CEFC

Expert Review

Concentrating Solar Power Generation

Australia

1. HOW DO YOU EXPECT THE CEFC TO FACILITATE INVESTMENT?

As a developer, technology partner and international investor, we expect the investment to be reflected in the actual electricity produced by new renewable energy power plants. The fund should be applied as a reward for carbon-free electricity and take into account the time of production.

We identify the need of a market framework to regulate the support to selected renewable energy technologies. An appropriate baseline for an Australian market aiming to achieve a share of green electricity in the Australian energy mix is the European initiatives led by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety since 1994. The market should be based on laws, which in turn may respond to Australia's plan for renewable energy until 2020 (share in electricity production, share in the energy mix, emissions cap).

Investment will be faster applied and better directed in the form of a Feed in tariff (FIT). This mechanism will let developers allocate and wisely manage other risks that should not technology specific, for instance risks during construction, overall financing activities and project development affairs

With regard to the European experience, a FIT which is backed by a legal framework constituted a guarantee for banks and institutional investors to entrust financing of large-scale renewable power projects. It was understood as a proof that electricity sales would take place at a fixed price i.e. business-as-usual financing models gained credibility in view of the fact that electricity would be paid independently of fluctuation of conventional energy prices.

The role of the CEFC is expected to form a dynamic FIT, which can be readapted at a certain period of time. Not only are common economic changes to be taken into account (need for indexation), but also the result of the FIT's implementation is to be evaluated in order to possibly recalculate it. This is a goal-oriented mechanism prone to continuous improvement.

Germany has shown commitment and successfully applied the German Act of Renewable Energies EEG (Feed-in Tariff Law) during the past decades. By means of an adapted FIT scheme for renewable energies the German Federal Government paved the way to achieve a share of 20% in the final energy consumption[1] to 2020. Project developers were enabled to undertake large and small-scale projects countrywide in this way, whereas end consumers (e.g. households) found proper conditions to invest on technology.

As a matter of fact, a share of 17,0% with renewable energy was achieved in electricity generation in 2010 in Germany, whereas the final energy consumption achieved 10,9% (corresponding to 275,5 TWh) in the same context. The goal until point in time was fulfilled, saving this 118 millions of CO2 ton equivalents and keeping 367.400 jobs running in the renewable energy sector (source: German BMU, 2011).

Investment in renewable energies has been goal-oriented in Germany. The effect of the German FIT Law (EEG) has attracted up to 26,6 billion euros of direct investment, namely in the construction of renewable energy installations. A side-effect was the economic boost from the construction of renewable energy installations in 2010, estimated in 11,1 billion euros (source: German BMU, 2011). This proves how a FIT legal framework for renewable energies can achieve results in the short term.

[1] Understood as electricity generation, heat supply and fuel consumption.

2. ARE THERE PRINCIPLES BEYOND FINANCIAL VIABILITY THAT COULD BE USED TO PRIORITISE INVESTMENTS, SUCH AS EMISSIONS IMPACT OR DEMONSTRATION AFFECT?

The better Australia's targets for renewable power generation are defined, the more priority investment on this affair will gain. Security for investments can be backed by clear goals for green electricity production in the federal level, letting investment become a priority as long as risks are kept below a reasonable limit.

From our point of view, large-scale solar thermal power plants have successfully attracted investment considering the following aspects beyond financial viability:

a) Technology maturity
   We have had access to investment by offering a proven and mature technology. Furthermore our shareholders are convinced to invest both in our company and our projects because of the degree of certainty our technology adds on them.

   We are moving ahead on the learning curve of our technology in many senses, including the ability to finance projects. We are positive that investment follows pathways whereby maturity of a technology ensures successful performance.

b) Local content
   Large-scale projects require local partners and local sourcing. We experienced that this strategy was better complemented by increasing the local content of a project, namely with regard to industrial services, materials and others.

   There is an opportunity in the development of a large-scale power project, which improves the local economy of economically weak regions (creation of jobs, contracting of services, etc.) and can help bring implementation costs down.

c) Decarbonizing strategy
   A step forward to decrease CO2 emissions from electricity production and thus achieve a carbon emission target under GHG abatement international protocols can lead green investment focus on renewable energy projects.

   The CEFC fund can be shaped as a preventive measure rather than corrective one, leaving Carbon capture & storage technologies out of scope whereas energy efficiency still plays a role on the end-customer user side (but still representing actual emissions).

3. WHAT ARE THE OPPORTUNITIES FOR THE CEFC TO PARTNER WITH OTHER ORGANISATIONS TO DELIVER ITS OBJECTIVES?

The CEFC fund ought to be consistent with the purpose of including renewable energy electricity production goals until 2020 in Australia. As a preamble, a partnership with a Federal Government entity is a must to ensure the Government will have prompt access to information and feedback of the implementation of this fund.

Selected partners should cover specific areas outside the CEFC fund's scope, namely technology experts and developers active worldwide within the value chain of power projects. An international benchmark of this kind will let CEFC count accurate on information as a decision-making tool.

Cooperation with other organisations is not to be limited to consultancy upon need. The interaction of CEFC will be an opportunity as long as it gains experience by getting experts involved e.g. creation of a taskforce. The partnership should look into a long-term relationship to the parties enrolled in the beginning.

During our project financing activities of former projects, we realised the importance of working jointly both on investment and on negotiations of power purchase while talking to banks. In order to carefully direct the fund, the CEFC should integrate the experience of partners that have developed projects together with electric utilities, grid operators and large power consumers.

4. How could the CEFC catalyse the flow of funds from financial institutions?

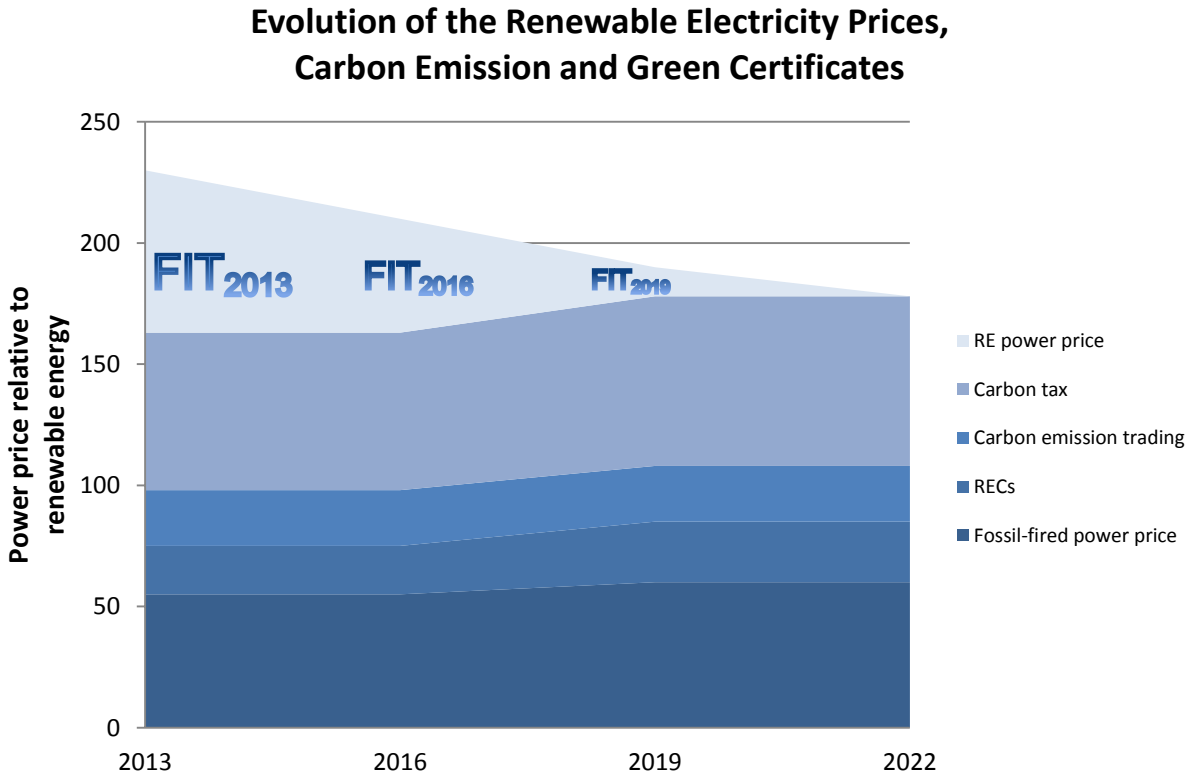
At the core of financing large-scale projects, companies that are active in the development generation projects stand out as long as they count on protocols and procedures to measure the renewable energy resource. Very few renewable energy technologies can offer predictability of electricity generation and dispatchability as solar power does. These two features are extremely important for financing institutions and relevant in such a way that they can actually bring along equity investors.

The CEFC fund should make a difference among the sources of renewable energy it aims to support if it is desired to catalyse investment. Electricity production that can be planed sets in fact the basis of a power purchase agreement with electric utilities, which guarantees that revenues will be fixed, whereas payback times for investment on these projects have higher chances to be met. There are further advantages if electricity can be dispatched to peak load times.

We seek for investment from financial institutions once a project has reached a certain stage of maturity. We have experienced and managed financing by means of loan-equity strategies, which were well backed-up by FIT schemes.

According to the current status of the Australian market we do not intend investment to come directly from banks, but from investment partners and project owners. By taking part in investment with own equity we show our trust and compromise with a project and so the inclusion of well-reputed investment parties does.

In order to fill the price gap from renewable energy electricity to fossil-fired electricity the CEFC fund should aim to even the playfield for all electricity generators in terms of levelized electricity costs (LEC). Due to the fact that renewable energy electricity is to compete in an open market to coal-fired generation, the fund must pursue similar conditions to new players.



Current generation prices set a tough baseline for renewable power to enter the market in spite of green certificates and the option to trade them. Penalization due to Carbon emission can nowadays be easily assimilated as a variable cost of conventional power generation. Unless both are adjusted to reflect environmental costs accurately, they will continue to be insufficient.

As long as the electricity price gap is covered by the CEFC fund, it will be easier to approach financial institutions with accurate assumptions backing-up financial models and realistic IRR margins.

The fund can be managed as a fill-in-the-gap FIT subject to spot market prices and aided by carbon taxes to fossil generation and green certificates. The FIT will temporarily cover the difference to fossil-fired generation until LEC are brought down (namely due to technology innovation and economies-of-scale effects). We expect this to positively impact both the duration and on the terms of PPAs, which in turn will let funds flow in investment in short term.

The annual budget of the CEFC fund could be annually estimated and managed as a FIT to pay for a predefined amount of energy (kWh) each year. In order to guarantee a balanced approach, the annual FIT budget coming from the fund is to be allocated to preferential renewable energy sources (with high energy density and capability of attaining a higher annual yield). This will impose a cap to all energy sources, set by the FIT that the fund can afford and by a predefined length of time driven by PPAs. At the same time payoff of further investment is to be aided by carbon taxes, carbon emission trading and green certificates.

Coming back to the international benchmark, financial institutions in Europe have found better conditions to award loans in countries where a legal framework backs up support for renewable energies. The core initiative to transform the energy matrix of a country is to ensure renewable electricity will be made available in the market, whilst generators will have to fulfil pre-established targets upon a guarantee on their compliance.

Additional enforcement by international GHG abatement protocols are to even the playfield for fossil generation (e.g. carbon tax), but they are not expected to fill-in the gap in open electricity markets where spot prices are biased and power exchange with other countries is out of the question.

According to the German experience, such initiatives respond to a solid government policy structure and commitment. Once the FIT mechanism was identified as the most efficient way to speed-up deployment of renewable energy projects, policy making was oriented in this way until it achieved the form of a dynamic law (including digression factor and taking into account fluctuation in the international energy market).

5. WHAT EXPERIENCES HAVE FIRMS IN THE CLEAN ENERGY SECTOR HAD WITH TRYING TO OBTAIN FINANCE; HAVE TERM, COST OR AVAILABILITY OF FUNDS BEEN THE INHIBITOR?

The following aspects have had a big impact on financing our projects:

- Length of bank loans
  The lifetime of a solar thermal power plant is beyond 40 years being overhauled twice. The impact of the timeframe of a financial model on the LEC is noticeable when it is extended e.g. five years. Usually the scenario has to be constrained to 25 years or less due to the length of a bank loan. On the other hand, the duration of a PPA typically varies from 15 to 20 years thus bringing along a mismatch among these factors.

- Project financing costs
  If there is no market for renewable energies, several financial costs will come about, which are to be associated neither to the technology nor to the project's development. Access to large investment funds for renewable energy generation projects is limited in general to selected host countries. Finding alternative solutions to undertake project financing is time-consuming; it increases costs and can delay construction.

6. WHAT NON-FINANCIAL FACTORS INHIBIT CLEAN ENERGY PROJECTS?

Among the main risks that threaten renewable energy generation projects, the following are of main concern for investors:

- Technology risks
  Project partners demand renewable energy technologies with a proven track of record, which is fairly defined as two years of commercial operation. Whenever this precondition is not met, the technology risk is considered high enough to make investment on a project doubtful.

- Country-related risks
  Financing projects in foreign countries is inherently subject to the host country's risks not only related to investment itself, but to other driving forces such as political stability and commitment to renewable energies, consistency in the legal framework for that, subsides management within the energy sector and others.

- Availability of fossil resources
  The biggest menace to clean energy projects continues to be conventional electricity production and its driving the market prices. Direct access to own oil and gas resources or energy imports lowers spot market prices and so are renewable energies left out of fair competition.

- Site risks
  Delays on permitting, land securement, environmental compliance, grid connection and deliverability, access to water and other issues threaten the project to meet deadlines of different kinds i.e. start of construction, financial closure, delivery of equipment, commissioning, etc.

7. ARE THERE SPECIAL FACTORS THAT INHIBIT ENERGY EFFICIENCY PROJECTS?

The market of energy efficiency solutions is divers and targets end-users of different types e.g. consumption rates, annual average demand and possibilities to invest on infrastructure upgrades. The concern about energy security, safe access to energy and the impact on prices of new measurements varies among players in the value chain of energy efficiency and consumers. Hence barriers to investment are hardly understood the same way.

From the customer side, accurate information is basic. Measurements to implement energy efficiency are misunderstood as an additional expense on end-of-pipe solutions, wrongly assuming that the solution for electricity generation should come from the generation side.

The benefit of energy efficiency is often presented as a payback period on investment to the customers. Apparently, no real effect on electricity prices is to be expected and thus investment in such projects is slow and unattractive despite of being lower than that of renewable energy technologies. If there are no incentives to the customers (e.g. households, retailers, grid operators) who are in fact the ones making a decision on technologies changing the way and the rate they consume, there is no driving force for energy efficiency projects.

8. How do you see the CEFC fitting with other government initiatives on clean energy?

The CEFC will be an instrument of the Australian Government to put in praxis the goals of the Federal Government about e.g. achieving a 20% share of electricity produced by renewable energies by 2020. Hence CEFC is to be observed both by federal and state entities where it is to be applied.

Additionally, renewable-energy related entities such as a Ministry of Energy, Water and Electricity ought to support both with supervisory and guidelines for implementation. The potential of renewable energy of all states in Australia should be identified and serve as a basis to allocate the fund promoting the technologies that are likely to achieve higher yields.

The transformation of the energy matrix until 2020, aiming to change both the generation installed capacity and the production of electricity, is expected to be embraced as a Government initiative. In the same context, the aim to reduce fossil energy generation justifies the need of the CEFC to bridge the gap in terms of the Australian power market's features. Besides, the CEFC can fit Australia's initiatives of CO2 emission reduction targets in the country level (fulfilment of agreements in the framework of international protocols for GHG abatement).

The CEFC can also be a backup to the upgrade of Australia's legal framework for renewable energy generation. It fits as the means towards enforcement and commitment of the Government provided that it can be applied as a law.

OTHER REFERENCES

Please refer to the following publications of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), available to download:

BMU - Development of renewable energy sources in Germany 2010
http://www.erneuerbare-energien.de/inhalt/39831/20026/

BMU - Renewable energy sources 2010
http://www.erneuerbare-energien.de/inhalt/47293/20026/

BMU - Renewable Energy Sources in Figures - national and international development
http://www.erneuerbare-energien.de/inhalt/5996/20026/

BMU - Electricity from Renewable Energy Sources: What does it cost?
http://www.erneuerbare-energien.de/inhalt/36865/42456/

BMU - Cost and benefit effects of renewable energy expansion in the German power and heat market
http://www.erneuerbare-energien.de/inhalt/46120/20026/

BMWi - Renewables made in Germany
http://www.renewables-made-in-germany.com/