

# The Great Phase Transition: The Post-Oil Era

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Theme: [Oil and Energy](#)

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*Throughout history, “phase transitions” are critical watersheds.*

*In moments of transition, the underlying laws we are accustomed to stop functioning and peculiar patterns emerge within our environment.*

*During the passage of water in liquid state to gas, the laws at work are no longer the laws of physics of the liquid state or those of its gaseous state. They become other laws, not so well-known. And, from an anthropomorphic perspective, we tend to envisage as “chaos” phenomena, which do not abide by the laws we are familiar with and where prediction (even statistical) becomes compromised.*

*These considerations apply to the social sciences as well.*

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The original Portuguese version of this paper can be found at [http://resistir.info/jf/jorge\\_figueiredo\\_06set04.html](http://resistir.info/jf/jorge_figueiredo_06set04.html)

Translated from the Portuguese by A. Gomes

Mankind seems on the verge of stepping into a gigantic phase of transition.

This means that the world as we know it today will cease to exist.

I am not referring to the possible collapse of the capitalist system, for which one cannot, so to speak, schedule a date.

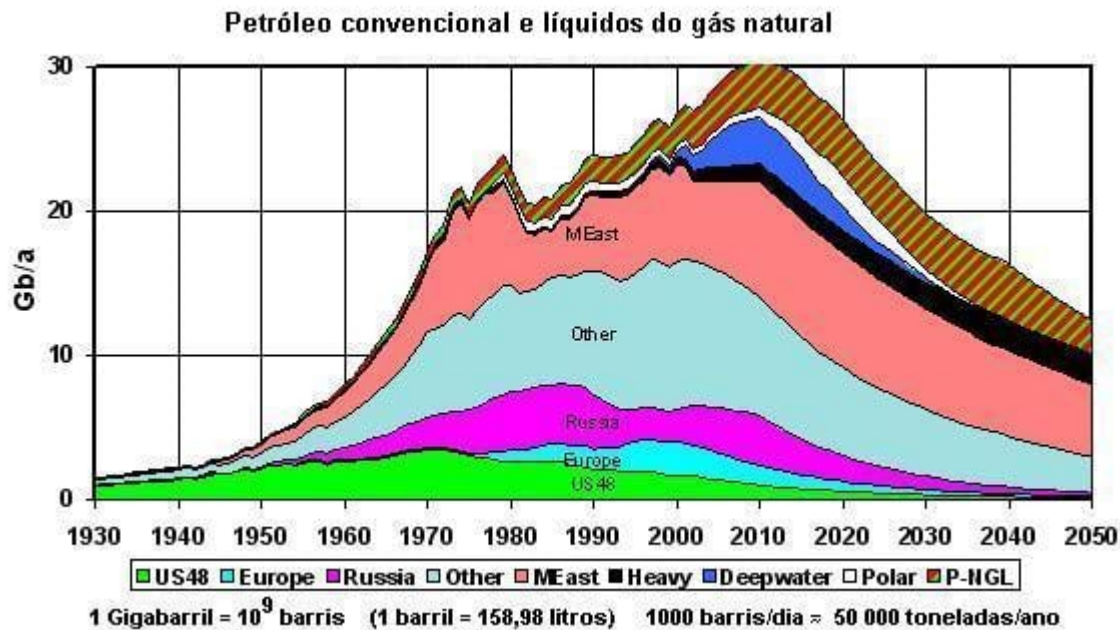
I am referring to another phenomenon, of a physical nature and for which we can predict reasonably accurate dates.

It has to do with another collapse: the already announced “death of oil”. This event marks the end of an era.

The data concerning this problem are reasonably known, mainly due to the important research of Collin Campbell, Jean Laherrère et al. Recoverable oil is a finite resource and humankind has already reached or is about to reach its production peak. Hubbert’s Curve, the curve developed by the great US geophysicist King Hubbert, points to the inevitable.

From the peak on, production will decline asymptotically until it reaches the end.

The end of oil is consequently on the horizon. It is impossible for humankind to carry on wasting madly and indefinitely, as it is occurring today at the rate 82 million barrels/day ( $\approx 30 \times 10^9$  barrels/year).



I will not be concerned here with describing the underlying quantitative data. In spite of the wall of silence concerning this issue, during many years, by the governments, the oil conglomerates, and organizations such as the International Energy Agency, the European Union, etc., people now have access to an extensive literature on the subject of peak oil. Whoever wishes to study it can consult the works by the Association for the Study of Peak Oil (ASPO, <http://www.asponews.org/>), Oil Depletion Analysis Centre (ODAC, <http://www.odac-info.org/>), Jay Hanson (<http://www.dieoff.org>) and other researchers.

This paper does not aim at repeating what has already been said. Instead, it attempts to outline the possible consequences mankind will face, underlying the transition between the present “oil era” and an altogether different era that, at a loss of a better definition, I will call the “post-oil era”.

This transition seems even more complex given the present phase of capitalism, which we might call senile, for it assumes a predatory character and an absolute irrationality concerning the ends (although it might appear rational in order to attain irrational ends).

Let us say that the end of oil will happen within 50 years (for the purposes of our analysis, the exact timing is not the real issue).

Let’s then imagine the reasoning of one of those yuppies forged by the neoliberal ideology, one of those extremely individualistic individuals imbued with a strong egotism — even a generational one. If this yuppie happens to be badly informed, he will shrug off and say: it matters little, it doesn’t affect me nor my generation and it will be a problem to be solved by the next generation.

It is however a profound error arising from the ignorance of this short-term yuppie. Truly enough, the effects of the end of the oil era will make themselves felt long before the last barrel has been extracted from earth. These effects will possibly be felt even in the short-term in less than five from now. Many analysts consider in this regard that Hubbert’s Curve

has already reached a plateau that will be broken by 2008).

The first consequence to be felt will manifest itself in the most obvious way, in terms of its impact on price. Ali Bakhtiar, an Iranian investigator and creator of the World Oil Production Capacity model (WOCAP), estimates that within two years (2006), the price of a barrel of oil could reach US\$125, -i.e., he foresees the tripling of the price a barrel of oil even before the end of the “plateau” foreseen for 2008.

There is another consequence at the geopolitical level, which is obvious, despite the disinformation campaign led by the international organizations and by the corporate media. The beginning of the end of oil contributes to exacerbating imperialist drive and underlying rivalries, to lay hands upon the remaining oil resources of the planet. The war of conquest presently ongoing in Afghanistan and Iraq, the threat of other wars (Iran, Colombia, Central Asia, etc), the control over other countries resources (Africa, Latin America), etc, the rivalry between American imperialism and the European sub-imperialism, the relative weight of OPEC’s production versus non-OPEC’s, etc, all of this is happening right now before our eyes. The lack of an understanding of these processes by millions of people all over the world is largely attributable to the disinformation of the corporate media). Nonetheless, the geopolitical dimension of this problem is now known and understood, by a sizeable sector of public opinion.

There is another broad implication, with even more profound and not immediately perceivable impacts. I am referring to the present worldwide model of production and distribution of commodities.

Let’s start by the distribution issue. Since Adam Smith there’s been a developed programme — a “programme” indeed and not a “theory — of the international division of labor. It has been applied for a couple of centuries. During the post-war decades, the World Bank and the IMF have imposed an international division of labor which has forced underdeveloped countries to specialize in the production of certain commodities to be exported with a view to earning hard currency in order to meet : 1) debt servicing obligations; 2) the spendthrift consuming of its dominant local classes and 3) the import of food for its populations.

Based on this politics, those countries abandoned (or were forced to abandon) any concerns about food self-sufficiency.

It was argued that it was cheaper to import food than to produce it domestically.

This way, numerous African and Latin American countries have specialized in producing for export (agribusiness, oil, coffee, meat, minerals, metals, fruit, etc) and became no longer able to feed their own populations.

One must now ask: What will happen when the high costs in international transportation threaten the present globalized model of trade and distribution, in which goods have to be transported over distances of thousands of miles?

What will happen when the freight costs (per ton) become astronomical? it will no longer be sustainable.

What will happen then?

A tentative answer: there could be a return to the theory — confirmed all over millennia — of the countries seeking self-sufficiency in food production. This intuitive theory, full of good sense, however, has been brutally destroyed by modern-day capitalism (Cuba, with its post-1989 experience, could then lecture the world).

But will this system have the intelligence, the rationality and the resolve, with a view to promoting significant changes in social class relations? A return to food self-sufficiency would mean, by itself, an authentic revolution pertaining to the dominant oligopolistic structures of trade and distribution which prevail in today's world. We can predict that monopoly capital will ferociously combat such course and do every possible and imaginary effort to prevent the adoption of such route.

The problem of transportation will be equally real concerning the structures of distribution within each country. Even with the present barrel prices at a normal "level" there are already African countries that don't even have the resources to import oil refined products. This situation could extend to other oil non-producing countries, in Africa and elsewhere. We can only imagine that the difficulties in transportation might give birth to localized production within each country, with probable initial retrocessions in levels of productivity (more primitive methods, etc).

City-countryside relations will be equally affected; the countryside will have difficulty in feeding the "inflated" cities of the erroneously-called Third World.

Concerning production, the consequences reveal such a multifaceted and complex character that it is hard to predict what could be the final outcome. Though summarily, and without intending to act as a futurologist, I can imagine some possible consequences:

1. In agriculture, we verify that the intensive type (the so-called agribusiness) rests on inputs whose origin lies on oil — that's the case of nitrogenous fertilizers, pesticides and fungicides, fuel for agromachinery, etc. Consequently, oil scarcity will tend to reduce work productivity and the profitability provided by land. And this would occur more intensely in "fatigued" lands, which have been producing for many generations and whose fertility can only be restored by artificial means. Mankind has been extracting fertilizers from the land almost for 200 years now and discarding them out in the cities sewers.
2. In the case of small-scale agriculture the prospect would naturally be less serious in comparison to the first one. However, we still need to know in what way this could produce a sufficient surplus able to restore the losses of intensive agriculture. Propriety relations will certainly have to be altered in order to allow land access to millions of new farmers.
3. Demographic consequences are also a distinct possibility, both at the level of the population growth rate as well as pertaining to the spatial distribution of population — namely a de-urbanization, with a return to the countryside in order to farm the land. The present proportion in developed countries, in which 10% of the population feeds the remnant 90%, in all likelihood cannot be maintained. More people will have to dedicate themselves to farming.
4. Industry will be directly affected, naturally beginning by the most "energivorous". The obsolescence of some parts of the world's industrial park constitutes a strong possibility, as well as the dumping and discarding of many of them (oil refineries, factories of conventional vehicles, etc). We might see the emergence of smaller industries more self-sufficient in the use of energy, following the lines advocated by Schumacher. Therefore, it will not represent a return to the historical past because now mankind benefits from a patrimony of acquired

knowledge that can be put to the service of producing in new moulds (electronics devours less energy and can be at the service of production). This process would most certainly lead to the development of renewable forms of energy (solar thermal and photovoltaic, wind-power, tides, waves, geothermic, hydroelectric, biogas and biomass, etc), of natural gas (whose Hubbert's Curve appears more linear, more extensive in time and with a less defined peak) and of nuclear. Less certain are the prospects of the hydrogen, since the latter is not a primary energy source (Its advocates, like Rifkin and the European Union, have not yet explained where it can be extracted from at sustainable costs when natural gas and oil come to an end — there's also an energy waste in order to obtain hydrogen from water!).

These brief strokes are a mere impressionist perspective in order to convey an idea of the Era Transition about to come. These are simple examples of alterations that could arise.

But whatever the changes, we can be certain that huge alterations will inevitably arise in the production mode and the Worldwide structures of distribution, and nothing will be at it was before.

We are then faced with an announced and predictable crisis in terms of chronology. Many analysts predict the end of the present "plateau" of Hubbert's Curve by 2008. Less predictable in terms of dates is the possible outcome and impacts of the crisis on the capitalist mode of production and its longterm tendency towards (postponed) systemic collapse.

The above mentioned processes are likely to bring about wide-ranging modifications, more significant than those brought about by the Industrial Revolution in the nineteenth century resulting from the invention of the steam engine. The industrial revolution was initially confined to Great-Britain. It then spread very slowly for more than a hundred years throughout the world (and even so not throughout the whole world, for industrialization hasn't even nowadays reached vast areas worldwide).

On the other hand, the end of the Oil Era will affect the whole world in synchrony: the scarcity of oil will simultaneously affect everybody.

Decisive and far-reaching changes affect the future and existence of Mankind. Is it not astounding that the majority of the World's decision-makers, — starting with the so-called "statesmen" (if they even really exist), the media and such entities as the OECD's International Energy Agency — have casually ignored a problem of this scale and magnitude, a problem that potentially jeopardises the very foundations of society. Worse still: the problem is often not only ignored but also denied, in an authentic ostrich politics.

During repeated years, the oil monopolies, state bodies (such as US Geological Survey), international organizations (e.g the World Bank, OECD, [the IEA](#) have casually ignored or "pretended to ignore" this problem in order to avoid going against the powerful (business) interests.

For individuals imbued with neoliberal ideology, the predatory actions upon natural resources for the benefit of capital is considered "normal". This way, forests are being irreversibly annihilated at a worldwide level, phreatic freshwater is being exhausted, land and water are being contaminated, fishing grounds are being exhausted by catches that don't allow for the renewal of the stocks, etc, etc — and oil is being decimated in a barbaric way at the rhythm of 82 million barrels/day (4,1 thousand million tons/year). The new trend



in the USA is the so-called Sport Utility Vehicles (SUVs), potent monsters that devour gas at a scale never witnessed before.

There are mountains of evidence on the process of depletion. Those who prefer to ignore the problem altogether are nonetheless obliged to present to some “answers”. That’s how the “negationists” emerged with their fallacies.

One of those species of negationists are the common economists, short-sighted but full of dogmatic certainties. Their “negationism” relies on neoclassical economic theory. They claim that the market mechanism (“invisible hand”) will regulate everything, for it is considered a mere question of prices. This way, if demand exceeds supply there will “simply” be a readjustment in prices. This means that those who can pay for the new prices will be able to burn oil in a prodigal way. But what they fail to mention is what would happen to those who will be unable to pay several times the present prices. These people constitute the majority of humankind. The present examples of the impoverishment of whole continents (Africa, Latin America) does not, in this regard, augur well.

Another type of negationist thinking pertains to those who bear a boundless faith in technological progress. Such type of negationism is more frequent among those who know nothing about science, but who, so to speak, rely on science to resolve the problem. This kind of negationism is visible at the political level, among politicians, mainly heads of State and heads of government.

They see no sense of urgency in taking cognizance of the real problem. Moreover, international organizations such as the European Union and the OECD contribute to this camouflage — and often encourage us into adopting simple solutions which favour the interests of the corporate monopolies. There aren’t really any ready technological solutions that could substitute oil in the short-term and at a significant scale. Those who claim not desiring gas but the “service” provided by gas and that this same service could be provided by a lesser quantity of gas (or by any other alternative fuel) fall within this technological utopia. And those who speak of the pseudo-solution of biofuels are also caught up with a fundamental fallacy for, even without thinking of the underlying costs, farmland is not infinite.

There are still other types of negationists, like those who piously believe (or pretend to believe) in official statistics about proven, probable and possible reserves, findings, productions, etc. But a great majority of those statistics must be expunged of spurious data, which have been inserted, in accordance with the interests of those who produce these statistics. They will probably awaken when long hidden truths come to the open, truths like this one: that the world’s major oil field (Ghawar, in Saudi Arabia) has already reached its peak and that, even by using secondary recovering techniques, it is beginning to decline. Or that the decline phase has already hit the world’s second major oil field (Cantarell, in Mexico), whose production began in 1979.

I have no intentions of acting as Cassandra. I don’t intend to “wage an energy terrorism”. I do intend, however, intend to stir up and rouse the attention of public opinion to a problem that, until now and in general terms, has been silenced.

Mankind has the right and the duty to be informed of what is happening. We must launch the debate. This confluence of the capitalist crisis in its “senile phase” with the oil crisis will certainly have profound repercussions on all of us.

The outcome of these crises is not pre-determined. There are a lot of possible and factual solutions, there are many “possible futures”. If the present mode of production and distribution were rational and fair, we would have to proceed to a maximal sparing of the remaining reserves of oil and carry on as smoothly as possible into the transition to a post-oil world. But the capitalist mode of production and distribution is neither fair nor rational. Thus, we can predict great confrontations among peoples all over the world and the corporate monopolies which dominate them. In some regions of the world, revolutionary situations may erupt, but will only be of value if the people and their vanguards are prepared to do away with imperialism in the form of a power struggle — otherwise, imperialism will impose its own “solutions”, with a retrograde character that only aggravates the underlying situation. It is a race against time. The outcome will present a revolutionary or fascistic character. It is a terrible challenge. In order to face it, we must forcibly in our inner conscientiousness take cognisance of what’s at stake. Withdrawal positions and “possibilisms” can only lead to defeat.

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**This paper presented to the International Debate “Civilization or Barbarity”, Serpa, 23-25/Sept/2004.**

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