Some questions about the risk of the investment in the renewable energy sector

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1. Risks and Opportunities

Investment in the energy sector presents several particular characteristics, such as, for example, economies of scale and natural monopoly conditions. In this little work we set our attention to some other, linked to topics covered in the document of June (1) this year.

Investment in the energy sector requires **much time** and has **large capital needs**. Most of the time until the project is able to give results a considerable period of time has gone, even higher on average than for other investments.

For instance, scientists working on a project (solar energy in the Sahara) admit that it would take many years and huge investment to generate enough solar energy from north Africa to power Europe; but envisage that by 2050 it could produce 100 GW, more than the combined electricity output from all sources in the UK, with an investment of around €450bn (2).

Thus the present generation has no incentive to make the necessary investments to guarantee the energy supply of the following. In addition many of the technologies are applicable to the sector are in full development; given this dynamics, investment in R&D are essential (and very expensive), so some of the techniques used will appear obsolete after a (short) time and investment in them will no bear fruit.

Jaeger-Waldau also believes that scaling up solar PV by having large solar farms could help bring its cost down for consumers. "The biggest PV system at the moment is installed in Leipzig and the price of the installation is €3.25 per watt," he said. "If we could realise that in the Mediterranean, for example in southern Italy, this would correspond to electricity prices in the range of 15 cents per kWh, something below what the average consumer is paying"(2).

The solutions we can find to this problem is the incentive for private investment in ways that they consider direct subsidies, tax advantages, favorable financial conditions, among others. Another way is not delegate everything in private hands, but finds that the state can take over part of the effort. This can be done in several ways, the state can make complementary investments (eg roads and routes); or the state can take over part of the core investments, as a signal; to the private sector who takes over the others. Finally, the state could be responsible for all investments. The longer the time requires of the investment the greater the possibility of the need of state intervention because the private incentive will be reduced.

2. The consequences of the characteristics of the demand

Within this scheme of interest to note that the solutions to the problem of climate change and the energy problem are strictly complementary. The form of energy production will change irrevocably. There was argued that it is need to make **"investment-friendly environment**", and within this framework the investment in the energy sector seems be paramount given the known adverse effects on the environment with the use of non-renewable energy resources. As the product increases the **demand for energy** increases at approximately the same percentage; varying this from country to country. This leads to a favorable effect of certainty on investment in the energy sector which together with the need for energy "environment friendly" may offset the negative effects of uncertainty because of the large amount of time necessary for the maturation of the investment and the enormous risk that is assumed because of the large sums required for investment projects. Moreover, we know that energy consumption per capita measured in EOT (equivalent oil tons) also shows significant variations (annual measure), 1.1 in China, 4 in Japan and the EU and 7,9 in USA 4 to name a few examples (3). Thus, even taking energy-saving programs in places where consumption is high, investments are needed in the energy sector to cover an insufficient supply. There are three characteristics present in developed countries; a) high energy consumption, b) increasing awareness of environmental degradation, c) more investment possibilities. This presents the opportunity of making plans for the energy sector as a whole. As these problems have global characteristics it would be important that the developing countries take the opportunities that this scenario presented in terms of investment, employment and development.

The problem presents complications since there is no necessity of think only of large investments, but one can consider little ones, such as small wind farms, but it also brings problems such as the integration of these investments on regional supply networks and the time to study and implementation of individual projects are also relatively long.

1. Economic growth accounting and environment, Alejandro Einstoss, Martin Andrés Szybisz, working paper, IAE, june 2009.
2. Solar power from Saharan sun could provide Europe's electricity, says EU; The Guardian 23/7/08.
3. La política energética de la República Popular de China. El caso del petróleo y sus implicancias estratégicas. Juan Manuel Pippia, march 2007; and Ruidos y silencios de la política energética de Estados Unidos, Enrique Palazuelos y Alejandro Machin, Universidad Complutense de Madrid, Economía UNAM 5, No 14, (2007).