

# A sustainable scenario

by

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The present economy still depends on low cost energy: a litre of petrol costs 1 to 2%<sup>1</sup> of the average daily salary in Western Europe and produces the energy equivalent of a day's work by 10 men or women. Most of this energy, at low cost and easily usable, comes today from oil and gas, which represent 60% of the energy used worldwide.

The investments of companies are planned in this context where energy is abundant and limited in cost, though it does fluctuate. What risks and what investment opportunities would high-energy prices create?

## 1. What reserves in oil?

Worries about oil reserves have existed since 1900. For 40 years, the experts have said that we have 40 years of oil reserves. Is it true this time or will we still have 40 years of oil in 40 years' time?

Since 1985, the world economy has consumed more oil than it has discovered. In 2005, it consumed two barrels of oil for each one discovered (cf. table 1).

The geological constraints offer a medium term perspective of the production of oil from current reserves. The production curve of each oil well is bell-shaped, with a phase of 5 to 10 years of rising production, then a plateau period and finally a phase of progressively reduced production over 10 years.

These production peaks are cumulating at world level. More than 50% of oil-producing countries, including the United Kingdom and Norway, have already reached their production peak. Estimates of the date of the production peak of the world's oil vary between 2007 and 2025.

The uncertainties about this production peak and hence about the supply of oil in the medium term are twofold: uncertainty about the real state of the reserves of each country and about the renewal of reserves.

The data on oil supplies need to be handled with caution:

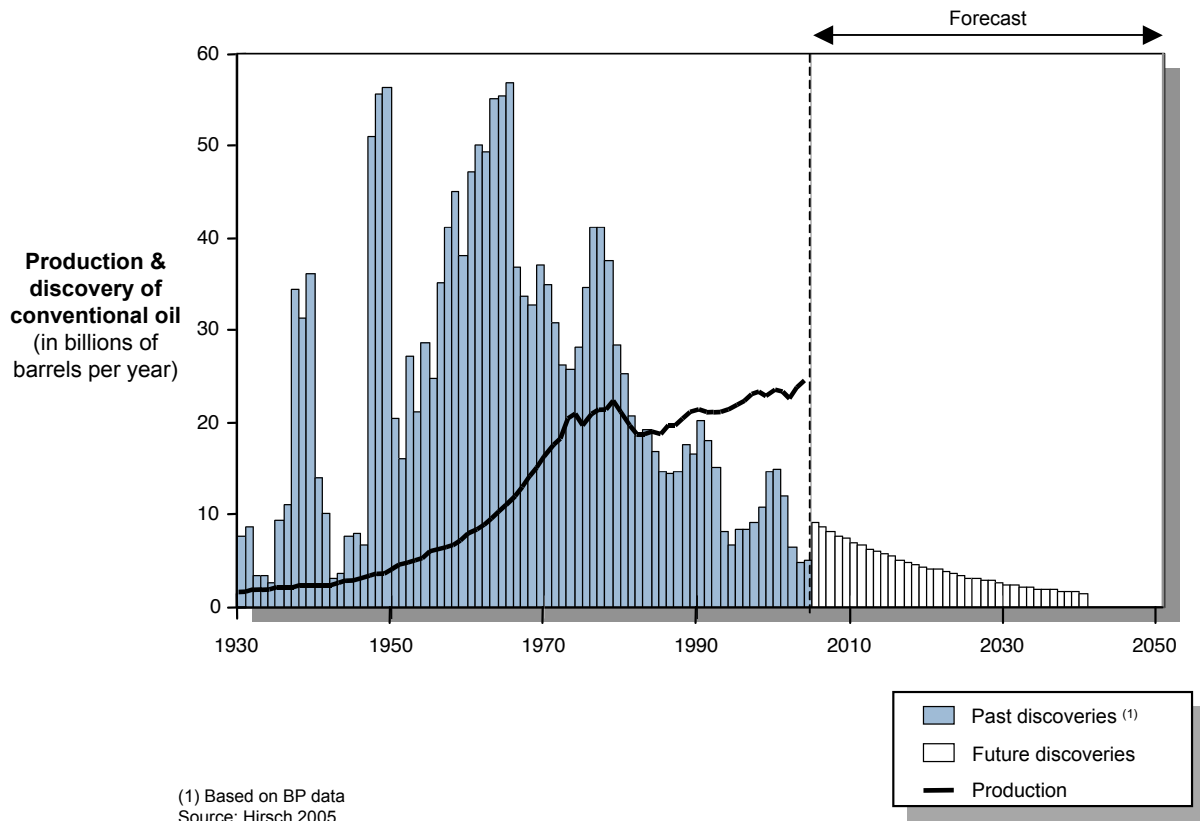
- What are we to think of Iran's increase of its reserves by 34 Gb (billions of barrels) in 1986? This increase is the equivalent of 60% of its announced reserves, and was not backed up by major geological discoveries;
- What are we to think of Iraq's increase in 1987 by 28 Gb, when production quotas were based on its reserves?
- What figure should we put on the reserves of Kuwait which certain informed sources claim are overvalued by 100%, which is 50 Gb (more than a year of world consumption)?

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<sup>1</sup> In January 2007 with the price per barrel at 60 USD

- Table 1 -

Since 1985 the world has consumed more oil than it has discovered worldwide



The renewal of oil reserves is uncertain and will come from three sources:

- Discoveries of new conventional reserves, now estimated at 10-15 Gb at best by 2020;
- The use of extra-heavy oils, principally in Canada and Venezuela, costly but cost-effective in a context of very high prices. These reserves may represent several dozen Gb;
- More efficient exploitation to enable more oil to be extracted from a given field in the future (today, only 30% to 40% of the oil is extracted from fields and this ratio is used for the calculation of reserves). But technical developments are not likely to significantly improve this percentage in the medium term.

So the consensus of experts today is that oil will run out in the 21<sup>st</sup> century. Like any expert opinion, this one may be radically revised in the future. But let us take it as a working hypothesis. What would the economic consequences be?

## 2. A probable gap between supply-demand by 2020

The long-term prices of oil will be fixed by the balance between supply and demand.

With the world's current economic growth, demand for oil will grow by 2 to 3% per year, reaching 120 Mb/d in 2020 (compared 85 Mb/d in 2006). This growth of 35 Mb/d is closely linked to economic growth and to other things such as the structural surge in India and China.

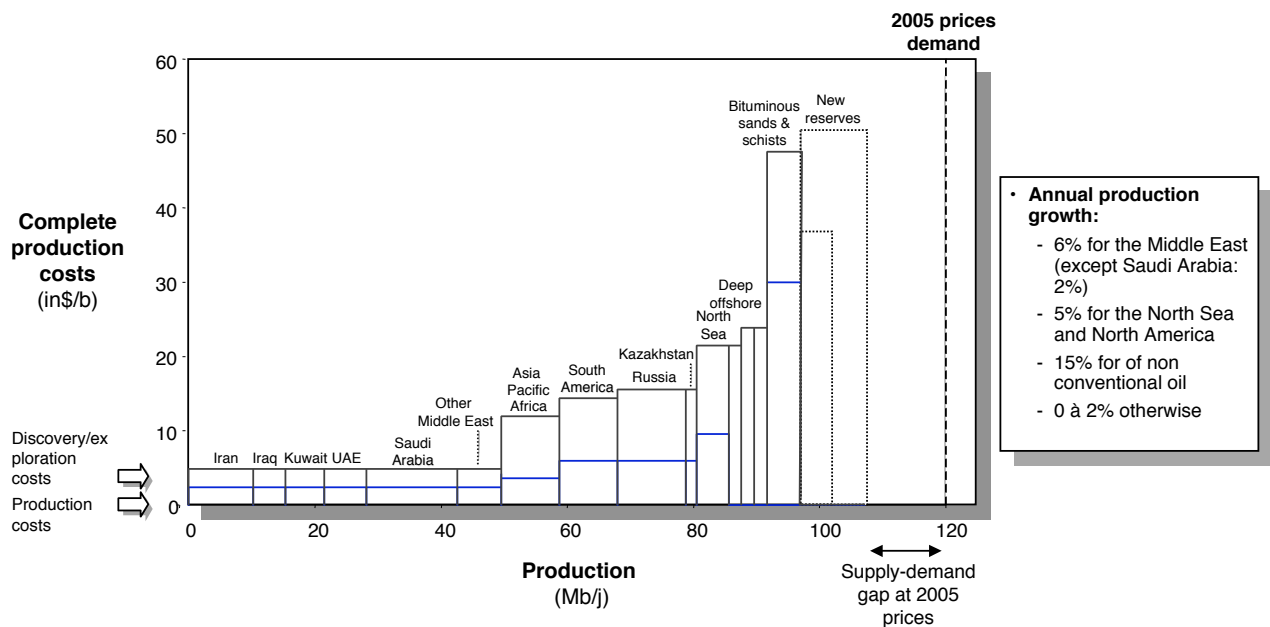
This increase in demand will not be balanced by an increase in supplies, even in the Middle East. The production of Saudi Arabia, the country with the largest reserves and the most favourable extraction conditions, are not likely to exceed 15 Mb/d in 2020 compared to 10 today. Taking into account all known and probable reserves, the gap between production and

demand in 2020 would be about 10 to 20 Mb/d (cf. table 2). The world economy will react to this phenomenon by:

- Raising prices sharply and durably, leading to an impact on consumption and a slowdown in world growth or on the spending mix of this consumption;
- Substituting other hydrocarbons, including coal and gas, which also produce petrol (though gas will have a production peak 5 to 10 years after the oil runs out);
- Developing renewable energies (wind, solar, biofuels, etc.) and nuclear energy. This development has physical limits: biofuels will develop significantly but will not be able to replace hydrocarbons on a large scale. For example, the farming areas available could not produce more than 10% of car fuels in Europe.

- Table 2 -  
Simplified diagram of oil supplies in 2020

**SIMPLIFIED VISION**



Source : IEA, Estin & Co analyses et estimates

The adjusted price of a barrel of oil in the medium-long term, significantly higher than today (\$60), will depend on the speed of development and industrialisation of the alternative solutions and of the evolution of demand.

It could theoretically rise to \$120 a barrel (in current prices), owing to the cost of developing alternative energies and accepting the hypothesis that this cost will be significantly lower than current estimates. (We know of course that all forecasts of price trends are surrounded by numerous technological, social, political and macro-economic uncertainties, and few forecasts prove true, especially those concerning oil prices!).

### 3. What are the implications?

So, in a scenario of sustained world economic growth, driven by the emerging countries, energy prices could double. The impacts would be manifold.

The oil and gas industries, as well as those working for them, will profit from these developments.

The industries producing substitute energies and those enabling the reduction of energy consumption will likewise profit from these developments: the manufacture of biofuels (ethanol from sugar cane, corn, sugar beet or wood, biodiesel from colza or other oil-producing crops), the manufacture of hydrogen cells for the propulsion of cars, the manufacture and installation of insulation and automatic systems for reducing the consumption of heating and electricity, etc.

The share of energy in the household spending will double (for example from 8 to 15% in France), unless governments waive the manna of oil taxes, a priori indispensable to their (relative) budget balance.

Confronted by this pressure on their budget, consumers will have to reduce their discretionary spending by nearly *a quarter* (hotels, restaurants, household appliances, telephone, transport, media, financial services, etc.) (cf. table 3) which are sectors that have developed most rapidly in the last twenty years (along with housing and health). This will put great pressure on prices and volumes in these sectors.

To survive, companies will have to radically change their products and their own value chain. In these sectors, new business models will take the place of the current models which will mostly be inappropriate for significantly reduced budgets:

- Low cost models will develop rapidly, corresponding to the new resources of consumers;
- The middle range, already under attack today, will come under considerable pressure owing to its unsatisfactory price/quality ratio. The value of core market brands will be undermined. The price premium of these brands will be reduced, independently of their advertising-promotional budgets. The sales and marketing costs will have to be readjusted drastically;
- For products that "travel", and provided that the costs of transport do not rise prohibitively, relocations to low cost countries will accelerate;
- Technological improvements with identical functionalities that cut costs will be preferred to an increase in costly functionalities not carrying any perceptible user value.

After most industrial and staple goods, whose prices have dropped significantly under the impact of the globalisation of trade and/or the development of mass retail, services, media, transport, cultural goods, communication, etc. will in turn come under similar pressure owing to the reduced discretionary budgets of households, on top of the impacts linked to their own dynamic (digitalisation, etc.).

Broadly speaking, the drop in prices for tee-shirts due to Chinese imports made it possible for French consumers to adopt the mobile phone. The prices of mobiles will in turn drop if the same French consumers want to continue driving and heating their homes.

The players that anticipate these evolutions and arrive at the right moment with appropriate products and a value chain that supplies them in a sustainably profitable manner will have a unique opportunity for growth and for taking market share from the historic players unable to adapt in time.

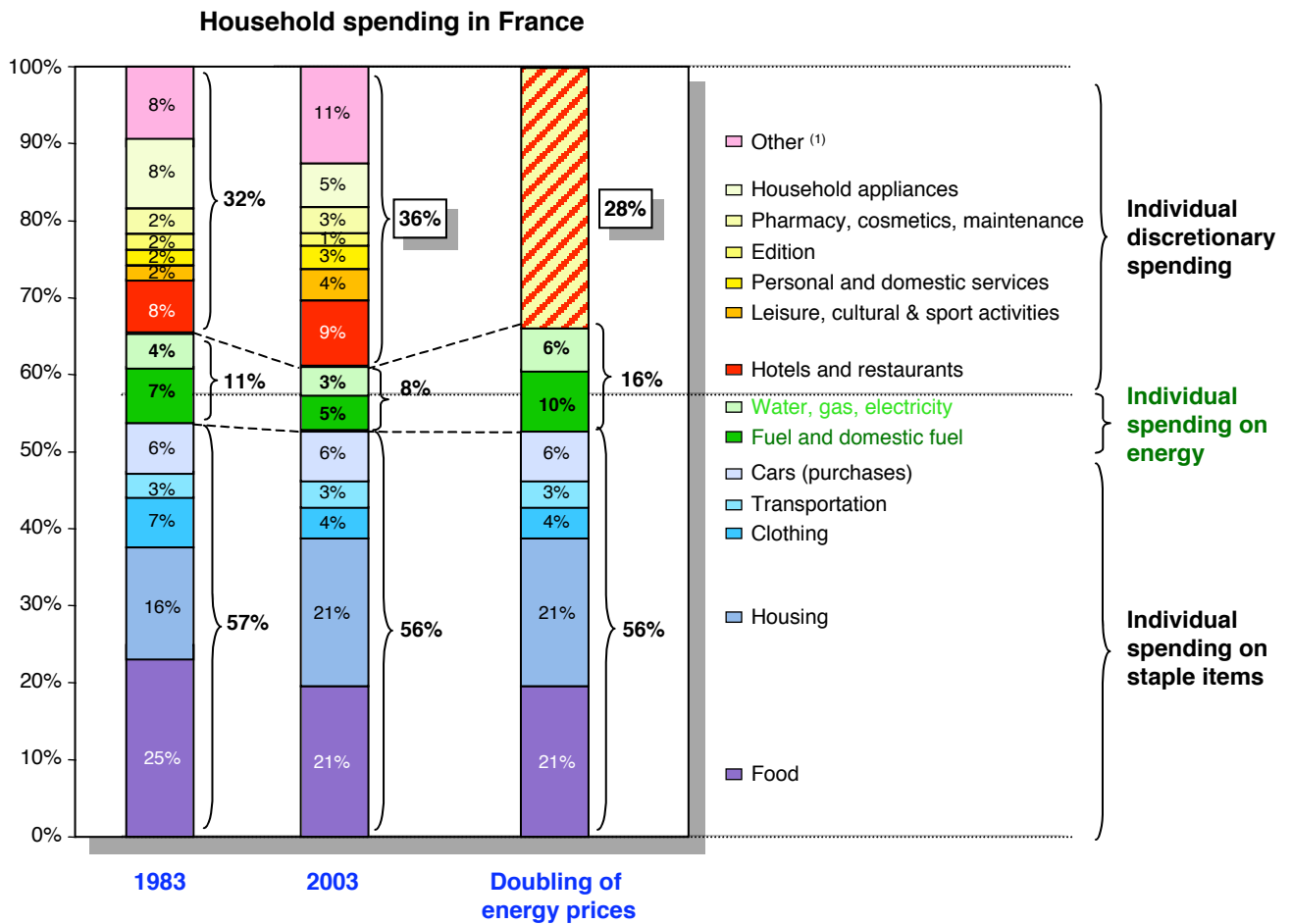
The entire value chain will have to be re-examined, eliminating all the superfluous elements or those that bring no additional benefit to clients now very sensitive to prices, reducing products to the essentials of their perceived value, redefining efficient and inexpensive modes of distribution and lower marketing costs and bringing greater fight for a slice of the cake that has shrunk ...

In telecoms, media, hotels, food service, leisure, household appliances, transport, software, video games, etc. the Ryanairs of the next ten years future will have many potential Swissair rivals to add to their hunting trophies.

A barrel of oil at 120 dollars does not only mean dangers. It will also be a fabulous reservoir of opportunities for new forms of competition.

- Table 3 -

**At constant consumption rate, the doubling of energy prices will lead to a 25% reduction in the discretionary spending of households**  
(simplified view)



(1) Post and telecommunications, financial and other (education, health, welfare, administration) services  
Source: INSEE, analysis by Estin & Co.