

## **Revolution or evolution, what to expect from the new world?**

***Thanks to interacting with students, society and science, teaching has always been at the forefront of using new technology...***

Pre-Covid, I used to teach in an interactive way while using the full technology available then (including the good old blackboard that, in the last decade, turned white!). During 2020, I had, overnight, to move to virtual teaching thanks to Zoom. Without white/blackboards, I had to find alternative ways to keep students' interactions. Thanks to the recording of sessions, this virtual world enhanced flexibility by allowing students that could not make it for one class, to still continue following the full course. We are now entering, "Covid year 2" and we have to continue virtual teaching. This year, I'm integrating Wooclap in my teaching material to increase students' interest as we know that "gamification of teaching" could be a huge benefit. Interestingly, the outside world is still in "Covid year 1" with endless boring webinars while professors had to do a once in a millennium revolution in a few weeks! As any revolution this was not a smooth path and was very time consuming for professors at the core of it, but my 2021 virtual class is going to be completely different than my 2019 physical-one, even if I'm teaching the same subject!

***... But this once in a millennium teaching revolution is not replicable***

Once the population is vaccinated, ie post-Covid, I expect my teaching to be a blend of in-person and virtual classes to make sure students are fully trained to succeed in both real and virtual worlds. Those new technologies make our teaching more effective and mitigate the poor flexibility in-person teaching while keeping a high level of interaction. In this new world, students and professors have gained a lot. Other professionals should start to adapt their boring webinars, but I feel most will just revert back to the old world with the only addition of working from home; ie we could face an evolution, not a revolution there.

Moving to oil&gas supply-balance, I'm puzzled to see the new consensus/dogma emerging telling us that we are facing a revolution with demand only going South. Having being one of the few analysts rightly forecasting that:

- in 2007, due to energy efficiency, European gas demand was going to face a decade-long-decline, disrupting the major European utility business models
- in 2012, the surge in US oil and gas shale production was going to deeply alter the energy and geopolitical landscapes

I know how wrong consensus can be and I still remember amused:

- the peak oil concept back a few decades, before moving to peak-demand
- in 2011, the IEA Golden Age of Gas, just before the long-term demand growth rate was reduced.

To make today shaky consensus more resilient, analysts are using any news-flow without even questioning the validity of it. I'm stuck, in particular, by the fact "experts" believe that China will be climate-neutral by 2060, when we all know that we are facing a ruthlessness new superpower asserting itself by all means, far and wide...

***The new world could just end up with the long overdue splitting between essential in-person traveling/meetings and non-essential traveling/e-meetings***

As a French, I know that "Powerpoint revolutions" don't exist; revolutions need people not excel spreadsheets! Without innovation, flexibility of institutions, professors and students, no quantum-leap

in teaching! The world is changing but energy is still fostering economic growth. To achieve the changes today consensus requires, we would need to massively changes our way of life. We've experienced in 2020 what a global massive economic recession means both in human suffering (huge) and CO<sub>2</sub> reduction (little) and this doesn't look very promising as a long-term trend. I understand the easy linear extrapolation but I doubt people will follow. I'm convinced that the only way to solve the climate issue is not rationing but innovation. And I'm prepare to bet that international travelling will rebound with COP26, in November 2021, as "climate experts" will "need to travel" to Glasgow, UK instead of doing virtual presentations, revealing de-facto the discrepancies between the general "macro"-concept (everyone needs to adapt) and the "micro"-truth (I want to enjoy life)!

The commodities boom and bust cycles are far from over and the "lower for longer" concept in oil & gas prices is already turning wrong with Brent and Asian spot gas prices respectively above 50\$/b and 10\$/Mbtu! Up now to the brightest students to innovate.

Seasons' greetings,

Dr. Thierry Bros

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