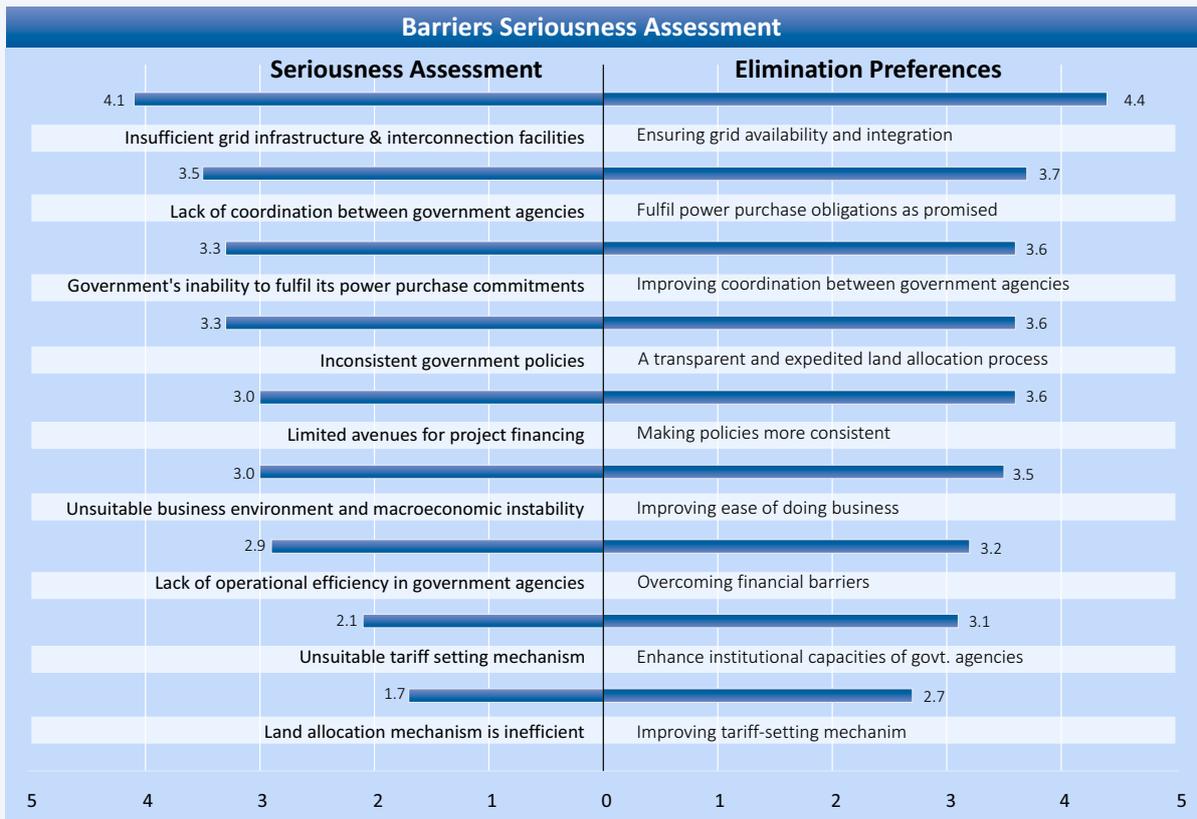


Case Study: Pakistan's Wind Energy Market

Pakistan's wind energy market faces numerous barriers common in other developing countries as well, namely insufficient grid infrastructure and inefficient policy implementation. Although the barriers pertaining to financing projects have been assigned moderate-level seriousness, the cost of capital is significantly high. Moreover, if the project sponsor is not an established business house, it was observed that the project faced serious problems to raise debt from domestic or international markets. Similarly, the cost of capital raised by various developers is very high due to factors such as high country risk, inflation etc. Finally, the financial sector had a mixed response with respect to financing more projects due to the reported higher level of lending exposure taken at the energy sector in the country. Therefore, if the country needs to develop additional renewable energy projects, it shall have to rely on foreign capital and debt markets.

Based on these observations, the conclusion can be drawn that: a) Pakistan faces scarcity of financial resources to achieve its policy goals to deploy RETs, b) the available resources are costlier due to higher financial risks. Other developing countries that are experiencing a lack of macroeconomic stability face similar barriers that need to be eradicated through offering a reliable enabling environment and mitigating investments risks to ultimately lower the cost of RE power generation. As found by UNDP (UNDP, 2013), the cost of RE projects in developing countries are nearly 40 percent higher than in developed countries due to the risks associated with these investments. Given that public support can be mobilised to overcome this barrier, RETs will become far more competitive in developing countries than conventional sources of energy.



high up-front investment is needed. This naturally increases the risk of the initial investment hence is the decisive factor out of the three risk categories: policy and regulation, market and financial, and technical. The risks pertaining to policy and regulation are associated with power market design, existing laws and regulations, renewable energy policy, support mechanisms etc. When the governments are perceived to have failed in offering “fairly attractive” incentives for investors, they may deprive themselves to attract private investment.

For example, Pakistan is offering at least 17 percent return on equity for renewable energy project due to higher country risk.

Financial risks, closely linked with macroeconomic stability, investment risk and an overall energy market performance, are the main focus of this paper. The nature of financial risks is diverse including foreign investment, liquidity, political risk etc. Although financial markets have developed various mitigation tools, they carry additional costs inflating the final cost of capital. Higher risk perceptions push the cost farther due to “risk and return basis” business model applied by financial institutions.

Technical and project specific risks typically include technological maturity of a given technology, construction, operational etc. Wind technology is well known and can in general be qualified as low-risk, however, in terms of developing countries, these risks may also include the availability of interconnection and

integration facilities for renewable energy power projects. The technological advancement and sufficiency of the grid infrastructure plays a crucial role once market starts developing because in the absence of appropriate power evacuation facilities, there would be no mechanism to sell the power generated.

For the Green Climate Fund or other development institutions it is utmost necessary to evaluate a given RE market in the context of market development stage and perceived risks followed by a tailor-made solutions approach. This remains a daunting task while taking into account the diversity of various markets and economies. However, there are some mechanisms that have proven more effective for RE deployment in various developing countries. It includes guaranteed payments for renewable energy project, e.g. Feed-in Tariff (FIT), specifically in the context of developing economies. It is however suggested that scaling up deployment doesn't necessarily imply economic or operational efficiency, which would be more dependent on the design of the entire RE promotion policy package (Azuela & Barroso, 2011).

Having been employed in many developing and emerging economies, FIT was piloted also in Uganda, officially named Global Energy Transfers Feed-in Tariffs (GET FIT), through collaboration between KfW Development Bank and Deutsche Bank supported by a consortium of developed countries' governments. GET FIT Uganda programme design

employs various tools including guarantees and financial incentives in the form of premium payments for independent power producers (IPP) to lower investment risks and strengthen investors' confidence (Government of Uganda, 2014). Since Uganda didn't have such policy framework in place, the support started from the policy design phase. The consortium offered consultancy services and designed tailor-made tools. Given the innovation employed in this pilot project and its potential for effective risk mitigation, it might be considered to be adapted for different regional and national needs, extrapolated at larger scale through multilateral development institutions, such as the Green Climate Fund.

Risk Mitigation Strategies

This section focuses on a variety of policy tools that can be employed to mitigate financial risks or lower their intensity.

Developing countries' limitations in attracting private capital are widely known. From the start of the deliberations regarding climate change mitigation strategies and the envisaged role of private capital, these limitations have been acknowledged at multilateral level. A partnership between developed nations and their support for developing nations to overcome these restrictions is being suggested for quite some time now. The idea to overcome financial barriers through creating a global fund to support a feed-in tariff programme was proposed by the WWEA already

a decade ago and for the first time discussed on UN level at the Ad Hoc Working Group on Long-term Cooperave Acon in 2009.⁷

The proposal was also acvely supported by the International Renewable Energy Alliance⁸ (REN Alliance) and endorsed by many other stakeholders. Deutsche Bank Climate Change Advisors (DBCCA) followed WWEA's inial proposals with developing a "Global Energy Transfer – Feed-in Tariff" policy tool with an aim to de-risking RE investments in a develop-ing country context.⁹ The World Future Council, however, converged the proposal for the GCF and a global fund for RE FiT programme in developing countries.¹⁰ A detailed proposal for the GCF was developed to introduce a REFIT programme. This approach can be adopted by the GCF given that necessary policy adjustments are introduced.

Another possibility could be to documents the lessons from the GET FIT Uganda pilot and develop policy tools that can perform beer. The boom line would remain that the mullateral instuons shall have to support the developing world to break the vicious circle of capital inadequacy.

The following discussion highlights the policy opns developed through relying on the GET FIT Uganda's design, policy lessons from Pakistan's wind energy market, and a strong need to develop such a

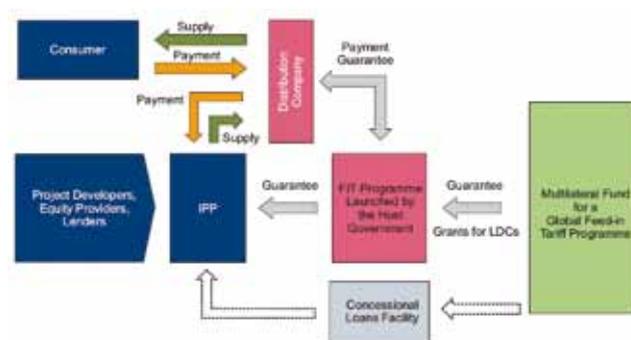
mechanism to foster RETs deployment.

Figure 1, adopted from GET FiT Uganda with changes made by the authors, illustrates the model proposed to lower financial risks and scale up private sector investments in the developing world's RE markets through mobilising resources from multilateral instuons, e.g. GCF.

The key stakeholders involve: a) multilateral development instuon, b) host country government, c) independent power producer, d) private sector commercial banks, e) distribution companies and f) consumers. The proposal is based on assumptions for a lower middle income economy's characteristics.

The multilateral institution, e.g. the Green Climate Fund, the Asian Development Bank, or the World Bank, will introduce a guarantee, in special cases combined with concessional loans scheme. The FIT guarantee for payment will be offered on behalf of the host country's government to Independent Power Producers (IPP)

developing RE projects. Similarly, an additional public guarantee will be offered to the IPP on behalf of the transmission and distribution company (given that the company is a state-owned enterprise) to migate the risk of payment default by power purchaser. This approach will help the host country's government to lower the perceived financial risks and can improve the credit rangs for the renewable energy projects as well as eventually for the host country which does not need to guarantee for such investment with its own assets. What is more important in this regard is the support from a mullateral instuon that tends to have reliable creditworthiness for internaonal investors. Barriers Seriousness Assessment Another possible addition to the program could be capacity building for domestic banks and financial institutions through establishing a "Concessional Loans Facility". This facility can be either run through the governments, central banks, private sector banks, or through



⁷(UNFCCC, 2009) ⁸(REN Alliance, 2009) ⁹(DBCCA, 2011) ¹⁰(Michaelowa & Hoch, 2013)

a combination of all. During the focus interviews conducted during the first phase of this project, it was observed that although many domestic banks in Pakistan are now funding RE projects, however, their initial reactions toward the RETs were not very encouraging. Moreover, their willingness to extend their RETs investment portfolio is not very promising. Therefore, creating a mechanism to offer concessional loans to these banks (e.g. on the model of export financing by federal banks through private sector banks) for the sole purpose of lending to RE projects developers can not only improve their knowledge at the initial stages of market development but can also strengthen their confidence in RETs. Once that purpose achieved, the flow of capital toward RE market from the domestic banks would also improve.

The case assumed earlier, i.e. lower middle income (LMI) economy, does not represent the characteristics of least developed countries (LDC). In the case of LMI, the availability of equity capital for project development is less serious problem when compared with the debt capital. Most of the projects being developed in Pakistan, for instance, have been initiated by domestic investors who do have equity to invest but face problems to raise loans for their projects. However, in the case of LDCs there can be serious limitations to raise equity capital.

Therefore, this case has to be treated differently.

For an LDC, it is suggested to have a financial support tool in addition to what is suggested for LMIs. There

should be a grant mechanism and concessional loans for the private sector investors willing to invest in LDCs. This incentive would help to bridge the scarcity of equity capital in LDCs. Moreover, grants and concessional loans will make these investments cheaper when compared with market based conventional loan pricing models, increasing the affordability of electricity.

Another avenue which needs equal attention is the grid infrastructure in developing countries. A mechanism to support these countries in developing necessary infrastructure for on-grid power solutions would also help to eradicate a key barrier in many developing countries.

Conclusion & Recommendations

After having established the fact that the human activity has been among the major causes of climate change, world policy-makers are now pursuing a goal to devise mitigation and adaptation tools to cope with these challenges. Establishing the Green Climate Fund (GCF) and recent financing pledges made by various countries to leverage private investment flows for climate finance are the steps taken in the direction. However, the journey to achieve the target of not allowing global temperature to exceed 2 degree Celsius above preindustrial levels to combat change requires clear decisions and setting of priorities for renewables.

The industrial activity found emitting greenhouse gases and causing climate change has been traditionally based in developed countries. The landscape is changing with the industrial advancement in emerging economies; however, per capita CO₂ emission levels are significantly higher in high-income countries than their lower-income counterparts. The risks of climate change on the other hand, are not reciprocally exclusive for developed or developing countries. In this scenario the developing world seems worse off. It lacks resources to deal with the challenges where they played a trivial role in triggering such risks.

Many developing economies are growing rapidly, increasing their appetite for energy resources. Whereas fossil-fuel based energy resources that helped fuelling economic growth in today's industrialised economies have been identified as major sources of greenhouse gas emissions. Therefore, it is equally necessary that advanced economies transform their existing energy systems to renewable sources of energy and developing economies leapfrog technologically and reap the benefits offered by RETs.

Developing countries, despite having ambitions to deploy RETs to achieve socio-economic development, face multifaceted challenges caused primarily due to the energy market structures, ineffective investment regimes, higher (perceived) investment and also perceived technological risks. GCF's mandate to assist these countries in mitigation activities offers an

opportunity to devise policy tools, improving investment conditions for RETs deployment consequently. Through offering guaranteed price mechanism for global FIT programme and extending necessary support for grid construction, the GCF can contribute to overcome the barriers faced by these countries. It is high time for the Fund, and other multilateral institutions, to assume leadership and assist the developing world in fighting climate change.

In developing such support mechanisms for these countries the first thing to be given due importance is a tailor-made policy making approach around the guarantee for the national FIT. After having assessed

the country-specific needs, a mix of support mechanisms can be offered. However, financial limitations are commonly faced by developing nations and a common policy to promote global feed-in tariff can be proven more successful.

The potential offered by such policy tools can be better understood when considering the investment which could be leveraged with the USD 5 billion which have already been pledged for mitigation action by the GCF. Offering guarantees in the developing world, such amount could leverage 20-50 times the investment, which would lead to a total investment of around 200 billion USD -enough to

install 100,000 MW of wind power capacity in developing countries.

It is equally important that the availability of the grid is ensured and the FiT programme enables RET deployment in an economically efficient manner because this efficiency would consequently ensure long term sustainability of these markets. Strengthening investors' confidence in RE markets through such innovative support mechanisms would push the RETs cost downward, improving their competitiveness further with the conventional sources of energy. Only a strong and steady increase in RETs deployment and phasing out fossil-fuel based energy sources can ensure a secure common future for us. 



Photo: Cai Ye