How to finance renewables and stimulate growth

Given the on-going financial crisis, where will the investments come from for a swift transition to a low carbon economy. Matt Kennedy and Rolf de Vos report.

Renewable energy technology and finance deployment are closely interrelated. In its latest Special Report on Renewable Energy, the Intergovernmental Panel on Climate Change estimated that more than double the current investment level will be needed going forward to finance renewable technologies. Put simply, a scaling up of public subsidies is not a viable solution for funding.

In 2011, the International Energy Agency Renewable Energy Technology Deployment Implementing Agreement (IEA-RETD) investigated methods, in the short term, to enable an enhanced mobilisation of financing for renewable energy. The IEA-RETD then published its findings in a report: Strategies to finance large-scale deployment of renewable energy projects: an economic development and infrastructure approach.

Insufficient approaches to date

The report concludes that the traditional ways of financing renewable energy projects are no longer sufficient. Despite the dire need for high levels of finance for future large-scale deployments of renewable energy, neither the funds nor any convincing mechanisms to produce them have been forthcoming from the public or the private sector, it says. Historic budget deficits in OECD countries caused by the current financial crisis have made this even more difficult.

Nevertheless, the required level of capital is available. While corporations (US companies alone have $1.8tn on their balance sheets), pension funds (P6 groups sit on $3.5tn), sovereign funds (the top 10 with $3.6tn) and insurance funds remain active, several obstacles exist that prevent the exploitation of these funds in the renewable energy sector.

Renewable energy is perceived to have large cost disadvantages compared to fossil fuels. In many cases this perception is inaccurate. Technological and competitive risks indeed exist. These include large upfront costs, the intermittency of renewable sources like wind energy, the unwillingness of financial institutions to provide capital, high transaction costs, and additional costs for interconnections and new construction facilities.

The way forward

Risk reduction is required to facilitate the deployment of renewable energy. Governments have a critical role to play in reducing these risks while simultaneously making the returns attractive enough for private investors. Over the past two decades, governments have learned a lot about effective clean energy finance mechanisms. But policy makers must continue these proven mechanisms, while developing new approaches to access, attract, and direct new investment.

A more integrated approach of support for renewables is needed. Many countries still regard renewable energy as a mere environmental issue, but they would improve the basis if they would consider renewable energy (complemented by energy efficiency) as a new economic development system. Some countries have already given the example of supporting renewable energy manufacturing industries, like Denmark, Germany, the UK, China and India.

Infrastructure investment is required, alongside local market development, for large-scale renewable energy project and product deployment. Gaps in the industry value chains, such as manufacturing support and workforce development, need to be established, while high-tech clusters of activity have to be supported, practices replicated and export stimulated. This will then establish the enabling environment that fosters investor engagement.

Institutionalised financing

The IEA-RETD report identifies how economic development policies are framed by financial innovation, technological innovation strategies and enabling energy policies. 

Financial innovation focuses on leveraging public funds to attract a high amount of private capital. Support mechanisms need to be applied in new combinations with financial products. That can be achieved by establishing a new structure for promotion, integration and coordination, like a national investment bank. Several good examples already exist, like the German KfW, the European Investment Bank and the proposed UK Green Investment Bank (GIB).

These financial institutions apply a more consistent planning of financing infrastructure. For instance, the UK GIB proposes total financial solutions including transmission, interconnection and installation vessels for offshore wind. By taking a 'first-loss' position, public funds will reduce risks for the private investor. Moreover, institutions can provide new investor product offerings, such as high returns for the high-risk construction phase, with pre-arranged refinancing of lower returns during the operational phase.

Innovation strategies should focus on supporting system innovation along the whole renewable energy value chain, from research to commercialisation and projects, resulting in enhanced private and public research, development and deployment in renewable energy technologies.

‘Open and distributed’ innovation may also be exploited to tap the dispersed, global talent and to collaborate across institutions, linking seekers and solvers on particular product development to accelerate the technology development cycle. ‘Reverse innovation’ strategies and partnerships with developing countries can reduce the cost of product design, creation and manufacturing, enabling the adaptation and exportation of such technologies to OECD countries.

As a part of the integral approach, energy policies should also consider a host of technology push and pull demand strategies to support the scale-up of existing technologies and increase support for emerging technologies. The focus should be on scaling up existing policies and new breakthroughs that contribute to achieving national renewable energy targets. For instance, these policies could adopt a combination of feed-in tariffs or national tax credit schemes, combined with mandatory procurement (of say renewable power) for utilities.

Financing opportunities are abundant. To avoid a lock-in to technologies that will not optimally contribute to the low carbon energy system in the future, leasing-type models can be used. Energy policies can also address the ‘valley of death’ – the commercialisation gap in which many young technologies disappear before getting on the commercial market. Furthermore, an ‘emerging technology renewable auction mechanism’ can be established that would require locally regulated utilities to procure clean energy project outputs from specific technology classes up to a predetermined cost limit, at guaranteed prices competitively bid by the winning developers.

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