

Catalyzing Investment for Renewable Energy in Developing Countries

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The year 2015 marked a milestone in sustainable development. At the UN General Assembly in September, Sustainable Development Goals (SDGs) were adopted as the pillar for the Post-2015 Development Framework. Later in December, Paris Agreement was reached at the UNFCCC COP21.¹ Since the SDGs and the Paris Agreement both urge action for transition to a low-carbon economy, renewable energy is expected to play a vital role. Especially for emerging countries, the development and deployment of renewable energy is crucial for they now face the challenge of achieving economic growth while reducing GHG emissions. Meanwhile, participation from the private sector is imperative for this transition.

This paper aims to present ideas on how to mobilize investment for renewable energy by focusing on the catalytic role of public resources. We review global trends in investment and the barriers to renewable energy investment in developing countries. Following the overview, we examine two types of public

support to mobilize resource from the private sector. In the conclusion, we suggest ways to increase support and cooperation in renewable energy.

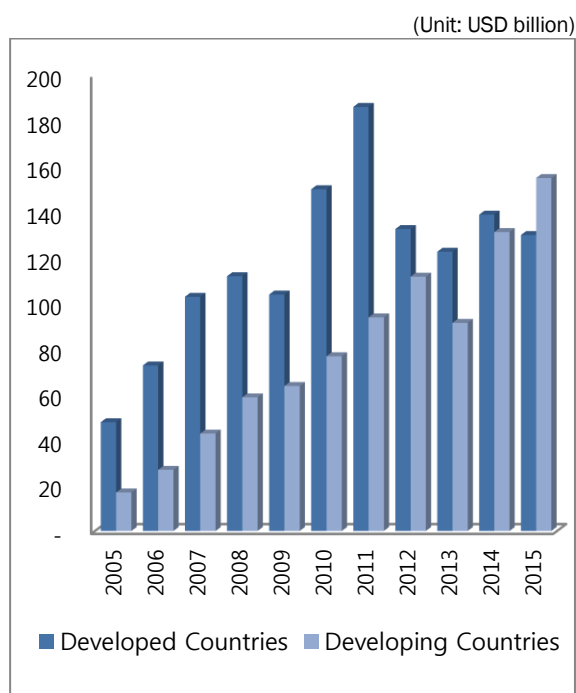
Global Trends in Renewable Energy Investment

Increased Investment to and Potentials in the Global South

In the early 2000s, investment in renewable energy was predominant in developed countries. Such concentration of investment is currently shifting towards developing countries. Triggered by subsidy cuts in the U.S. and European countries in 2012, renewable energy investors have started to move from the developed to developing countries, where both high demand and ample development opportunities exist. In 2015, total volume of renewable energy investment to developing countries exceeded that of developed for the first time.

¹ Twenty-first meeting of the Conference of the Parties to the United Nations Framework Convention on Climate Change

Figure 1. New Renewable Energy Investment (2005-2015)



Source: Frankfurt School-UNEP Centre/BNEF (2013, 2014, 2015). Global Trends in Renewable Energy Investment 2014, 2015, and 2016.

Natural environment is arguably one of the most intrinsic and influential elements among the various factors in determining renewable energy investment. A number of developing countries possess huge potential in renewable energy development based on their natural environment.²

Barriers to Private Sector Participation in Renewable Energy

Development and use of renewable energy is also influenced by factors other than the natural environment (Table 1). Ample sunlight or high wind speed alone does not naturally lead to the development of renewable energy. An enabling environment with adequate institu-

tions, regulations, and market readiness is a prerequisite.

Table 1. Factors Influencing Renewable Energy Development

Techno-economic barriers
<ul style="list-style-type: none"> • Barriers that relate to the direct costs of a certain technology e.g. Availability or adequacy of required natural environment - sun exposure, wind speed, etc.; technology deployment costs – price of solar panels, wind turbines, etc.
Non-economic Barriers
<ul style="list-style-type: none"> • Regulatory and policy uncertainty barriers • Institutional and administrative barriers • Market barriers • Financial barriers • Infrastructure barriers • Lack of awareness and skilled personnel • Public acceptance and environmental barriers

Source: IEA (2011), Renewable Energy: Policy Considerations for Deploying Renewables, pp. 32-33.

In countries with the highest amount of renewable energy investment - namely, China, India, South Africa and Brazil, government-wide support existed to address these non-economic barriers. According to the latest review from the International Energy Agency, many developing countries are making efforts to develop a more conducive environment, by legislating laws and regulations, and improving market readiness and awareness regarding renewable energy. Although there will be no sudden change, it is for sure that we will see higher increase in renewable energy investment in the coming decades.

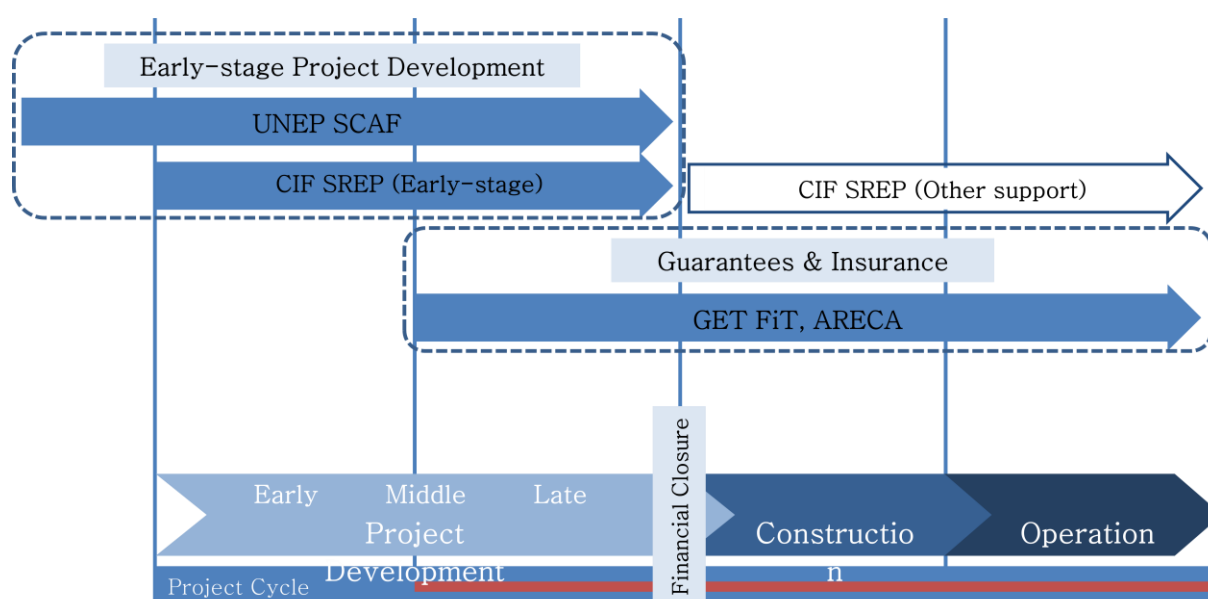
Public Intervention to Induce Private Participation: What Works?

² IRENA Global Atlas for Renewable Energy Website (<http://irena.masdar.ac.ae/>, Accessed: Oct. 12, 2015)

Despite the positive outlook for renewable energy, not many developing countries own environment that is friendly to private sector investment. Some public measures are established to address the barriers and to stimulate

private investment. The measures include support for early-stage project development and guarantees and insurance to assist financial closure (Figure 2).

Figure 2. Public Support for Renewable Energy



Early-stage Project Development

Providing public resource as seed capital at the early-stage of a project can contribute to mobilizing additional investment from the private sector. Public supports for law and regulation review as well as market readiness analysis can help project developers attract private investors. Effective prototypes we studied are the UNEP Seed Capital Assistance Facility (SCAF) and the Scaling-up Renewable Energy Program (SREP) under the Clean Investment Funds.

The SCAF was designed to fill in the financing gap for renewable energy in developing countries. A preliminary study discovered that

fund managers or project developers are unable to mobilize early-stage finance while only about 1~5% of total finance is required at the early-stage. The SCAF seeks to support fund managers and project developers to secure early-stage finance and to establish a feasible renewable energy project. The SCAF is implemented in three lines of support (Table 2).

The SCAF allows no more than two same renewable energy technologies invested in one country. It supports a limited number of projects comprehensively, from development to completion. Therefore, the program seeks to identify barriers and challenges that are specific to a certain country. This is also to prevent unnecessary competition among SCAF pro-

jects in a same country, and to maintain its significance as a pilot program. In summary, the SCAF tackles challenges such as lack of local expertise and early-stage capital, and low

demand for investment to low-income countries through encouraging project development capacity and tackling low economic viability.

Table 2. SCAF Support Lines

	Support Line 0	Support Line 1	Support Line 2
Purpose	Formulating a reliable fund manager	Pipeline-building for early-stage investment	Co-financing of additional costs for the project
Target	PE/VC Funds	PE/VC Fund, Energy companies	PE/VC Fund, Energy companies
Examples of activities	Co-financing for stage 0 activities: - preparing investment proposal - legal consultation fee - LP/investment document drafting	Co-financing for pipeline activities: - local renewable energy producer support - non-commercial renewable energy and producer development - consultation for potential investment	Co-financing for project development activities: - TA, environmental & social impact evaluation, regulation review - negotiating PPA/other power producer protection - review and analysis of the operation/maintenance cost
Amount	USD 400,000 in average Up to 50% of the cost	USD 700,000 per project	USD 1,600,000 ~ 1,800,000 per project

Source: Duncan Ritchie and Eric Usher (2011). Catalysing Early Stage Investment: Addressing the Lack of Early-stage Capital for Low-carbon Infrastructure in Developing Economies; Interview with UNEP Representative (Oct. 5, 2015).

The Scaling-up Renewable Energy Program (SREP) is a part of the Clean Investment Funds. While the scope of the program covers various levels of renewable energy development, many of its projects currently focus on conducting feasibility and pre-feasibility studies in low-income developing countries. The program seeks to induce private sector participation by identifying economically viable projects. In Nicaragua, a thorough pre-feasibility study is being carried out with the support from SREP. Inter-American Development Bank's local office provides guidance in the feasibility study and also assists in capacity-building when needed. Through feasibility studies and capacity-building, the program seeks to lower project risk to a certain level so that the private sector is inclined to participate,

Guarantees and Insurance

Another line of support can be provided at the stage of financial closure, in the forms of

guarantees or subsidies. The examples analyzed are Germany's Global Energy Transfer Feed-in Tariff (GET FiT), and Accelerating Renewable Energy Investments in Central America and Panama (ARECA) program.

The Global Energy Transfer Feed-in Tariff (GET FiT) was initially developed by Deutsche Bank to mobilize early-stage capital for renewable energy projects. Private participation is likely when a stable institutional framework and enabling environment is provided. Deutsche Bank and KfW conducted a joint feasibility study in Uganda, and GET FiT Uganda was consequently launched in May 2013.

GET FiT Uganda contains five program components; subsidies for renewable energy, incentives for solar power, standardizing legal documents, provision of partial guarantees, and provision of technical assistance (Table 3). Most resources are concentrated on the subsi-

dies and incentives (more than 90%). It is also note-worthy that the program devised other useful instruments to supplement the subsidies and incentives, such as expanding grid connection, standardizing legal documents, technical assistance, and so forth. According to the Annual Report 2014, a total of EUR 91 million was committed by donors, including the governments of Germany and Norway. The program is forecasted to leverage approximately USD 520 million of private finance.

Table 3. GET FIT Uganda

Program Component	Activities
Subsidies	Top-up FiT premium for private investors in renewable energy (1-20MW; 20 years fixed contract - Bio (Bagasse): 8 cents/kWh - Hydro: 8.5-11.5 cents/kWh - Solar: 11 cents/kWh
Solar Power Generation	Support on-grid solar energy development Ex) Grid connectivity for solar power transfer
Document Standardization	Standardized legal documents for power purchasing agreement and implementation agreement in collaboration with the Ugandan government.
Partial Guarantee (provided through WB)	Provision of: short-term guarantee on power purchasing agreement with the Ugandan public Electricity company; Termination compensation for events of governmental/utility default under the PPA/IA; Guarantee on commercial debt
Technical Assistance	Ugandan ERA capacity-building on REFIT tariff modeling, least cost development planning, project due diligence expertise, strategic communication and negotiation.

Source: GET FIT (2015). GET FIT Uganda: Annual Report, pp. 13-16, 41.

ARECA provides guarantees to small-sized renewable energy projects (less than 10MW) in Central American countries, including Gua-

temala, El Salvador, Honduras, Nicaragua, and Panama. The program is aimed at expanding renewable energy dissemination in the region. While 10~40% guarantee is provided to most renewable energy projects, ARECA provides 35~75% guarantee, which is exceptionally high. ARECA provides up to 75% guarantee for small-sized loans. For projects over USD 500,000, a regular guarantee rate (35%) is applied. Another important aspect of the program is that it supports capacity-building for local financial intermediaries in identifying and evaluating projects. By fostering the capacity of local intermediaries and allowing them to evaluate the application in depth, the program is able to continue operation despite its high guarantee rate.

According to our review, examples often combined various support measures, including grants and concessional loans. The examples also included a wide array of instruments from technical assistance and financial consultation to capacity building.

Recommendations

Improve Private Sector Capacity

Capacity enhancement of private energy companies is required. In many countries including Korea, renewable energy is a new industry where small and medium-sized companies make up a large proportion. Since they often lack track record, financial soundness and network, public support should be provided to foster their capacity. For example, government can provide incentives to bidders who partner with small and medium-sized companies in overseas procurement so that they can build track record. Also, public institutions can host networking sessions inviting government officials from potential partner countries and

energy company representatives. Through such measure, energy companies are able to gain acquaintance with local authorities.

Provide Consultation on Renewable Energy Financing

Secondly, a public consultation facility specializing in overseas project financing can help private sector participation. Since finance is not a strong point for most energy companies, the facility can provide financial know-how to energy companies. The facility can provide advice on structuring project finance and reaching financial closure by blending various financial tools. The facility can also host general information sessions to educate companies on accessing international funds.

Create Favorable Environment for Investment

Finally, more efforts are required for creating a favorable environment for private investment. Since the drop of raw material cost in the mid-2000s, enabling environment has emerged as the key in renewable energy investment. Public resources should be focused in establishing relevant infrastructure and institution in developing countries. Support and attention is required in specific areas such as institutional capacity building and power grid connectivity.

Increasing capability and financial expertise of the energy companies will facilitate private stakeholder participation in projects. Possibility of resource mobilization will further increase with an enabling environment and network in place. With the efforts and resources, transition to a low-carbon economy is possible.

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