

INTERNATIONAL RENEWABLE ENERGY AGENCY

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Note of the Director-General

**Scaling up renewable energy investments:
Risk mitigation and a virtual marketplace for renewable energy projects****I. Introduction**

1. Global investment in renewable energy has grown from USD 55 billion in 2004 to over USD 270 billion in 2014, but more is needed to build a sustainable future. The latest Intergovernmental Panel on Climate Change (IPCC) report is a reminder of the urgent actions required to keep global average temperature increase below 2°C in order to avoid the most serious impacts of climate change. Characterised by high up-front costs and typically low running costs, renewable energy technologies bear substantial financing challenges. While costs have fallen significantly for most renewable energy technologies in recent years, making them competitive in many locations, high financing costs continue to represent a major barrier to scaling up renewable energy investments, even when forward-thinking policies and effective financing vehicles are in place.

2. In order to scale up renewable energy investments, the sector has to expand beyond current financing structures, which rely heavily on public finance in some parts of the world, and attract finance from larger private investors. With a collective total of USD 71 trillion in assets, institutional investors (such as pension funds, insurance companies, and sovereign wealth funds) are considered a significant source of capital to scale up renewable energy investment. However, due to their limited track record, renewables are still perceived as a risky investment. In order for renewable energy projects to attract private investors and institutional investors in particular, effective policy measures and financial instruments/options must be put in place in order to diversify and mitigate risk.

3. IRENA has been exploring risks and barriers to renewable energy investment and analysing various approaches and instruments to better address these challenges. During the past two years, IRENA, in partnership with other institutions, has been examining the key risks and barriers associated with renewable energy investments. This work has included three expert meetings, four analytical studies based on surveys, case studies, extensive literature review and interviews. The outcomes of these activities is being summarised in a comprehensive report that analyses various risks and barriers associated with renewable energy, and maps them to a range of financial instruments and structures.

II. Risks and barriers to renewable energy investments, financial risk mitigation instruments and structures to address the challenges

4. Financing costs in renewable energy investments are driven by the risk/return profile of investments. Investors and lenders require higher returns to compensate for the risks they are taking or expect to take, and for the cost and time spent on due diligence. In addition to the risks specific to renewable energy and the front-loaded cost structure of renewable energy investments, other challenges in some countries include the limited knowledge and skills of some project proponents and a lack of reliable investment data. Moreover, the high transaction costs associated with small-scale project development pose a challenge for the financing of many household and village-scale renewable energy systems. Even on-grid projects are relatively small for large investors if compared with conventional energy infrastructure projects.

5. The main risks and barriers that can hamper the development and investment, or result in an added premium on the capital cost of renewables projects, include macroeconomic risks such as political and currency risks, and renewable energy project risks, including off-taker risk incurred by power utility companies' weak credit rating and liquidity constraints, and grid connectivity risk which refers to the risk of not being able to connect the produced electricity to the grid. These factors can increase investors' perceived risks, raising the return that they require. In recent years, for example, investors' confidence has been lowered by instances where renewable energy projects have been affected by unexpected policy changes.

6. The market barriers that prevent investors and lenders from investing in renewable energy projects include the limited experience and knowledge in financing renewable energy projects, as well as constraints in the regulatory environment. As a result, project developers and sponsors face financing challenges which manifest in the high cost of capital and limited access to finance.

7. While real risks and barriers can affect renewable energy projects beyond the development and investment stages, which can lead to construction delays or even cancellation, it is the perceived risk that matters to investors upfront. Therefore it is of the utmost importance to build confidence through policy stability and the effective operation of renewables support schemes.

8. Financial 'instruments' such as grants, debt, equity and guarantees, and financial 'structures' utilising these instruments such as on-lending structure, play an important role in addressing risks and barriers by improving lending terms and project returns, and changing the perception of risks to improve the bankability of projects. Financing 'facilities' established by public finance institutions and development agencies typically offer technical assistance and funding via blended finance, to address the barrier of high upfront cost and limited technical capacity.

9. The results of the analysis of ten renewable energy projects indicate that risk mitigation instruments can contribute significantly to lowering the cost of capital, lengthening loan tenors, improving access to concessional loans, and improving project returns. For example, various forms of risk mitigation implemented for a solar PV project in Burkina Faso led to cost reduction of the final energy tariff by an estimated 13%. Furthermore, by reducing the perceived risks and transferring risks to third parties, risk mitigation instruments can enable a more efficient project development process, help to mobilise private sector investment, and strengthen government ownership in renewable energy investments. In the cases of the Cabeólica wind project in Cabo Verde and the Kalangala solar PV projects in Uganda, technical assistance funds facilitated access to high-quality and rigorous technical analysis, which helped to attract the participation of high-profile technology providers.

10. Structured finance mechanisms such as standardisation, aggregation and securitisation can address other investment barriers for renewable energy projects such as the high transaction costs associated with relatively small scale projects. These instruments were used for solar PV projects in the United States and are increasingly gaining prominence in other countries around the world. For example, seven small-scale solar PV projects in Jordan were recently aggregated with standardised contracts in order to coordinate negotiations, reduce due diligence costs, and attract investors.

11. There is, however, only limited supply of adequate financial instruments and structures to cover all risks and barriers. Some specific risk categories are especially important for renewable energy projects, such as policy risk resulting from unexpected adverse policy changes, off-taker risk and grid connectivity risk. Currently there is no risk mitigation instruments dedicated to renewable energy investments to cover such risks, thus when covered, risk mitigation instruments dedicated to cover different types of risks (such as political risk) are being used. In addition, IRENA's survey of 16 financial institutions shows that available guarantee instruments have not been used actively for renewable energy investments. Reasons behind such low rate of guarantee utilisation include low attractiveness of guarantee instruments for potential users due to long processing time and documentation required for application, and the lack of institutional incentives and of support for the issuance of guarantees (compared to loans) and renewable energy investments. As a result, existing instruments have had little effect in mobilising the private investment thus far.

12. Recently, several public finance mechanisms and facilities have emerged to target various barriers, including focused risk mitigation instruments for geothermal projects and funding for project preparation. For financing institutions, however, identifying investment mature renewable energy projects has become a challenge. Project development capacity has not kept up with the emergence of funding facilities, and there is a large disconnect between those with economically viable project ideas and the investors.

13. In summary, the findings suggest a number of key conclusions and recommendations:

(a) Public finance should be more effectively used to address risks and barriers with adequate financial instruments and facilities (rather than crowd out private investments). A targeted approach focused on renewable energy specific risks can help scale up the utilisation of existing financial instruments in renewable energy investments. Good examples include facilities targeted at early geothermal projects and off-taker power purchase agreement (PPA) guarantees.

(b) The use of structured finance mechanisms such as standardisation and securitisation needs to be expanded in order to attract institutional investors and bring renewable energy investments to scale. The financial attractiveness of renewable energy projects needs to be assessed holistically and from the viewpoint of investors, using their language.

(c) There is also a need to support project development and to help projects move from initiation to financing by making markets more transparent and actively facilitating interaction of market players. This requires capacity building for project developers from an early project stage onwards and making information widely available and easily accessible.

14. Further work has been planned and initiated to take forward the recommendations above. IRENA has worked with financial institutions on focused risk mitigation facilities. One example that has advanced considerably is a liquidity reserve facility for utilities in Africa to cover the off-taker risk for renewable energy projects. This facility has been presented in a proposal for funding to the Green Climate Fund. Risk mitigation approaches have also been promoted as part of the workshop on financing geothermal in the Andes region.

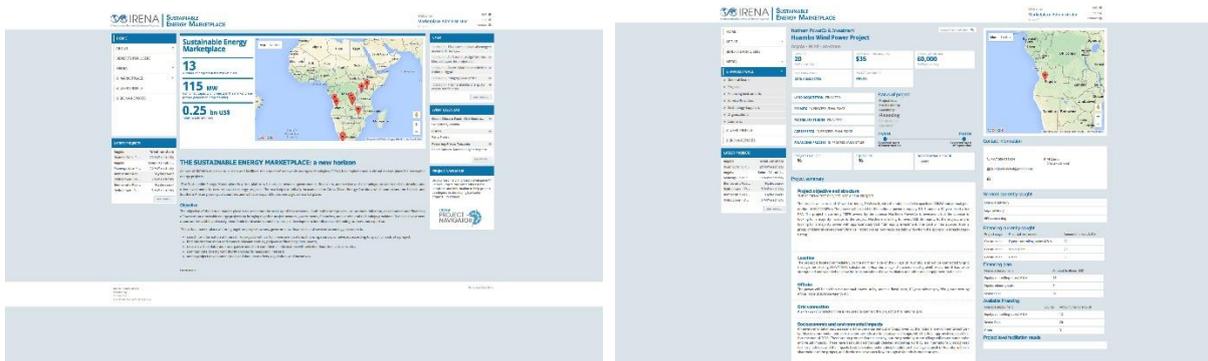
15. IRENA has presented the option of developing a dedicated risk mitigation facility for renewables to the G20 Energy Sustainability Working Group. As a result, the renewable energy toolkit adopted by the G20 Energy Ministerial on 2 October includes a section on such a facility. This Toolkit notes that the G20 may request IRENA “to organize a conference to exchange experiences in the use of risk mitigation instruments (e.g., loan guarantees, off-taker risk guarantees, mezzanine finance schemes, etc.) as an efficient means for public sector finance to mobilize private sector investments and to develop a Toolkit to the use of voluntary risk mitigation instruments within the G20 framework.”¹

III. The IRENA Sustainable Energy Marketplace

16. To address the third recommendation above, IRENA has created the Sustainable Energy Marketplace. The Marketplace provides a global virtual platform with regional hubs to connect project developers and owners with financiers, investors and service and technology providers to increase investments in renewable energy projects. The platform has initially been set up for renewable energy projects in the Africa Clean Energy Corridor (ACEC) region, i.e. for countries of the Eastern and Southern African power pools, but it has subsequently been expanded to cover all of Africa. It is currently being extended to the Caribbean and Latin America, and in 2016 it will be expanded to cover all Small Island Developing States (SIDS) and eventually become global in scope. It will also be expanded to include energy efficiency and energy access projects.

17. The Sustainable Energy Marketplace will bring together (1) projects, project developers and project owners, (2) financiers and investors, and (3) service and technology providers. The core of the Marketplace will be an actively operated and facilitated web-based tool, which will make projects and all relevant stakeholders visible, easily identifiable and approachable through efficient search functions, thereby increasing the transparency and liquidity of the renewable energy project market in the region. The Marketplace offers a platform also for governments that want to promote investment frameworks or initiatives in their countries in order to attract investors.

18. The Marketplace seeks to work closely with international financing institutions and donor initiatives already active in the regions to facilitate project development, and provide a tool for them to utilise their instruments in a more coordinated and efficient manner.



¹ http://www.irena.org/documentdownloads/Pressrelease/G20_Toolkit.pdf

19. The Marketplace will actively engage private sector experts, advisors and service providers, and encourage and support their efforts to advance renewable energy projects. It will be especially attractive to new and foreign private sector investors seeking to enter the renewable energy investment market in developing countries.

20. On a selective basis, systematic investment readiness assessments will be conducted to gain a better understanding of specific projects' topical needs, which will be followed by active matchmaking and facilitation by IRENA and its partners to connect projects with advisors, project development funding sources, other investors, or with other relevant stakeholders, depending on the project's precise needs.

21. The Marketplace will be closely linked to IRENA's existing tools and databases such as the Project Navigator, which provides tools and templates for project developers, as well as relevant country-level data. Furthermore, IRENA's Global Atlas will be easily accessible for all market participants interested in identifying suitable sites for renewable energy project development. This information shows the availability of renewable energy resources in different regions, and also shows where these areas are located in relation to available power and other infrastructure, environmentally-protected areas, load centres, etc. The Marketplace will also provide its users with regularly-updated information on country-level policies and regulations through the joint IEA/IRENA Policies and Measures Database. It will also make updated information available on existing capacities and generation costs of renewable energy technologies in applicable countries and regions.

22. As the market expands, renewable energy projects will increasingly develop a track record that will make financing easier. As initial barriers are overcome and the number of projects grows, attractiveness to investors can quickly increase, and thereby the renewable energy market can move from a niche to a mainstream area of investment. The objective is for IRENA to work with governments and partners to accelerate this process.

IV. Guiding questions

- What are countries' priorities in scaling up renewable energy investments, and how much experience with financial risk mitigation instruments do they currently have?
- What would be the most effective role for IRENA in addressing the risks and barriers to scale up renewable energy investments? What should be the priority for the Agency's future work in this area?
- How could the projects' host countries and IRENA cooperate to scale up private sector financing for renewable energy investments through the Sustainable Energy Marketplace?
- How can countries be otherwise involved with the management and administration of the Marketplace?