

PAST PEAK OIL: THE ALTERNATIVES

Manuel Collares Pereira
(Investigador Coordenador, DER INETI)

Departamento de Energias Renováveis
INETI – Instituto Nacional de Engenharia Tecnologia e Inovação
Estrada do paço do Lumiar, 22, 1649-038 Lisboa, Portugal
Collares.Pereira@ineti.pt

I. ABSTRACT

In this presentation a brief review of possible energy alternatives will be presented. However the energy question is not reduced to the announced depletion of fossil fuels. It is also linked to the need to take into consideration climatic changes and other severe impacts associated with fossil fuels consumption.

At the outset there is the temptation to say that if oil and gas are soon gone, there will be no more greenhouse effect to worry about. But this is not so, since a very likely substitute for many years to come is coal, transformed and used in many ways. This enhanced use of coal is inevitable and must be done in the cleanest way possible.

Certainly energy efficiency and Renewable Energies (all forms) are also to be used, since they are benign from an environmental point of view and quite capable of a significant contribution. In particular the developing nations, today with 4/5 of the World population and consuming only 1/3 of the accounted energy, without fossil fuels of their own, without infra structures for energy distribution (roads, pipe-lines, electricity grid) and money to build them from scratch, have a lot to gain if they invest seriously on Renewables, already distributed and abundant. I.e. they should be encouraged not to follow our expensive and dirty fossil fuel path and jump right away into the future. Somehow that is already happening with telephones, with mobile and mobile networks growing everywhere, bypassing the development of the cumbersome and expensive traditional telephone grids.

New energy vectors will emerge, like hydrogen, or electricity for vehicles obtained and stored by other means. However we need to produce these new vectors in a sustainable and clean way as well. Otherwise there is no advantage.

Nuclear energy is a controversial issue, but will certainly be called upon to play a role in the future,

in particular if we find a truly safe way to deal with U238 (more than hundred times as abundant as U235, a real finite resource in a short time scale, if nuclear is to be used extensively). We also need a really safe and a sure way to deal with the problem of nuclear wastes, in particular of U238 power stations. Nuclear fusion is always a hope for the future and should be kept in mind.

However it will be argued that beyond the new mix of technologies, we need to deal with the energy matter in a different way and from the demand side, i.e. the point of view of the consumer or of the service it provides.

Ultimately energy is no more than a mean to an end. From a consumer point of view the end that really matters is quality of life, comfort associated with convenience.

In a World running out of fossil fuels it is time to snap out of the prevailing attitude (supply side driven) that leads us into dealing with energy as if it is just a product like any other, promoted for ever growing consumption. Certainly this approach is not sustainable.

The solution will push us beyond energy efficiency, into the realm of avoided consumption, perhaps requiring from the start a whole set of new values, compatible with the best management of what we now know will soon be exhausted, while learning to live with energy forms and energy vectors which are better suited to the new attitude that must be adopted.

Ultimately this change of attitude is a cultural change. It takes time. Thus the sooner we start the better.