordable and reliable energy solution to meet its needs, Africa has the opportunity to leapfrog the dirty development pathways followed by countries in the global North and power its economies and its societies through renewable energy. The UN Secretary General Ban Ki-moon said in September that "Providing sustainable energy for all could be the biggest opportunity of the 21st century. Sustainable energy is the golden thread that connects economic growth, social equity, and a climate and environment that enables the world to thrive."

Renewable Energy Feed-in Tariffs (REFiTs) have been successful at increasing the use of renewable technologies worldwide. REFiTs encourage investment in renewable energy generation – from individual home owners and communities to big companies – by guaranteeing to buy and pay for all the electricity produced. As of 2012, 65 countries have implemented some form of a REFiT, driving 64% of global wind installations and 87% of global photovoltaic installed capacity. While the majority of these installations have occurred in industrialised countries, particularly Europe, the African continent has significant untapped renewable energy potential. REFiTs have the potential to transform energy systems and societies in profound and tangible ways. When tailored to the local context, they can successfully increase overall energy production both on and off the grid, boost economic development and improve access to clean energy for all while avoiding the emission of green house gases and other problems related to dirty development. Moreover, the decentralized approach of REFiTs allows for alternative ownership and governance models and provides the opportunity to empower communities as well as refreshing local democracy and self-governance.

Several African countries have already introduced the policy, and Chapter III explores the particular experiences of policy makers, private sector and civil society stakeholders in Algeria, Kenya, Mauritius, Rwanda, South Africa (which abandoned its REFiT in favour of a bidding process), Tanzania, and Uganda. Many more are either developing their REFiT or planning to, and Chapter IV similarly looks at the variety of stakeholder experiences in Botswana, Egypt, Ethiopia, Ghana, Namibia, and Nigeria. Challenges being addressed vary from country to country, as although they hail from the same continent, there is a great deal of difference between them. The case studies include

a small-island state dependent on fuel imports (Mauritius), the continent's biggest carbon polluter who is facing international pressure to reduce its emissions (South Africa), countries with less than 3% rural electrification (Tanzania), and others with almost universal access to electricity (Algeria, Egypt). This means each will have different motivations for introducing a REFiT, as well as expecting distinct outcomes. The case studies highlight how the REFiT is able to meet the variety of challenges, as well as proposing stakeholder suggestions on how it could do more.

Many of the surveyed countries face the challenge of low levels of electrification and dispersed rural populations. While this is problematic for traditional REFiTs designs, which presuppose a well-developed national grid, Tanzania has shown that REFiTs can also serve decentralised mini-grids (see Chapter VI). More than just providing clean and environmentally friendly energy, such policies also support wider socio-economic development in rural areas. Community-scale mini-grids can provide all the benefits of the grid while encouraging greater levels of democratic control and ownership over local energy systems (see Chapter V).

Africa faces other social, political and economic challenges than Europe, but our study shows that many of the REFiT design principles (explored fully in Chapter II) remain the same and can be adjusted to take account of specific country needs. Across the case studies, innovative solutions are being found to tackle broader problems that cannot be addressed through a REFiT policy alone. Project developers need access to more affordable financing options as well as locally available technical expertise for the initial design, installation and maintenance of their renewable energy power plants. Governments need to balance the need to keep energy prices low – in particular in countries with high levels of poverty – while offering sufficiently profitable tariff rates to attract private investment. Instead of passing on all costs to the end consumer, alternative sources of funding have been explored including levies on fossil fuels or international climate change funds. In some countries, the introduction of subsidies for low-income households is also being discussed to avoid additional burdens for poorer citizens.

The case studies in this book identify the drivers behind the introduction of REFiTs, present and discuss the particular policy design developed in each country and analyse both supportive and obstructive factors for a successful policy implementation. On this basis, it is possible to draw broader lessons for countries interested in developing their own REFiT:

- In order to build momentum for a REFiT policy, it is important to have high-level political support as well as buy-in from all other stakeholders. South-South learning exchanges involving ministries, utilities, regulators, financiers, project developers and community representatives have been a successful tool in this context.
- Broad coalitions involving civil society in addition to policy makers and private sector representatives have proven successful in designing and implementing REFiT policies that are resilient to changes in the political landscape.
- The success of a REFIT depends on an enabling environment. The policy should thus be an integral part of the country's wider development strategy. Awareness raising about renewable technologies in general and REFiTs in particular will help overcome scepticism. Moreover, a specific programme to build technical capacity of local companies should be implemented. A strong national value chain avoids expensive imports and provides economic benefits beyond the renewable energy sector.

REFITs are more than just guaranteed payments for renewable energies. They can promote rural electrification, increase overall generation capacity, provide greater grid stability or aim to promote inclusive economic and social development. These objectives are of course not mutually exclusive, but policymakers will have to decide on where their priorities

lie and design the REFiT policy accordingly. As REFiTs may have to be adapted from time to time to keep up with changing circumstances, many of the following recommendations will also be of interest for countries with existing REFiT policies:

- REFiTs are complex policies and must balance overall policy goals with an incentive for investment. It is therefore important to allow all stakeholders to participate in the policy design. Special care should be taken to include civil society representatives in order to ensure that the policy meets the population's diverse needs.
- Policy makers should be very clear on the objectives they want to achieve with a REFIT. Design elements such as eligibility criteria, restrictions on plant size, differentiated tariffs by size or technology all influence which groups are likely to participate as well as the policy's overall impact and should thus be chosen carefully.
- Many renewable energy technologies have high initial investment costs, but are cheaper than fossil fuels in the medium and long term. This should be taken into account in the design and calculation of tariffs paid to REFiT project developers.
- When costs of a REFiT policy are passed on the end consumer, social transfer mechanisms should be put in place, i.e. energy-intensive users and the rich cross-subsidising affordable tariffs for low-income households. Otherwise, higher energy prices could undermine policy objectives of increasing energy access and tackling poverty.

The overall costs of project development and the lack of affordable financing options have been identified as major constraints to project implementation across all countries.

These issues must be addressed to ensure that REFiTs can realise their full potential to achieve greater renewable energy deployment.

- Governments and state-owned utilities can easily help lower the costs for individual project development by providing detailed information on the country's renewable energy potential. The publication of a national solar and wind atlases informs potential investors about suitable areas and reduces the costs for feasibility studies.
- Cumbersome and lengthy administrative processes are costly, delay project implementation and discourage investors. Streamlining the licensing process through a "one-stop-shop" at a lead agency and standardised contracts should be considered to lower transaction costs. This is especially important for smaller developers and community projects.
- Credible guarantees for the power purchasing agreements under a REFiT raise confidence of banking institutions and can facilitate longer-term loans at affordable interest rates. Governments should explore how international donors and climate finance instruments could provide such guarantees, as well as funds for the wider national REFiT schemes.

FOREWORD

- Prof. M. M. Elmissiry -

Noble actions are many, but the most noble of them all is in the uplifting of the suffering of the masses and enabling the pursuit of a decent life. Energy poverty is widespread in many parts of Africa though the continent is blessed with enormous and varied resources of energy. It is estimated that on average about 70% of Africa' population lacks access to modern and clean forms of energy; a situation which cannot be further allowed as the population rapidly expands.

Energy accessibility varies widely across Africa; reaching over 95 % in some parts of North Africa and as low as 5% in Sub-Saharan Africa, (IEA, 2011). Energy availability, affordability, accessibility and security are fundamental requirements for any meaningful economic and social development, and requires a sound and reliable mix of energy sources.

Africa has 15% of the world's population but accounts for only 3% of the world's primary energy consumption if we exclude biomass like wood and charcoal. Electricity consumption per capita is one sixth of the world's average, with the whole of Sub-Saharan Africa only consuming as much electricity as the state of New York – far less if we exclude South Africa. The Continent therefore needs to bring about a major expansion of its already well identified energy potential. Low levels of access to sustainable modern energy throttle economic and social development. Access to sustainable forms of energy is essential for the provision of clean water, sanitation and healthcare and is central to addressing today's global development challenges. Energy access enables the provision of vital services needed for development in the form of lighting, heating, cooking, food processing, mechanical power, transport and telecommunication. More than half of Africa's people currently lack access to electricity and for more access is either unaffordable or unreliable. Such a situation calls for a massive increase in energy generation, both to existing grids and also new decentralised solutions beyond the grid, sustainably using all energy resources available to Africa to correct this grim picture and to lift millions of people out of poverty.

Energy demand in many parts of Africa exceeds supply by far, resulting in load shedding and loss of productivity, costing thousands if not millions of preciously needed jobs. Africa's population is growing at an alarming rate, increasing the demand on energy and compounding the energy shortage problems. The challenges of securing investment required to meet both the need to increase access to clean energy and the rapidly growing demand in a sustainable way are formidable. It is estimated that at least US$40 billion is needed annually in the power sector to meet future demand, which compares with a current annual investment of less than one quarter of this amount.

The world is increasingly turning its attention towards renewable energy. This transition offers an array of economic, social, and environmental advantages, and so technologies are rapidly evolving, as is innovation to adapt renewable energy systems to Africa's realities. Renewable energy is freeing national economies from the burden of petroleum purchases, creating new economic opportunities at all scales, and preserving the environment. In Africa, we are presented with the opportunity to not simply imitate the global North but to tread a higher path, one that leapfrogs the dirty development followed by so many. Renewable technology allows us to instead build a resilient, sustainable future that meets the needs of this generation and the next.

In spite of the abundant resources of renewable energy in Africa, its share of primary energy supply is less than 1% (biomass and hydro excluded). This calls for a radical change in the approach followed in the development and use of renewable energy resources. The main challenge faced by solar and wind technologies is the price gap when compared with well-established fossil fuel generators. Measures have to be taken to attract investment in decentralised as well as centralised renewable energy production – where policy attention to date has been focused – in order to mitigate the price risk gap, promote the use of renewables and answer Africa's energy needs. While renewables may face high upfront investment costs compared to fossil fuel generation, once installed the fuel source is largely free. This is where special Renewable Energy Feed-in Tariffs (REFiTs) can come in as a policy instrument that attracts investment in sustainable, renewable electricity production.

Nothing is more effective in the development of a renewable energy policy than learning from those countries that went through the same exercise, and to access their lessons learned and experiences gained.

It is my honour to write a foreword for this book which gives the valuable information required to ensure the use of the continent's abundant environmentally friendly energy resources to reduce energy poverty in Africa. The book remains accessible to non-technical readers while delving deep into a policy with the potential to transform the development and usage of renewable energy resources; namely the Renewable Energy Feed-in Tariff policy (REFiT), its various forms and how it can be implemented in the African context, with all its challenges.

Some countries in Africa have already introduced REFiTs, experiencing numerous challenges during its development and implementation. Nothing is more effective in the development of a renewable energy policy than learning from those countries that went through the same exercise, and to access their lessons learned and experiences gained. There is no 'one size fits all' and REFiTs differ in their design to incorporate the varying situations and environments. In Africa, this can be the differing severity of energy shortages, or how far the national grid extends to cover rural areas and what solutions exist beyond the grid. It is pleasing to note that this report documents such valuable experiences. The book draws on case studies from across the continent to demonstrate how the REFiT operates as a policy instrument, how it can deliver on the energy needs of African countries, how effective it is in creating a conducive environment for investment in renewable energy generation, and to offer countries with and without a REFiT access to the lessons and experiences gained – both positive and negative.

2012 is the year in which the UN Secretary General has launched the Sustainable Energy for All initiative, aiming to deliver universal energy access by 2030. Another of its objectives is to double the use of renewable energy. With the development of REFiTs in Africa as part of a comprehensive package of renewable energy policies, both complimentary goals can be met if not surpassed. The launch of this book on renewable energy feed in tariffs will hopefully go a long way towards making that a reality and UN initiative delivers on both climate and energy access through decentralised renewable energy.

Prof. M. M. Elmissiry,
Head of Energy Programme
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LESSONS AND RECOMMENDATIONS

REFiTs have the potential to transform not only energy systems but societies in general. When tailored to the local context, they can successfully increase overall energy production both on and off the grid, boost economic development and improve access to clean energy for all - while avoiding the emission of green house gases and other problems related to dirty development. Moreover, the decentralized approach of REFiTs allows for alternative ownership and governance models and provides the opportunity to empower communities as well as refreshing local democracy and self-governance. However, if the costs for the policy are recuperated solely by raising energy prices for the end consumer, there is a risk of further excluding the poor from development opportunities.

To achieve their potential, REFiTs should not be seen as an isolated policy for the energy sector, but as an integral part of a country's overall development strategy. It is important to keep this in mind during the whole process, from the first debates to the technical design of the REFiT policy and of course its implementation.

The countries covered in this book may all hail from the same continent, but there is a great deal of difference between them. The case studies include a small-island state dependent on fuel imports (Mauritius), the continent's biggest carbon polluter who is facing international pressure to reduce it emissions (South Africa), countries with less than 3% rural electrification (Tanzania), and others with almost universal access to electricity (Egypt and Algeria). This means each will have different motivations for introducing a REFiT, as well as expecting distinct outcomes. However, by looking across all countries and how they came to introduce the REFiT, how it has been designed and what is both helping and hindering it to achieve its goals, it is possible to draw broader lessons and make recommendations for African countries who do not yet have a REFiT. This chapter is also useful for those countries who already have REFiTs, because – as this book has shown – they are an evolving, flexible policy tool that can match the changing needs of policy makers. A special section shows how REFiTs can benefit and empower communities and the poor, particularly in rural areas, as well as a closer look at different ways that international sources of finance can boost the REFiT.

Building Momentum for the REFiT

There are many reasons for introducing a REFiT. Some countries like Ethiopia are interested in exporting renewable energy, while others like Algeria see it as a way to reduce their domestic consumption of fossil fuels. For many it is a path to economic development, through creating new green industries, jobs and a steady supply of electricity to the rural and urban population. External pressure, both of actors and events, reinforces these points. The influence of international organisations (e.g. the World Bank and UN bodies), donors and Civil Society Organisations in encouraging, guiding and supporting countries' move towards the REFiT has seen its widespread uptake. That the policy is tried and tested across the global North and South has added weight to their words. The other main driver, in over three quarters of countries surveyed, was an energy crisis in the form of unreliable or unaffordable generation. In Southern and Eastern Africa, the 2004-2006 drought undermined the

reliability of large hydro and left countries scrambling for costly emergency diesel generators and chronic load shedding. The 2006 oil crisis left many countries, including import-dependent Mauritius, suffering further, meaning finding an alternative was imperative. Social and economic development depend on reliable and affordable electricity. Climate change is predicted to increasing the frequency and severity of droughts across the continent, while the outstripping of oil supply by demand will continue to push up oil prices. Therefore, along with the benefits covered in chapter I, there is increasing motivation for African countries to adopt a REFiT and increase domestic production of renewable energy as part of a just transition towards a low carbon future.

External motivation is often not enough for policy makers to introduce a REFiT, as it also depends on the right balance of forces within a country. Political will and support at the highest level is very important to overcome internal barriers such as vested interests of the current power producers. In Ethiopia, the lack of enthusiasm has kept the policy under revision in draft format for four years, while in Egypt and South Africa the REFiT has been sidelined in favour of a bidding process. In contrast, the REFiT in Botswana, Mauritius, Rwanda and Tanzania enjoyed high levels of political buy-in, also because it is part of a wider government development strategy to ensure it is seen as integral rather than additional to any plan. This approach also ensures that the policy is not dependent on individuals, thus reducing the potential threat to policy continuity in case of a change in government.

A lack of detailed knowledge about renewable energy technologies and REFiTs among stakeholders has proven a serious obstacle in most countries. In Tanzania, the World Bank overcame widespread scepticism by taking policy makers, utilities, regulators, financiers and project developers on a study trip to Sri Lanka and Thailand to see how their REFiTs functioned. Learning from others' experiences through South-South exchanges can bring utilities, regulators and other actors on board, which supportive international donors should facilitate. A dedicated team within the utility can also provide practical evidence that a REFiT is possible, thus helping to overcome internal barriers and ensuring a streamlined process for developers.

Designing the policy: getting the process right

Securing enough support for the introduction of the REFiT is an important step, but the design process will determine what the policy looks like and to what extent it addresses the energy and development needs of the whole country, including the energy poor. While the private sector was usually invited to participate in the development of a REFiT policy, civil society representatives and their efforts to include the interests of communities and the energy poor were sidelined in many countries. However, this has proven a short-sighted approach. First, exclusion of communities and the energy poor means that their knowledge of conditions on the ground cannot be considered during the discussions, thus raising the risk of inappropriate policy design. Second, lack of public support can undermine the success of even the best policies. In South Africa, a broad base of domestic support made all the difference, overcoming utility and ministry opposition to introduce the original REFiT (though it was later abandoned in favour of a bidding process). Broad coalitions of civil society, supportive politicians and the private sector pushing for the introduction of a REFiT are most successful in overcoming obstacles and reaching a more balanced policy with maximum impact.

Designing the policy: getting the contents right

The overall aims of a country's energy policy, i.e. fast growth of generation capacity or increased access to electricity in rural areas, have a big influence on the design of a REFiT – or even the question whether a REFiT is the right option. Where building large-scale renewable energy plants are a priority, several countries have opted for bidding processes. In other cases, where the aim was to democratise electricity production and to reduce demand from

the grid, a REFiT policy with net metering was adopted. Countries looking to stimulate smaller projects have also introduced differentiated tariffs, which ensures that smaller installations are also feasible.

A bidding process may be more appropriate for larger-scale projects as a way of driving down costs. However, South Africa's over-subscribed policy also shows that a bidding process can limit ambition while cost reductions can be at the expense of wider socio-economic benefits. If bidding is considered for larger projects, it must be part of an integrated strategy with a special emphasis placed on socio-economic development.

Net metering and differentiated tariffs should be key considerations for any REFiT policy as they allow smaller, local producers to be involved. This can have many positive aspects. As well as supporting small-scale generators, production and consumption of electricity at a local level reduces the demand from the national grid and thus frees up capacity for productive uses while improving energy access for all. These approaches also encourage investment that would not be considered profitable enough for larger or international investors, thus leading to faster and more regionally equitable growth of energy production.

As Namibia has demonstrated, it is also possible to adopt a mix of approaches: net metering at the household and community level; a traditional REFiT for small power producers up to 10MW; and a bidding process for the larger projects.

In the context of low levels of electrification and limited reach of the national grid, REFiT policies should include support mechanisms for off-grid solutions. Tanzania for example has established a mini-grid programme that has the potential to propel progress in expanding access to electricity in rural areas and stimulate local economic development. Provisions should be made to encourage and support local ownership structures, as experience shows that mini-grids owned and managed by communities can allow far higher levels of local participation and development.

Tariff levels and cost recovery

A key determinant to the success of the REFiT in attracting project developers and investors of all sizes is, of course, the tariff, which incorporates both the level and duration of payment. Tariffs based on the avoided cost methodology have been chosen by governments to avoid a rise in electricity prices. It is also far easier to calculate and thus helps speed up the introduction of the policy. However, as stakeholders have pointed out in Algeria, Kenya and Uganda, low tariffs do not encourage significant stakeholder investment and are only acceptable for very large projects that can benefit from economies of scale, or cost-competitive technologies such as hydro, thus hampering a healthy mix of technologies. A tariff based on the actual cost of generation allows developers to chose more expensive, but possibly more appropriate technologies. Interestingly, the utility in Rwanda found that a tariff based on cost of generation was actually cheaper than an avoided cost calculation if a broader cost-benefit analysis is undertaken (see Chapter III).

The choice of a tariff structure should be based on a holistic and long-term analysis and allow for creative solutions. Uganda is considering front-loaded tariffs, whereby the tariff is higher for the first few years and then drops to a lower level. This approach supports projects with high levels of initial investments, without increasing the long-term costs for the utility.

Cost sharing

Where a REFiT does incur additional costs to the status quo, these are traditionally passed on to the end consumer. As this may have negative consequences on policy goals such as increased energy access in countries with a high level of poverty, many countries have found innovative ways of protecting poorer customers. This will be particularly important as World Bank/IMF programmes of market liberalisation continue to push to remove consumer subsidies and raise the price of electricity. While Ghana has announced as-yet-unspecified plans for a social transfer mechanism, South Africa already provides a monthly quota of free electricity to low-income households (although the current quota

of 50 kWh per month is criticised as too low). Another option is to cross-subsidise low-income households through higher tariffs for rich customers. Such tariff structures are already in place in Kenya and Ethiopia, which operates a tiered pricing scheme with very low prices for low consumption. Namibia is considering introducing a similar policy.

However, given the relatively small middle class in most African countries, even cross-subsidies may not be able to coverall the costs of a REFiT.

Thus, additional sources of funding may also be necessary to protect the poor from higher prices. Algeria and Mauritius have both taxed fossil fuels in order to fund renewable energy. Meanwhile Ghana and Uganda are looking to international climate finance to support their REFiT programmes, such as through Nationally Appropriate Mitigation Actions (NAMAs) under the UNFCCC and the newly-created but still ambiguous Green Climate Fund, expected to become operational soon.

However, so far the hopes set in international climate funding have not been fulfilled. Support for NAMAs remains elusive and trading of carbon certificates through Clean Development Mechanism has neither delivered finance for new projects, nor the promised carbon savings. As these sources are unlikely to provide the required funds, new and innovative sources should be developed to provide the 'premium' for African REFiTs:

- A tiny Financial Transaction Tax (FTT) on risky and speculative trades in currency, stocks and derivatives could raise up to $650 billion per year and is already supported by the G20, with the IMF saying it is technically feasible.
- The IMF could use Special Drawing Rights - its own 'synthetic currency' – to make available funding for renewable energies.[1] This mechanism was successfully tested to provide extra liquidity and credit-worthiness to the banking sector during the financial crisis.
- Redirecting fossil fuel subsidies away from oil producers could generate up to $100 billion per year for climate finance.[2]
- A levy on aviation and shipping could produce considerable extra funds, as well as reducing the emissions from two high-polluting industries. Shipping alone could raise $10 billion.[3]

The funds raised through these mechanisms should be channelled through a global fund for feed-in tariffs,[4] which would provide the extra premium needed, act as a guarantor and provide technical assistance and expertise.

Grid issues

Many countries have decided to limit the total capacity of newly installed RE power plants under their REFiTs because of the poor quality and limited size of the grid. Grid improvement can increase efficiency, reduce load shedding and balance intermittent renewable technologies. Given the expected growth in energy demand, many state-owned utilities are planning expensive grid expansions. Often, a more cost effective alternative is to encourage small power producers (SPPs) to set up mini-grids that can work independently in remote areas and be integrated into the national grid at a later stage. SPP-friendly tariffs also lead to a more diversified and resilient supply.

Creating an enabling environment

Simplifying the process

Another key determinant of REFiT success is the quality of the administrative process of becoming a fully operational power producer under the policy, including questions of licensing and grid integration. In countries without

1 World Future Council (2011) Financing climate protection with newly created SDRs, http://worldfuturecouncil.org/climate_finance.html; ActionAid (2010) Using Special Drawing Rights for Climate Finance, Discussion Paper

2 Oil Change International (2012) No Time to Waste: The Urgent Need for Transparency in Fossil Fuel Subsidies, Oil Change International, available at http://priceofoil.org/wp-content/uploads/2012/05/1TFSFIN.pdf

3 Oxfam/WWF (2011) Out of the Bunker: Time for a Fair Deal on Shipping Emissions, Briefing Note.

4 Friends of the Earth (2011) Reclaiming Power: An energy model for people and the planet, FoE, London

standardised PPAs, project developers have experienced long, drawn-out negotiations adding extra cost and uncertainty to the process, taking up to two years in Kenya and as many as four in Uganda. High costs for feasibility studies as well as uncertainties about who pays for connecting new plants to the grid or who purchases the electricity have caused additional delays.

The introduction of standardised feasibility templates and PPAs has successfully reduced red tape. A lead agency as point of contact and clear guidelines for the overall process, as practised by Mauritius, should also be considered to speed-up project implementation.

Furthermore, governments and state-owned utilities can easily help lower the costs for individual project development by providing detailed information on the country's renewable energy potential. The publication of a national solar and wind atlases, which international agencies and donors have already helped produce for some countries, informs potential investors about suitable areas and reduces the costs for feasibility studies.

Land Issues

As with all development projects, disputes over land – who owns it, who uses it, who has the right to develop it - have also occurred with renewable energy projects. Forced displacements and the destruction of ecosystems in connection with large hydropower projects are well documented, and the existing competition over agricultural land for is likely to be exacerbated by the demand for building sites for renewable energy plants . Any potential developments must engage communities using the land and ensure their concerns and rights are respected. All transactions need to be transparent and accountable, with adequate support given to those affected.

Providing access to finance

Accessing project finance has been a recurring barrier in all countries surveyed. National banks regard investment in renewable energy as risky and are only offering high interest loans with short payback times. These problems are critical for developers who rely on local finance, in particular smaller, community-based projects. Improving the capacity of local banking institutions is important, as is raising their confidence in the REFiT policy through building up a proven track record of timely payments by the utility. PPAs would then be seen as credible guarantees and facilitate longer-term loans at affordable interest rates. If PPAs are not accepted due to liquidity problems of the utility, creditworthy governments or international institutions should provide additional guarantees.

In many of the countries surveyed, multilateral development banks and international donors already provide specific low-interest credit lines for renewable projects. However as the money passes through regional banks and financial intermediaries before reaching local banks, accumulative interest is added, resulting in higher borrowing for the developer. Governments and international financial institutions need to ensure the low rates of borrowing are passed on to project developers. International concessional finance and grants are vital in supporting the high costs for local project developers, but are most effective when directed through government agencies rather than commercial banks.

In Algeria, a levy on fossil fuel exports is used to provide state support for renewable energy projects. The private sector can also take a role. In Kenya for example, the government has joined with the international insurance company MunichRE to insure the risky start-up costs of a geothermal plant. Without government involvement, the Kenyan Association of Manufacturers has established a fund to provide support for its members who want to invest in renewable energy projects. All of these approaches could be replicated in other countries.

Local Awareness and Technical Capacity

Insufficient information about renewable energy technologies as well as the details of a REFiT scheme are serious threats to the policy's overall success. Eligible groups may be excluded through ignorance, while misjudged risks can lead to rejection of funding as well as

unexpected costs and negative experiences with sub-standard technology may lead to severe social acceptance barriers. Dissemination of information and success stories is of crucial importance. Governments and utilities should therefore invest in pilot projects or equip public buildings like schools and hospitals with RE technologies to provide and publicise proof of concepts to large audiences.

The lack of local technical capacity is a related problem. The resulting need to import both technology and skilled labour leads to an increase in overall project costs. This has made it particularly difficult for smaller developers who either cannot realise their projects or have to revert to low quality products. Poor installations and maintenance, however, undermine confidence in the new technology and thus pose a risk to the overall success of a REFiT policy.

Building local capacity and supply chains is a necessary condition not only to reduce costs, but also plays an important role in general economic growth and job creation. REFiTs should be designed to stimulate demand for local skills and capacity, i.e. through local ownership laws or local content requirements.[5] As long as foreign expertise is still needed, international developers should be also obliged to transfer skills and technical capacity.

Unlocking the full potential: Integrating the REFiT in the wider development strategy

More than just a way to increase the production of sustainable electricity, REFiTs can be an effective tool for promoting rural development and tackling poverty. In order to fully unlock this potential, the REFiT should be fully integrated into a country's wider development strategy. As discussed above, the renewable energy sector needs skilled labour and a reliable support industry. These requirements must be included in the national plans for education and vocational training as well as a broader industrial development strategy. Thus, the introduction of a well-integrated REFiT will have positive spill-over effects on other sectors and serve as on important springboard to leapfrog dirty industries and embark on a direct transition towards a low carbon future.

REFiT programmes should also be integrated with rural development and poverty eradication strategies. Making reliable electricity available through REFiTs can provide a much-needed boost for rural economies. Moreover, decentralized energy production will itself provide employment and strengthen the local tax base. The greatest local benefit comes from a high degree of local ownership (see chapter V). Policies should thus support local ownership structures such as cooperatives and provide capacity building on business planning.

Thus, the introduction of a well-integrated REFiT will have positive spill-over effects on other sectors and serve as an important springboard to leapfrog dirty industries and embark on a just transition towards a low carbon future.

5 The World Trade Organisation has disputed local content requirements in some countries.

World Future Council

The World Future Council consists of up to 50 respected personalities from all five continents. They come from governments, parliaments, the arts, civil society, science and business. Together they form a global voice highlighting our responsibilities as citizens of the earth, speaking up for the needs and rights of people and planet. The World Future Council head office is in Hamburg, Germany, with additional staff working from Johannesburg, Geneva and London.

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HEINRICH BÖLL STIFTUNG

The Heinrich Böll Foundation, associated with the German Green Party, is a legally autonomous and intellectually open political foundation. Our foremost task is civic education in Germany and abroad with the aim of promoting informed democratic opinion, socio-political commitment and mutual understanding. In addition the Heinrich Böll Foundation supports artistic and cultural as well as scholarly projects, and co-operation in the development field. The political values of ecology, democracy, gender democracy, solidarity and nonviolence are our chief points of reference. Heinrich Böll's belief in and promotion of citizen participation in politics is the model for the foundation's work.

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