Energy demand and social development

Walter Ganapini - Macroscopio , Milan

The availability of energy resources represents a constraint for the development of human settlements and activities.

The hope for a sustainable future has its focus in the perspective of a widely spread access to the Hydrogen economy , based on a not-concentrate / not capital-intensive production and distribution industrial network .

Hydrogen can become the energy source for a society oriented in favour of the intra- and inter-generational equity , should the social perception of such a need be able to fight and win the battle against the powerful vested interests that own and manage the energy market in the global scenario as today established .

Whilst looking and operating for the achievement of the above perspective , the path towards sustainability needs to be supported by a rational , eco-efficient and democratic energy policy , mainly aimed at exploiting the huge potential of the renewable sources . largely and safely available worldwide , as well as at modifying current lifestyles , particularly in the industrialized countries , by applying to the "Demand Side energy Management " (DSM) planning methodology .

The DSM approach has demonstrated to be successful whenever assumed as the basis for promoting good practices and environmentally sound behaviours , from the Public Administration to the firm's level up to the individual and community's one .

Energy saving's goals of more than 25-30 % have been achieved , from both public and private lighting sector to the industrial thermal and electric absorption , thanks to a preliminary process and product (good and/or service) energy and lifecycle (LCA) analysis .

At the urban scale , as foreseen also by the most recent EU's regulation , significant results can be reached through the development of advanced cogenerative (district--heating) high-yield schemes , able to optimize the use of limited fossil energy sources .

The global climate change effects mitigation in the frame of the Kyoto' Agreement can be only pursued by means of the mentioned strategy ; of course , it has to be rejected the irresponsible denial of the problem till now characterizing the political choices of some Governments , the US first .

On the other hand , the energy dilemma can be solved in a coherent way with the "Our Common Future " Report only accompanying the above traced policy with a very committed effort as concerns the valorisation of the dramatic potential of the " renewables " (sun , wind , biomass) as well as of the "cyclic" (hydro).

They can be used to generate heat or electricity , or to produce liquid fuels for transport , so contributing to make successful the process of integrating the environment into energy policy , emitting no greenhouse gases and significantly lowering air pollutants , at the same final-use performance level , in comparison with the fossil sources .

Renewable energy can make an important contribution to security and diversity of energy supply , by providing a feasible implementation pattern for technologies "fuelled " by indigenous sources usually available in all countries , also in the regions with lower levels of investment or employment .

Renewable energy programmes and projects are generally of a smaller scale than the conventional ones and consequently cannot benefit from economies of scale to the same extent . In relative terms , they also have high capital costs (excluding wind energy - based technologies , already commercially competitive) which need guarantees of long-term stable income streams to ensure financial viability .

It is therefore important that the non-technical frameworks in place do not discriminate against these programmes and projects but enable them to be brought forward as attractive and financially viable schemes .

As well shown by the positive results achieved by many EU's Member States (e.g.: Spain) , no single success factor can be identified as being of overwhelming significance , but is rather the cumulative benefits of a series of supportive measures (political support , legislative support , fiscal support , financial support , administrative support , technological development , information-education-training) that determine the extent to which a "renewables-based " energy policy can be successfully exploited .