

## 12 Issues for EU R&D Strategy<sup>45</sup>

Technological innovations often require public support during the early stages of their development. Since public support can only be limited it must of necessity be selective and the setting of priorities of EU R&D policy becomes an important issue.

A number of difficulties arise during the process of formulating a European energy R&D strategy. First, such a strategy must take into account the multiple objectives of EU member states. Thus, the allocation of R&D funds, apart from fostering the transition towards a more sustainable energy system, should also be compatible with other main policy objectives such as ensuring secure energy supplies, improving the competitiveness and efficiency of the European industry and guaranteeing the technological leadership of EU countries within this field.

Second, market and international developments as well as non energy EU policy objectives must be taken into account.

- The creation of a single energy market is an important issue within the Union's political agenda. The gradual creation of European energy markets will have positive effects on the transparency of prices, on competition for the provision of energy services and, consequently, on the efficiency with which these services are produced and supplied.
- The transition towards a single market is being accompanied in the EU by a massive change in the market structures: national companies are being privatised and broken up and, in many cases, national markets are being simultaneously open to domestic and foreign competition. Some of the energy companies are being unbundled and broken up prior their privatisation while some others retain their size and expand outside their national market. However, even these larger companies are likely to face much more

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competition in a larger European market. Many new technological developments have reduced the optimal size of plants, at least in the case of power generation, thus encouraging the creation of smaller and more diverse players. In considering the R&D priorities in the EU the prospects for more competitive energy markets need to be taken into account. It is important to recall that, at least in the EU, the degree of centralisation of power generation declines rapidly between 1995 and 2030 almost under all circumstances and irrespectively of the technological scenario.

- EU technology policy has to be designed within the framework of the subsidiary principle that holds for the European-wide co-ordinated programmes: actions should be taken at a European level only when the instrumentation of such a co-ordinated policy is more efficient than separate implementation of national plans. There are many indications that energy R&D is a field where significant gains may be obtained as a result of a co-ordinated, EU-wide R&D action plan. For example, the presence of important economies of scale in executing R&D actions favours R&D on a EU scale, because of the complementarities and savings induced by conducting research in trans-European pools of R&D corporations: larger, co-ordinated groups avoid the possibility of effort duplication and allow for a more exhaustive exploration of potential lines of research. In addition, subcritical research teams that are maintained by inertial reasons may regain efficiency if stimulated by the exchange of ideas within a broader research consortium. Besides this, there are research fields whose costs are simply too high for most Member States and are feasible only through concerted and co-operative research. The European Commission plays a very significant role in such efforts. Economies of scope are also found in extending the overall R&D framework to include energy technology programmes: the possibility of application of innovations originated within the energy technology cluster may diffuse towards other industrial sectors more efficiently if the R&D programmes are co-ordinated at the same European level.

## **12.1 Medium Term Issues: Faster Adoption of Improved Technologies**

One of the most important conclusions from the first part of this volume was that the global primary energy system is likely to remain dominated by fossil fuels. The role of new technologies in the medium term is quite limited. However, as was seen in the second part of this volume a large number of measures can be undertaken to limit, and in the case of Europe and other advanced regions, reduce the amount of CO<sub>2</sub> emissions. Indeed, as can be seen from Annex I, the number