G-8 RENEWABLE ENERGY TASK FORCE
COMMENTS TO 10 QUESTIONS

by Lucien Y. Bronicki and Michael Lax

QUESTIONS 1 AND 2

Main Barriers to Renewable Energy Diffusion and Some Ideas to Overcome Them

Inequality in terms of market competition

- The most disturbing barrier in many cases, especially in the background developments in less developed countries, appears to be a perception of poor economics of the renewable options compared with traditional fossil fuels

  – due to the high initial costs of renewables to cover the lifetime supply of "fuel energy";
  – due to lack of political will to internalize social and environmental costs and other externalities in the comparison; and
  – due to relatively small size of renewables

- Decision making in the market is often based on short-term planning and economic models, which do not take into account all components of the life-cycle, such as external costs of energy provision and use.

- The "laissez-faire" policy maximizing the supply of cheap fossil resources exacerbates several problems the world will be forced to solve in the future. Firstly, but not the most urgent, the growing depletion of those resources; secondly, the negative ecological impact of their utilization; and thirdly the "unfair" market competition of those resources with alternative, renewable resources, thus influencing the pace of their development.

- The trend of market liberalization also initiated **merchant power plants**. The governments should recognize that a power sector based on merchant power plants, dispatched according to competitive bidding is not compatible with the development of renewable energy power plants, which cannot be dispatched to accommodate fluctuating demand, because the up-front investment in fuel must be recovered on a continuous basis. The new, more sensitive approach should synchronize the options for the sake of global energy sustainability.

- Legislators and regulators should ensure, to the extent possible, that policies promising long-term production incentives or above-market contract payments to renewable projects will continue to be funded throughout the payment period. If funding uncertainties are unavoidable and/or long-term commitments impractical, policy makers may want to consider using **up-front grants rather than long-term incentive**

payments. Alternatively, investment in market transformation activities (e.g., fuel source disclosure requirements, customer education of "green" power options, etc.) or renewable energy infrastructure development may be the best use of limited funds.

Hurdles and difficulties during the renewable project financing process

Promotion of Renewable Projects nowadays encounters numerous hurdles and difficulties, such as:

- **Commercial financing barriers** often result from the higher up-front costs of renewable energy projects. The cost of fossil fuel power includes the power plant capital cost and a per unit fuel cost, while in renewable projects the capital cost includes the equipment for converting energy, which is much greater than the comparable cost for fossil fuel project of the same size. Commercial institutions as well as Export Credit Agencies (ECAs) view this as increasing the project's financial risk profile.

- **Credit risk barriers** are particularly prevalent in renewable energy projects since these projects are mostly located in developing countries. As a result countries which can benefit the most from renewable projects are often the least attractive to the financing institutions.

- **Institutional barriers** may exist in developing countries due to national policies under which fossil fuel power is traditionally sold to a population with low earnings at subsidized prices. As a result the actual cost of renewable energy is often compared with the artificially low price of subsidized electricity. This however is gradually changing as some countries strive to achieve a market economy.

- **Multilateral agencies**, with structured procedural requirements are often the only source available for financing and rural electrification renewable projects in emerging markets. In addition, these renewable energy projects are small compared to fossil fuel plants and cannot receive the allocation of manpower from the agencies, which focus on large power projects.

- **Financing costs**, procedures and timetables are geared for large national projects. This imposes costly time consuming hurdles on the smaller renewable energy projects. Financing expenses, especially if more than one multilateral agency is involved, are often the same, in total amount as for the large fossil fuel projects, and are thus grossly disproportionate in size for small renewable projects.

- **Statutory limitations** on the share of the financing that single agencies can subscribe to, usually 30 to 35%, necessitates that two or more agencies must work together, each with its own specific procedures, and with associated complications and delays.

- **Review standards** for small renewable projects, with innovative technologies, are often more stringent and time consuming than for well defined large fossil fuel plants. Time delays in the extensive financing process may affect national goals and in fact weaken the project's feasibility.

- To cope with these hurdles, a number of specific steps should be adopted which would contribute to and improve the position of renewables, vis à vis their competition

  – ***Standard agreements***
  Standard agreements such as the "standard offer" power purchase agreements that were used in the USA in the 80's would be developed and specifically tailored for financing of renewable energy projects.

  – ***"One stop" financing process***
  For renewable projects, utilizing experience with similar projects, standardized procedures and increased reliance on the history of the project participants, will contribute in decreasing of project's costs and thereby increasing its attractiveness in the energy market. Therefore, **Agency Financing Requirements** should be identified at the beginning of the review period to keep the financing process on a smooth fast track. **The Review Period** for the project through financial approval, should be targeted at six months. **The Closing Schedule,** including costs and timetable, should be agreed upon during the review period.

  – ***The financing participants***
  So long as the 30 to 35% single agency statutory limitations are in force, the participants should choose a TEAM LEADER, who will represent the needs of the participants without having to coordinate the time schedules. This will keep the financing process on schedule and control its costs. **Agency Teams** should be assigned to the projects from inception through project review and financial closing. The shorter financing period will avoid the need to change teams during the process because of the needs of other larger projects. This makes for a smoother financing process.

  – ***The regulatory agencies***
  The **Regulatory Agencies** should recognize the benefits of renewable energy - i.e. new environmentally friendly technologies, tailored for sustainable development of indigenous resources, important in emerging markets and developing countries - and encourage its development. These agencies should take into account that a **power sector structure based on merchant power plants is not compatible with renewables' development.** The Agencies should encourage the renewables, and not inhibit them by micromerging project component specifications, as long as the developers provide performance guarantees to cover the technology risk.

Other barriers

- No doubt that other barriers still pertain, such as lack of political will to promote renewables of decision makers in developing countries (again, due to their perception of being costly and too small to meet their expectations), other preferences (shelving the renewables), etc. The problem should be tackled on a country-by-country basis.

QUESTION 3

Example of Successful Renewable Energy Market Development

- The wind energy, and to a lesser degree photovoltaic, are the benchmarks for what can be done.

- ORMAT's success in overcoming the above mentioned inequalities and hurdles and, during the 90's, in installing innovative **geothermal** projects, mostly in the developing countries in Asia and Central America.

- The important lesson ORMAT learned is that financing for geothermal projects is difficult but possible, such as was demonstrated in a 50 MW BOT geothermal plant in Leyte, The Philippines with US Ex-Im Bank and a 24 MW BOO plant in Zunil, Guatemala with Scudder, IFC and CDC.

QUESTION 4

Proposals for Concrete Initiatives

- Working with Financing and Regulatory Agencies to simplify the approval process for renewable projects (one-stop financing, accelerated, fast-track review process, design of standard agreements, etc.)

- Design and implement special policy tools to promote Renewable Energy projects for both the industrial/G-8 countries and for less developed countries. The efforts should be coordinated with national programs to curtail emission of greenhouse gases (i.e. the Kyoto process), by means such as the tradable permit programs and carbon taxes.

- Design and implement international policy tools and frameworks to promote Renewable Energy projects, including backing and implementing the **Joint Implementation (JI)** schemes and the **Clear Development Mechanism (CDM)**. The Joint Implementation (JI) must be adopted as a framework to expand the availability of cost-effective carbon reductions in the international sphere. Basically it should enable an industrial country, where opportunities for reducing emissions are expensive, needing carbon reductions to meet its obligations under any international treaty, to obtain reduction credits by financing emission reductions in another country, usually a developing country - where most cost-effective reductions in carbon emission can be implemented.

  In this context the Dutch **ERUPT** (Emission Reduction Unit Purchase Tender) or the World Bank **PCF** (Prototype Carbon Fund) schemes may serve as an implementation models.

QUESTION 5

Poor Countries

- In this context it is of the utmost importance to develop:
  - indigenous, local energy resources (renewable resources should be the first item on the agenda)
  - rural, off-grid, distributed solutions (to slow/divert vast migration of rural population to the cities, causing further impoverishment)
- The wind energy and in a lesser measure photovoltaic, and geothermal are examples of how the developments in industrialized countries helped the implementation in LDC's.

QUESTION 6

Facilitating of Economic Development in Developing Countries

The investment in indigenous, local, energy developments seems to be the best way to contribute to development in developing countries.

In implementation of renewable projects a special emphasis should be placed on the transfer of skills, prior to technology transfer. Training of personnel and provision of jobs for specialists will contribute to augmenting technically skilled manpower, thus contributing to "human infrastructure" in developing countries.

QUESTION 7

Subsidies/Sunset Clauses

As was stated above, the main task is to provide a "just place" for the renewables in each nations energy mix. If this comprises introduction of subsidies, they should be introduced. The problem has to be evaluated on a country-by-country basis.

QUESTION 8

R & D

R&D is most effectively done by the private sector which can evaluate the risk/reward in projects.

Wind energy development is a striking example of what the preferential rates, in particular in the US in the 80's and later in Europe, did for the developments of products the industry is now offering to the LDC at competitive prices (and technology transfer, in addition).

QUESTION 9

Public/Private Partnerships

The tasks should be properly divided according to the strength of each sector. The private sector taking the technological risk (see Question 8), the public sector the political risk, assuring the long term tariff risk by inclusion of the externalities.

QUESTION 10

Rural vs. Urban Developments

As stated above, special attention should be placed on rural developments in LDC's because this is the area where renewables have an advantage. In addition to environmental advantages, the combination of non-fossil fuel and local rural power generation results in social, economic and technical benefits. Providing power to rural areas will slow down the negative socio-economic aspects of urbanization and lead to energy savings as well.

For the urban areas the R&D should be concentrated on applications in the industrialized countries.