

Do we need to worry about renewable energies development? (Part 2)

Are renewable energies a “credible” alternative to fossil fuels?



Summary:

- However, clean energies are on a clear path upwards, as the constant decrease of their cost make them increasingly competitive with coal and natural gas – even without subsidies
- Moreover, renewables are not concerned by the price volatility and uncertainties inherent to fossil fuels (and oil in particular) and benefit from a clear political backing in the aftermath of the COP21, as well as the development of new emerging markets
- But as we have no idea about the future trends in oil prices, the transition to clean energies has still to be seen as a long-term process

Key words: renewable energies, oil prices, energy transition, fossil fuels, environment, green investments

[We have shown in the first part of this article](#) that there is no observed link between the price of oil and the development of renewable energies, and that consequently the energy transition may not be “slowed” by low oil prices. However, we can go further by asking ourselves if the energy transition could be simply slowed by fossil fuels – whatever their price is. A study of the comparative advantages of each type of energy (cost, return, availability, geopolitics, etc.) is then necessary in order to determine if renewable energies are a credible alternative to fossil fuels, and if their development on the long term can be envisaged in a positive way.

Renewables are becoming structurally cheaper and cheaper

The cost of their implementation has been the biggest obstacle to the development of renewables until now, curbing inevitably investments in this sector; however, the development of new technologies (smart grids, new biomass conversion techniques, new and cheaper electricity storage technologies), the strong presence of regulatory supports (portfolio standards, tax credits, feed-in tariffs) and the accelerating competitiveness between actors do encourage the rapid growth of these new energies. As a consequence, according to the management consulting firm McKinsey and the US National Renewable Energy Laboratory (NREL), wind energy cost has fallen 58% since 2009, thanks to less expensive materials and greater efficiency¹; when it comes to solar, the cost of residential and commercial solar photovoltaic (PV) systems has fallen between 6 and 7% a year from 1998 to 2013, and even by 12 to 15% a year from 2012 to 2013; as this rhythm is expected to carry on, competitiveness with conventional fuels will be reached by 2020 in most states of the USA. Another factor of confidence for the development of this sector is that improvements in costs and efficiency for renewables are likely to happen in the near future, whereas conventional fuels (coal and gas) are already at the best of their technologies (notably in terms of extraction and transformation) and face tighter regulations driving up their costs; for the renewables, economies of scales (especially on the “soft costs”, such as permitting, licensing and maintenance) and market deregulation (e.g. cutting tariffs on Chinese modules) would efficiently lower costs. In their Levelized Cost of Energy Analysis 9.0², the Financial Services leader Lazard logically finds that despite large decreases in the cost of natural gas and other fossil fuels, certain alternative energy technologies (wind and solar predominantly) continue to be competitive with conventional generation technologies in some scenarios – even without taking into account potential social and environmental externalities, and even without subsidies in some markets. This competitiveness comes from the fact that the typical long-term cost-benefit analysis of a new energy plant is calculated as the expense of the fuel over the life of the plant, and on that point the future cost of renewables is expected to carry on declining, as their shortage is materially impossible. Renewables like solar are even already much more

¹ <http://www.mckinsey.com/industries/oil-and-gas/our-insights/lower-oil-prices-but-more-renewables-whats-going-on>

² <https://www.lazard.com/media/2390/lazards-levelized-cost-of-energy-analysis-90.pdf>

competitive³ than fossil fuels in the few markets (essentially in MENA and post-Fukushima Japan) where a non-negligible proportion of power is produced via petroleum-based fuels (this proportion is only at 5% on a global scale). The 2014 report from the International Renewable Energy Agency (IRENA) concluding that the cost of generating renewable energy is now equal to or below the cost of fossil fuels in many parts of the world, and will remain financially competitive even if oil prices remain low, goes into that direction too.⁴

An optimistic report from Bernstein Research sums this thought up by saying that contrary to the fossil energies which are an extractive industry whose cost always go up, green energies are a technology whose price always go down; if as of today they share more or less the same market shares, renewables are then fated to earn more than their fossil counterparts in some future⁵. Many investors indeed see renewables as a current market opportunity – independently of oil prices (unpredictable) evolution – as self-sustained cost reductions and specific advantages for investors (see below) show that we are around a “tipping point”⁶ on renewables, which are just starting to unleash their full potential.

The current low-oil prices situation could even be a positive trigger for renewables’ prices, as Bloomberg New Energy Finance’s senior analyst Angus McCrone sums it: “There is one other twist to the oil price effect. Cheaper crude should be a pick-me-up for consumer confidence and economic growth in oil-importing regions such as Europe, India, Japan and China. This could, in turn, push up power demand, reduce political angst about energy bills, and increase the scope for further investment in clean energy.”⁷

Renewable energies also present specific advantages for investments and portfolio placements

For investors seeking to build a resilient energy portfolio, renewables lead to fewer uncertainties as their price is expected to lower in the medium to long term. Primarily driven by the demand coming from consumers (which is not expected to decline, as emerging markets are showing more and more interest) and political decisions (very supportive in most of the cases, following the international commitments taken at COP21), green energies are much more predictable and less risky than oil. On the contrary, fossil fuels prices – oil in the first place – are extremely variable and unpredictable (in

³ <https://www.theguardian.com/sustainable-business/2014/nov/10/crude-oil-texas-renewable-energy-solar-biomass>

⁴ http://www.irena.org/DocumentDownloads/Publications/IRENA_RE_Power_Costs_2014_report.pdf

⁵ <http://www.cnbc.com/2014/12/04/will-oils-drop-hurt-renewable-energy.html>: “Renewable energy is a technology. In the technology sector, costs always go down. Fossil fuels are extracted. In extractive industries, costs (almost) always go up. [...] Renewable and fossil fuel cost per unit of energy are now roughly comparable in many places, but heading in opposite directions. [...] New, superior technologies don't split markets with old, inferior technologies.”

⁶ <http://www.greentechmedia.com/articles/read/tipping-over-the-oil-barrel>

⁷ <https://about.bnef.com/press-releases/oil-price-plunge-clean-energy-real-impact/>

the short term, an important part of it depends on unpredictable decisions of the major producers, and in the long term, nobody knows when the “peak oil” will be reached). The main problem with crude prices is that they do not only depend on supply and demand, but also on social and political changes in the countries where they are extracted (in the last 20 years, the barrel price went notably from a low at \$16 in December 1998 to a height at \$143 in August 2008); this uncertainty leads to a lack of clarity in future oil prices projections. Also, the economic consequences of this volatility and the subsequent uncertainty are very large: on the short-term, there are few options to cut oil consumption⁸, which may cause big economic distortions in case of price swings – business investments delays, new allocation of resources requirements, consumer spending and job growth depression. These uncertainties, added to the widespread desire of energetic independence (see below) encourage many states to accelerate their transition to clean energies, and investors to develop their interest in clean energies, notably through the increase of new financing attractive vehicles such as “YieldCos” that channel dividends to investors from operating renewables projects and now weigh hundreds of billions \$⁹).

The current situation makes things even worse for oil industry’s stakeholders, as the low selling price for oil forces (and consequently the lower return of exploration and extraction projects) forces them to find ways to lower costs of oil production and curbs investments in costly projects (shale gas, fracking oil, offshore drilling,...); according to the energy consultancy Wood Mackenzie, about \$200bn of investments on oil and gas projects have been put on hold since the beginning of the oil prices drop; technological innovations (virtual warehouses for tracking stocks, digital technologies such as radio-frequency identification or the use of drones,...) are consequently being made to improve efficiency in the sector. The positive point for renewables in these savings is that they could benefit from these technological advances in their own production process. There is even a way when low oil and gas prices have been helping the development of renewables, through the cut in the consumer subsidies for fossil fuels many governments took the opportunity to apply when the oil prices went down; these cuts do give a comparative advantage to clean energies, even when oil and gas prices go up.

However, the major investment risk for clean energies is the scaling back of public support in that sector, as governments remain massively the biggest investors in green energies; the British example, where the victory of the Conservative Party in May 2015 Parliamentary elections led to a decision to cut subsidies for solar and biomass, leading to major private investments curbs in the sector, shows that renewables deployment are highly threatened by political risks. But this risk of scaling back is less and less preeminent, as deeply-rooted concerns on climate change are also a permanent driver to renewable energies development – see the strong and unanimous commitments ratified at the COP21 in Paris. Many laws are being implemented to encourage the development of renewables, and on the other side, fossil fuels are being more and more penalized by the regulators (especially via carbon pricing). The example of the US-China deal on climate change (US commits to emit 26-28%

⁸ <http://www.forbes.com/sites/manishbapna/2015/09/02/4-reasons-why-low-oil-prices-mean-its-time-to-shift-to-renewable-energy/2/#1b01ec78d7e0>

⁹ <http://fortune.com/2015/09/05/oil-prices-renewable-energy-yieldcos/>

less carbon in 2025 than in 2005 and China commits that clean energy sources will account for 20% of its energy mix in 2030 vs less than 5% currently) is characteristic of the insurance of an unchanged direction of the major economies to a greener path, regardless of the future evolution of fossil fuels' prices. The current period of low oil prices is even seen by politicians and regulators as an ideal time to implement a carbon tax as it would be cushioned by the fall in oil prices.

Conclusion

Renewables have not suffered from the drop in oil prices; oil and renewables do not operate in the same markets, so their evolution may not be linked. Green energies are even on an upward slope, as emerging markets development (especially in Asia and the Middle East)¹⁰, a strong political support with an envisaged ability of energy independence, decreasing costs and price stability (they also allow security hedge against future market uncertainties) make them more and more profitable and competitive versus the other fossil fuels.

However, we need to get away from the widespread point of view that renewables are the clean and innovative technology that will empower the world when fossil fuels are running out in the medium term. Even without counting the new techniques of oil and gas extraction (shale gas in particular), there are enough known oil reserves for at least the next 50 years, and coal and gas are even more abundant; the widely feared "peak oil" might not be as close as we think then. In short, the transition to clean energies needs to be seen as a long-term process, but its resilience to the drop in oil prices is an encouraging sign for its development. The necessity agreed at COP21 to keep global warming under 1.5°C at the end of our century demands a lot of efforts on the renewables development side...¹¹

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¹⁰ <http://www.bloomberg.com/news/articles/2015-01-09/clean-energy-investment-jumps-16-on-china-s-support-for-solar>

¹¹ <http://fusion.net/story/130014/yes-falling-oil-prices-are-derailing-the-future-of-renewable-energy/>