

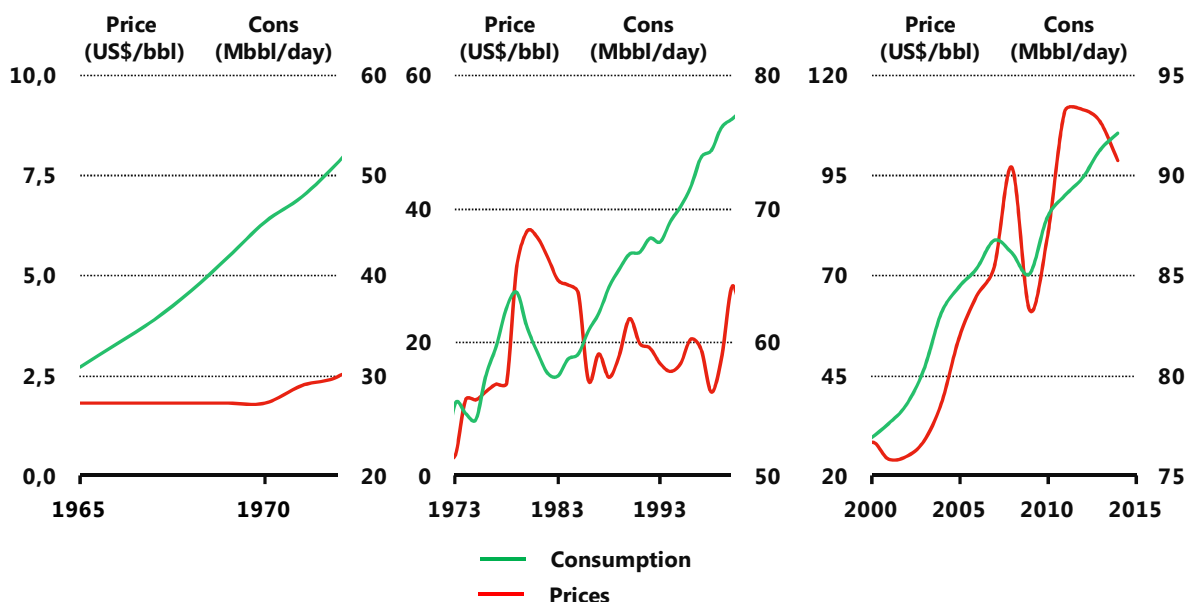
## Lower Oil Prices More Risks than Opportunities!

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*The main oil and gas producing countries, both OPEC and non-OPEC, met on April 17, 2016 in Doha to try to stabilize oil production and sustain crude oil prices, which are held back by an excess in supply and a deceleration of the growth of the demand. However, the renewed tension between Saudi Arabia and Iran has compromised the conclusion of a binding agreement to freeze the production<sup>1</sup>.*

### Introduction

Before the first oil crisis in 1973 and its "car-free Sundays", nobody really talked about oil prices. Historically, prices were fixed by consumer countries and despite an increase in demand of 6% per year during the 1960s, the price per barrel remained constant at US\$2. During the golden sixties, major OECD countries experienced an economic growth of 5% per year based on a quasi free energy (**Figure 1**).



**Figure 1 – The three major oil periods**  
**Reign of consumers, reign of producers, reign of the market**  
*Data source : BP energy outlook 2015*

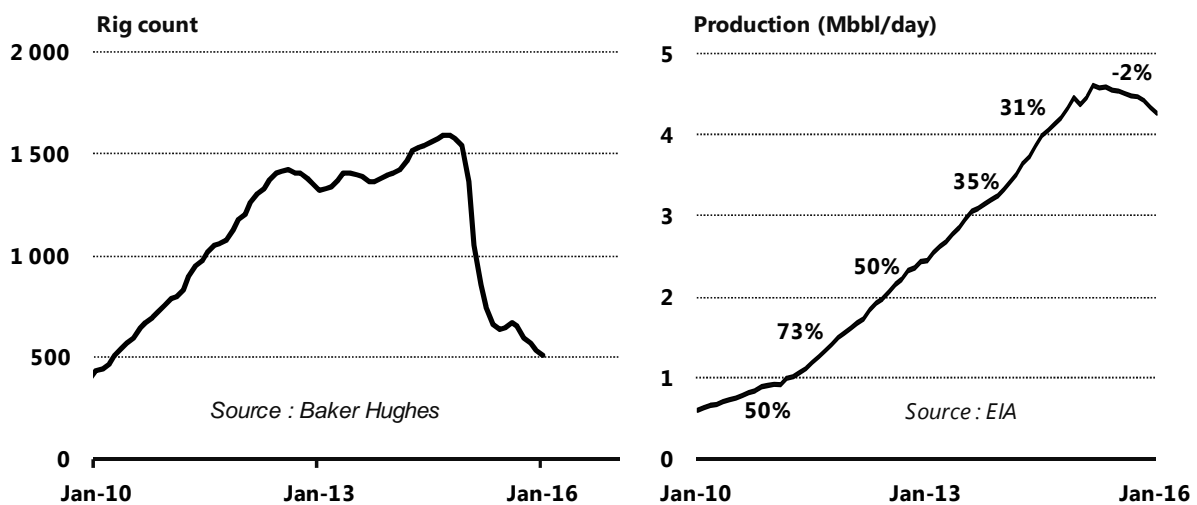
<sup>1</sup> <http://www.lesechos.fr/finance-marches/marches-financiers/021847361615-petrole-projet-daccord-sur-un-gel-des-niveaux-de-production-a-doha-1214379.php>

However, as from 1974, producers started imposing higher prices using quota regulated by OPEC. In the blink of an eye, the growth in OECD countries was eroded, thus indicating public debt and mass unemployment.

Yet this reign of producers did not last. In early 2000s, following the growing demand from emerging countries, the market imposed itself, thus facilitating a consensus between producers and consumers. This way, oil became a commodity like any other and now depends on the law of supply and demand.

### ***An oversupply and a sluggish demand***

The dramatic drop in oil prices between late 2014 and early 2016 follows this new logic. The decline in demand results from the deceleration of growth in emerging markets and an excess in supply, since more than 4 million barrels/day of American shale oil (6 million if taking into account the LPG) unexpectedly came on the market. What is more, this unconventional production is much more resilient<sup>2,3,4,5</sup> than expected despite a dramatic drop in drilling and fracturing activity. In fact, while the number of operating rigs decreased from 1,500 in late 2014 to less than 500 in early 2016, over the same period, the production of shale oil only contracted by 2% (Figure 2).



**Figure 2 - Activity reduction and response of US shale oil production**

*Data source : Baker Hughes and EIA*

<sup>2</sup> Ph.A. Charlez & P. Baylocq (2015) "The shale gas and oil revolution. Sustainability or speculative bubble?" Petrostrategies Vol 28 January 19 2015

<sup>3</sup> Ph.A. Charlez & P. Delfiner "The survival of US shale" Petroleum Economist July/August 2015

<sup>4</sup> Ph. A. Charlez & Pierre Delfiner (2016) « Resilience of the US shale production to the collapse of Oil & Gas prices » Unconventional Ressources Technology Conference San Antonio 1 to 3 August 2016

<sup>5</sup> P.A. Charlez and P. Delfiner (2016) "A Model for Evaluating the Commerciality of an Unconventional Factory Development Outside North America" SPE 179735 in SPE Economics & Management

Today, the offer exceeds the demand by almost 2 million barrels/day. As a consequence, it was necessary to store nearly one billion barrels since early 2015. In theory, OPEC produces 30 million barrels/day that could serve as a lever to regulate the markets. However, given the heterogeneity of their financial situation, their technical costs, the equilibrium price of their budgets and the geopolitical considerations, OPEC members cannot agree on a shared quota reduction. It would have sufficed if each member committed to reduce its production by 5%, but this is not a simple task as OPEC decisions are taken unanimously. Therefore, the market is currently regulated by the 6 million barrel/day of US shale oil instead of the 30 million barrel/day of OPEC.

Will the US shale oil play the role of "oil swing" in the coming years and thus swing the price of oil between US\$30 and US\$70? Apart from the strong resilience, the US shale oil benefits from two additional assets. On one hand, there is the flexibility of its development, which only requires light means (drilling rigs and fracturing fleets) that can be easily put on stand-by and then restarted almost instantly; contrary the deep offshore developments require the construction of large heavy and very expensive production boats (the famous FPSO<sup>6</sup>). On the other hand, unlike most countries, the subsurface belongs to the landowners in the US. This totally private market, in which the activity stops and restarts according to purely economic considerations, without any state intervention, accentuates even more the flexibility of the business. Yet, according to Kamel Ben Naceur, Director Sustainability, Technology and Outlooks at the International Energy Agency and former Tunisia's Minister for Industry<sup>7</sup>, "we need the barrel to be sustained at US\$50 so that US investments, which were reduced by 40% in 2015, could restart." And even in this favorable context, there is no guarantee that the independent Americans, who are highly in debt, would be able to raise the capital required from the banks. Actually, the return of Iran and Libya to the markets could accentuate the oversupply and prevent prices from increasing. However, a further decline in investment could also bring down production in the longer term, to the point of breaking the supply-demand balance and inducing uncontrolled price rises. This is the reason why IHSCERA considers that oil prices should rise slowly from \$44/bbl in 2016 to \$70/bbl in 2019. A new decay related to the abundance of supply could then begin.

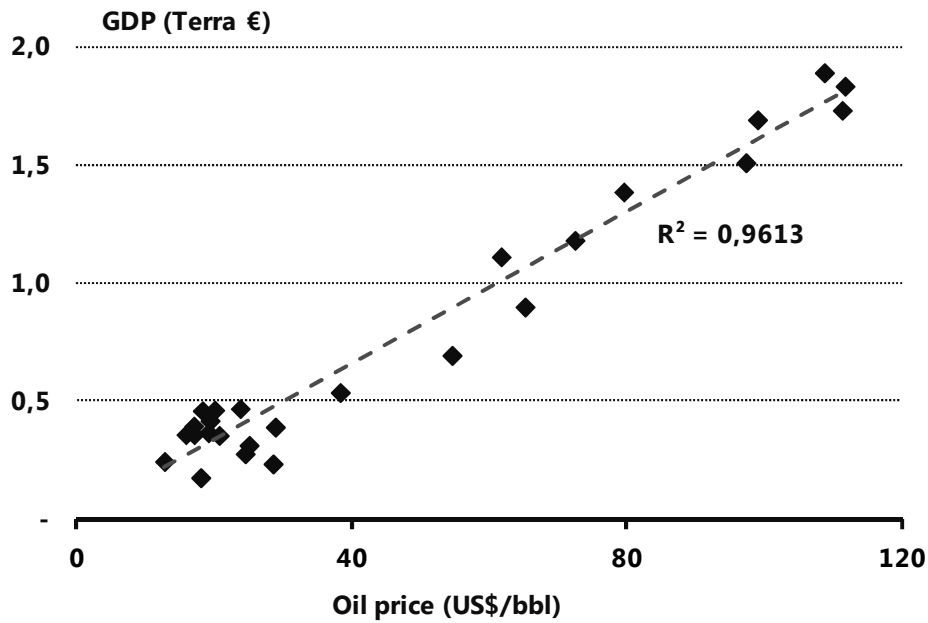
### ***Major geopolitical risks in producing countries***

The fall in oil prices put the producing countries in an alarming situation. Indeed, most of them (with the exception of Norway, the UK and the US) are very poorly diversified economies whose GDP are subject to the fluctuations of the black gold prices (**Figure 3**). Hence, the income of the OPEC countries has fallen by nearly 60% between 2012 and 2015.

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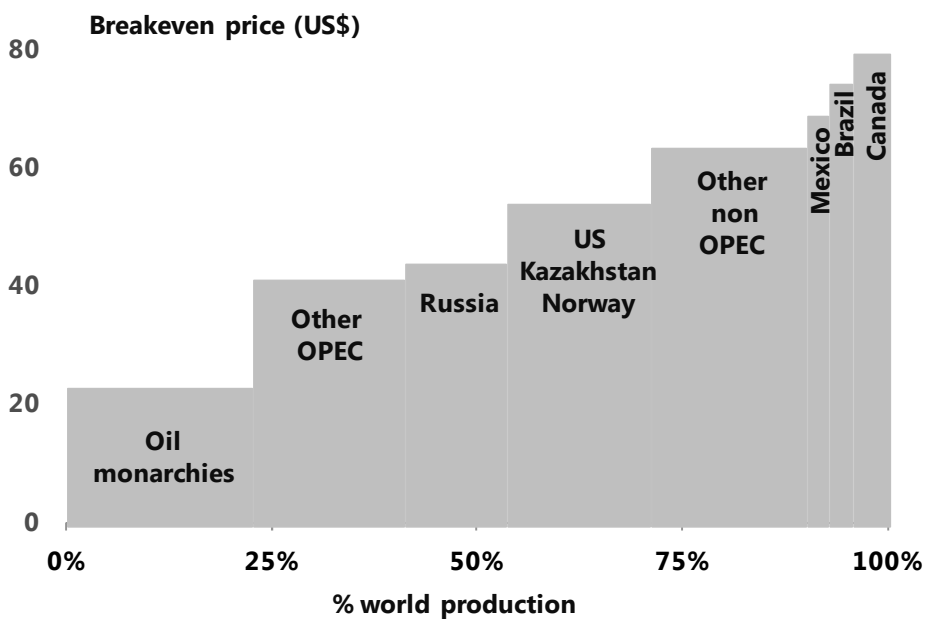
<sup>6</sup> FPSO – Floating/Production/Storage/Offloading

<sup>7</sup> BIP assemblée nationale



**Figure 3 - Evolution of Russia's GDP based on oil prices since the collapse of the Soviet Union**  
 (Source: World Bank and BP Energy Outlook 2015)

Among them, the oil monarchies of the Gulf that benefit from much lower breakeven prices (**Figure 4**) are less vulnerable than Venezuela, Angola and Nigeria. Although Saudi Arabia is far from having a balanced budget with a barrel at US\$40, it can perpetuate the situation longer than others thanks to its financial reserves of more than US\$600 billion.

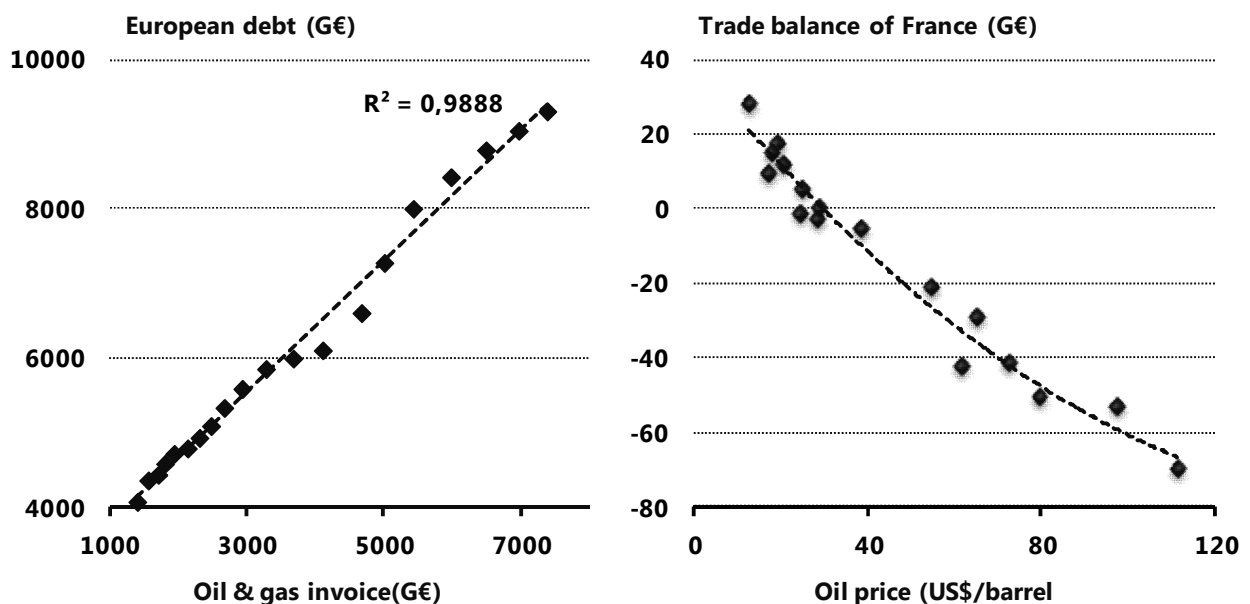


**Figure 4 - Breakeven price of major oil countries**  
 (Source: Energy aspects)

Nevertheless, the Wahhabi kingdom had to make drastic cuts in spending and is even considering partially privatizing Saudi Aramco whose market value would exceed US\$1000 billion. The collapse in prices also weakened large African countries such as Algeria and Nigeria whose oil revenue could buy social peace. In Algeria, the foreign currency reserves melt away and with a rising unemployment rate and the successive cuts in budgetary expenditure, the storm is brewing. The economic destabilization of these African giants could allow the Islamic networks, already present via Daech, Al Qaeda and Boko Haram, to extend their sprawling hand to North Africa and Sub-Saharan Africa.

### ***A windfall effect for Europe and France***

After more than forty years, the first oil crisis remains unsolved. The sovereign debt of Europe, which reached €10 trillion in 2014, correlates perfectly to its oil bill, which amounted to €7.5 billion during the 1987-2014 period (**Figure 5** - left).



**Figure 5 - Left: Evolution of European sovereign debt based on its oil and gas bill**

**Right: French Foreign Trade vs. oil price**

(Source: Eurostat, BP Energy Outlook 2015)

<http://lekiosque.finances.gouv.fr/Appchiffre/Etudes/Thematiques/A2012.pdf>

What is true for Europe is also true for France. Over the past decade, the oil prices have put a strain on the French trade balance, to which the deficit is perfectly correlated (**Figure 5** - right). Out of €70 billion of deficit, fossil fuels weighed for €63 billion. Thus, between 1993 and 2010, oil and gas imports cost the French government up to €750 billion. Over the same period, the debt increased by a

trillion<sup>8</sup>, which represents a ratio of 75%, the same as in Europe (**Figure 5** - left). These figures demonstrate that with a constant social system, the debt of European countries is roughly the sum of the cost of fossil energy imports and the repayment of debt. During the golden sixties, the developed countries built their growth (and consequently their social system) on an almost free oil. The first oil crisis put an end to this situation and forced these countries to get into serious debt to import energy while continuing to finance social systems beyond their real possibilities. This is a downward spiral in which European politicians and citizens were inexorably stuck. Will the declining oil prices boost the activity and reduce unemployment?

The correlation between debt and oil bill is obvious, but it is much more complex between falling prices and the reactivation of the economic activity. Even though this is an undeniable competitive advantage for some energy-consuming sectors of the heavy industry (steel, cement, glass, petrochemicals) or the services industry (including transportation), in the short term, it will certainly be an advantage for investment. Hence, in the road transport sector, where the fuel price represents over a quarter of the operating costs, the decline in prices will improve profitability and restore the cash that was lacking in many companies. In the short term, the impact on employment should be marginal and the competitiveness gains should allow the companies to focus on neglected areas such as IT, renewal of truck fleets, training and marketing.

Other sectors that export widely to producing countries –like the armament, luxury, food and especially the oil services industry– are, in turn, negatively affected. The French oil industry is composed of prestigious names like Vallourec, Technip or CGG, as well as numerous SMEs. It employs 66,000 people and records a turnover of €41 billion. However, over the past year, its order book was reduced by half. The survival of this sector of excellence depends on a proactive sales approach in the oil producing countries and the optimization of the operational costs, which went out of control when oil prices had peaked.

Therefore, in terms of employment, the decline in oil prices should be considered more as a windfall than an opportunity, at least in the short term.

### ***Impact on the energy transition***

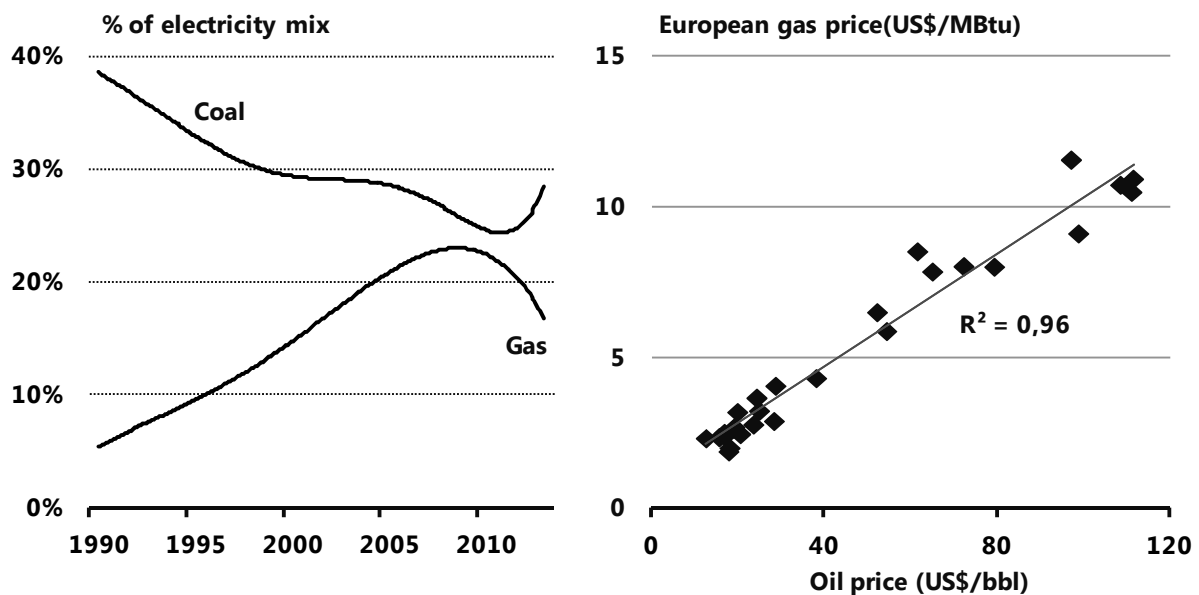
Many people claim that the drop in oil prices will slow down the energy transition by making the renewable energy less competitive. But this is not true. In 2015, global investment in new energy amounted to US\$266 billion<sup>9</sup>; this is twice the amount invested in electricity generated from coal and gas, which is estimated at only US\$130 billion. In fact, contrary to popular belief, oil is mainly used in the transportation and petrochemical industry, but it is hardly used in power generation

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<sup>8</sup> Source: Energy Funds Advisors

<sup>9</sup> <http://www.notre-planete.info/actualites/4447-investissements-record-energies-renouvelables>

(less than 5 % of the global electricity mix). Unlike gas, nuclear or coal, it is not a direct competitor of the renewable energy.



**Figure 6 - Evolution of the coal and gas mix in Europe**  
**Gas prices in Europe depending on oil prices**  
*(Source: IEA, BP Energy Outlook 2015)*

Over the past five years, European gas consumption fell by 25%. The sluggish growth, the lower power consumption and the energy savings partly explain this historical reduction. But the main explanation relies on its high price, which is mechanically indexed to oil prices under long-term contracts (**Figure 6** - right). Europe imports 68% of its gas from three main suppliers<sup>10</sup>: Russia 30%, Norway 23% and Algeria 5%; the difference (10%) is LNG, which is mainly imported from Qatar and Nigeria. Between 2006 and 2014, gas prices in Europe followed the oil price spike, while in America, coal prices collapsed due to the shale gas revolution. Hence, gas is going through a difficult time in Europe and is having trouble to win against coal. For example, the share of gas in the power mix which rose from 6.5% in 1990 to 24% in 2008 (**Figure 6** - left), fell to 16%; while that of coal went up to 28%. In this context, Germany –whose electrical generation is primarily based on coal– has seen its emissions rise again (+ 5.5% between 2010 and 2014). By making the European gas more competitive than coal and the nuclear energy, oil prices could accelerate the energy transition towards a seductive model in which the renewable energy would rely on gas.

However, a more economical fuel can cause the loosening of good individual practices and penalize the sector of electric and hybrid vehicles, as they are more expensive than diesel and gasoline vehicles.

<sup>10</sup> <http://www.cedigaz.org/products/natural-gas-database.aspx>

## **Conclusion**

The dramatic fall in oil prices between late 2014 and early 2016 is the consequence of a falling demand and an abundance of supply, which essentially arises from the unexpected introduction of over 6 million barrels per day of American shale oil on the world market. The three characteristics of the American shale oil (resilience, flexibility and private market) have allowed it to supplant a divided OPEC in less than 5 years and become the new "oil swing," at least in the medium term. Oil prices reached a rock bottom in January 2016 when the barrel was at \$27, but it increase again to reach \$50 in mid May 2016.

The main risk of this dramatic drop in prices is of geopolitical nature insofar as it creates a very worrying situation in the producing countries, most of which have weakly diversified economies. The economic destabilization of African giants like Algeria or Nigeria could allow Islamic networks to extend its "sprawling hand" in North Africa and Sub-Saharan Africa.

In Europe, where the sovereign debt is perfectly correlated with oil prices, the decline in prices represents an undeniable competitive advantage for some energy-consuming sectors of the heavy and services industry. In the short term, the impact on employment should be marginal and the competitiveness gains should allow the companies to focus on neglected areas such as IT, renewal of truck fleets, training and marketing. But other sectors that export widely to producing countries are negatively affected. This is particularly the case of the French oil services industry, which employs 66,000 people and records a turnover of €41 billion.

Finally, while more economical fuels may cause the loosening of good individual practices and penalize the sector of electric and hybrid vehicles, the decline in oil prices that carries with it that of gas prices could accelerate the energy transition towards a seductive electric model in which the renewable energy would rely on gas.