IRENA
International Renewable Energy Agency

3 May 2014

INTERNATIONAL RENEWABLE ENERGY AGENCY
Seventh meeting of the Council
Abu Dhabi, 2 – 3 June 2014

Note of the Director-General for Programmatic Discussion on **Socio-Economic Benefits of Renewable Energy Deployment**

1. Over the last few years, there has been an increase in the large-scale deployment of renewable energy technologies, with renewables accounting for the largest contribution to capacity additions in the power sector worldwide. Key drivers for this expansion have been energy security, economic and environmental sustainability of renewable energy and energy access. With many economies still facing low growth, the socio-economic benefits of renewable energy have come to the forefront of the policy-making debate and strategic choices made by countries. Renewable energy deployment has the potential to increase income, improve trade balance, contribute to industrial development and create jobs. However, analytical work and empirical evidence on this important subject remain relatively limited. While conceptualising the value creation impacts of renewable energy deployment in a comprehensive and solid framework is a complex task, it is essential to develop evidence-based empirical justification that can support building the business case for renewable energy.

2. Value creation from renewable energy deployment spans a vast array of socio-economic effects including macro-economic, distributional, sectoral and other overarching (cross-sectoral) aspects. Recently, the discussions have focused primarily on macro-economic impacts with particular emphasis on employment and GDP. The renewable energy sector has become a significant employer, with the potential for adding millions of jobs worldwide in the coming years.

3. With 6.5 million **jobs** in 2013 (*IRENA's Renewable Energy and Jobs – Annual Review 2014*), the renewable energy sector has become a significant employer, with a potential for 16.7 million jobs in 2030 under the REmap 2030 options. Despite limitations of existing assessment methods, research shows that the impact of renewable energy deployment on GDP is positive overall. In Mexico, for instance, a study by the Mexican Ministry of Energy[1], suggests that achieving a target of 20 GW installed wind capacity by 2020 can lead to an increase in GDP between USD 17.9 billion and USD 28.5 billion, depending on the level of domestic manufacturing of components.

4. Value creation can be influenced by a broad range of **cross-cutting policy instruments** aimed at deploying renewables and building a domestic renewable energy industry by promoting investment and technology transfer, strengthening capabilities and promoting research and development. Policies

[1] In collaboration with the Asociación Mexicana de Energía Eólica (AMDEE), the International Finance Corporation (IFC), the Inter-American Development Bank (IDB) and PriceWaterhouseCoopers (PWC).

to support deployment are essential market-creating measures as they trigger investments into the sector. Depending on the type of deployment policy adopted, the value created can vary in intensity along the different segments of the value chain. For instance, tax reductions, loans and grants can create value in installation and operations and maintenance. A study by NREL[2] estimates that the USD 9 billion §1603 Grant Program in United States, for example, helped create as many as 81,000 full time equivalent jobs per year, of which up to 75,000 were in construction and installation. Auction schemes coupled with local content requirements can support the development of upstream supply chain segments, as well as contribute to other socio-economic priorities. In South Africa, for instance, the renewable energy auction is designed to promote job creation, local content and enterprise development, and empowerment of marginalized social groups and local communities.

5. The success of deployment policies in creating value depends on the existence of other **complementary instruments**, such as those that aim to strengthen domestic capacities. Turkey is an interesting example of coordination between deployment policies (feed-in tariffs), local content requirements, and strengthening firm-level capabilities, through industrial upgrading programmes and the promotion of joint ventures. Such coordination between polices offers positive signals to potential private sector investors, allowing them to ramp up their activities locally along the life-cycle of RETs. The well-coordinated policy mix in Turkey has resulted in several joint ventures with solar companies from countries including China and Germany.

6. A vital component of the policy mix is the **promotion of education and training** in the field of renewable energy. This is necessary to avoid skills gaps and labour shortages that could hinder further deployment, as is being experienced in many countries today. Interventions, specifically from the private sector at *IRENA's Renewable Energy and Jobs Conference* (January, 2014) stressed the importance of better understanding the anticipated skills needs within the sector and to identify the ways to meet them. Malaysia is one example where the National Renewable Energy Policy and Action Plan includes human capital development as one of the three main elements, and proposes a variety of educational and supporting measures to meet the skills demand. For example, the PV training programmes have had a significant impact on the local market. According to SEDA Malaysia[3], the number of PV installers increased from 8 to 200 within the span of two years, with the increased competition cutting the module installation prices by 65% by 2013.

7. The value created through **promoting research and innovation** is the knowledge that can lead to technological breakthroughs, improvements of products, technologies, production lines and services, increasing the applicability of technologies to local conditions. Research and development activities are often part of renewable energy clusters that focus on stimulating information sharing and facilitating the cross-pollination of ideas to mobilise innovative potential. State, provincial and city governments can play an important role in developing local **renewable energy clusters**. The city of Dezhou, China, for example, has established an economic development zone that centralises solar technology research and development, manufacturing, education and capacity building resulting in over 120 solar energy enterprises, generating an annual turnover of USD 3.46 billion in 2010.

8. There is no one-size-fits-all policy solution for value creation. Factors that should be considered while designing targets and a long-term strategy include the stage of renewable energy and industrial development; the general business environment and competitiveness as well as the dynamics of

[2] US National Renewable Energy Laboratory
[3] Sustainable Energy Development Authority of Malaysia

regional and global markets for wind and solar energy components and services, as analysed in IRENA's publication *econValue: the socio-economic benefits of large-scale solar and wind deployment*, 2014.

9. IRENA's work on socio-economics benefits greatly from member state engagement. In fact, much of the evidence-based knowledge developed through this work is based on the contribution of several Members in the form of access to data and local expertise. The programmatic discussion on socio-economic benefits of renewable energy deployment will serve as an opportunity to engage more countries, thereby enriching and strengthening the knowledge that IRENA can provide to the global discussions through the econValue platform.

Countries are invited to comment on the matter and the proposed prioritization of activities.

Topics for Discussion:

- Given the austerity measures applied in many countries today, is renewable energy deployment perceived as an opportunity for economic growth and value creation?
- What kind of policies have maximised economic benefits from renewable energy deployment? What is the right mix of policy instruments?
- Given potential impacts of fossil fuels as well as renewable energy on a country's economic activity and trade balance, does a renewables-based energy supply result in a net economic benefit?
- In recent years, some countries have imposed local content requirements. What are the lessons learnt from these measures? What alternatives exist to support the development of a nascent domestic industry while minimizing costs and economic inefficiencies?
- What lessons can be learnt from developments in other sectors that have benefited from an enabling industrial policy?
- Is the potential for value creation beyond the manufacturing segment of the value chain of wind and solar energy technologies, such as installation, operation and maintenance, fairly recognised and included in political priorities?