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### Climate Change and Green Growth: Procrastination, Oxymoron and Chimeras' Theater

In a little pamphlet – “*It’s Not Climate Change, It’s Everything Change*” (2015) – Margaret Atwood<sup>1</sup> states that “*Oil [is] our secret god, our secret sharer, our magic wand, fulfiller of our every desire, our co-conspirator, the sine qua non in all we do! Can’t live with it, can’t-right at this moment-live without it. But it’s on everyone’s mind.*” Through this injunction, issued to our western society, the Canadian writer, major representative of the ‘*Climate Fiction*’ movement, stresses the need for global responsibility in tackling the Climate Change issue. This is achieved by addressing, appealing to and confronting society as a whole. This will perhaps hopefully bring about radical changes in public and political attitudes. However, this growing awareness, has not as yet led to universal changes, far from it... Margaret Atwood further claims that the “*coal energy culture*” was a culture of workers and production that characterised the industrial revolution, whereby people identified themselves with their job, while in the “*oil energy culture*” – a culture of consumption – contemporary people identify with their possessions: “*they are their possessions [as they] are what they buy*”. By contrast, in a “*renewable energy culture*”, people would be what they conserve, “*what they save and protect.*” Statements like these are probably taken for granted and even probably taken as gospel. Actually, since the 2000s, our society increasingly turned digital and more immaterial than ever: Internet, smartphones, database, cloud, electric vehicles, renewable energies are drastically altering our working lives and our everyday lives while upsetting our ecosystem in terms of communication, consumption, production, education, mobility, etc. Given this kind of assessment, however, perhaps we ought not to be bogged down in ‘black and white’ answers or a single way of thinking. The rationale for a new approach is three-fold:

Firstly, we have a right to question the adequacy of the remedial measures taken by our governments and other patter-merchants, mirage sellers and media hucksters. The promises made in stimulus packages and all these declarations actually risk never coming to fruition: Procrastination is a constant characteristic of policy makers who keep leaving actions they should take until later, often

because they don’t want to carry them out.

Perhaps, we should question, then, whether the alarming challenge arising from Climate Change, due to our obsession with economic growth trajectories and the inherent need for reliable, affordable and sustainable energy flows, can lead to a compatible solution: Is it possible to reconcile protecting the environment with economic growth at an accelerated pace, even if it is green-washed? Can we be sure that “*Green Growth*” is not an Oxymoron?

Our top priority should be to think about the real causes of this state of affairs which threatens to continue despite the latest innovation processes with their alleged ‘renewable’ energies and ask ourselves whether or not we are the victims of an intricate illusion in a worldwide chimera’s theater.

#### Procrastination of policy makers and governments

*For it is simony to sell what is sent by Grace  
That is wit and water and wind and fire the fourth  
These four should be free to all people who need it.*

In his Middle English alliterative poem, entitled ‘*The Vision of Piers Plowman*’ (c.1360), William Langland<sup>2</sup> tells of a series of dream visions dealing with the social and spiritual predicament of late 14th-century England. Realistic and allegorical elements are mingled in a phantasmagoric way yet it strikes a particular chord in our contemporary context. This poem still speaks to us today about social justice and energy concerns, just as it did at the time of the Peasants’ Revolt of 1381. Today, the strategic and geo-economic issues related to energy and climate policies have become wider and complex while a certain demagoguery is threatening worldwide public opinion. To the uncertainties and concerns associated with energy supplies and fossil fuels, new rivalries and competitive threats are being added in the wake of the energetic transition, such as critical metals, technologies and chains of valor, markets’ accessibility, control of assets and digital technologies, as well as adapting to technology orientations and serving industrial interests.

Beyond the *European Battery Alliance*, the EU member States intend to achieve a deal related to the low-carbon energy transition in political and economic terms, but are having serious difficulties in establishing bases. The low-carbon and energy transition demonstrates the high stakes in a world industrial battle, since it carries out with it the promise of new expanding markets that might be destined to become the main pillars of the next energetic systems. The EU should mobilise a coherent mix of policies and instruments covering research, education, regulation and standards, financing, investment screening, etc., to improve both the competitiveness and the environmental impact of such European industries. However, present European policies, as a scattered response, have been focused on improving the integration of markets and security of supply, but are not necessarily matching this with an intense decarbonisation of the economy.

Meanwhile, China has already established its so-called *Made in China 2025* strategy that entails a component of automation and control of energetic technologies, and has already apparently taken up a leading position along the whole value chain of the main low carbon and energy technologies. It is a proactive strategy, combining an internal support for innovation – one third of the low-carbon patents are Chinese – with the financing of SOEs<sup>3</sup> and risk-taking and the cooperative process. This country not only controls access to critical metals and rare earths, but is also the global leader in the manufacturing and assembly of advanced technologies – 90% of solar panels and 50% of onshore wind-mills, electric and hybrid vehicles, smart grid equipment, 5G, and all technologies related to artificial intelligence. The US intends to assert the leadership of its GAFAM – against the Chinese BATX<sup>4</sup> – in the long term.

Europeans, who don't have a large range of strategic autonomy in these domains, are just trying to respond and address the risks of intensive industrial espionage benefiting American and Chinese companies. And the member state governments are keen to manage the transition period between two elections by relying on postponed initiatives and showing an appropriate concern for promising agendas, without immediate and concrete commitments. Thus, all indicators point towards a sharp downward spiral and a looming manmade humanitarian catastrophe. Alarm bells are ringing everywhere with growing concerns about mounting

environmental pressures and ecological scarcity. Nevertheless, governments are coming up with inappropriate solutions and are failing to take action early, with evasive programmes.

### **An Objective both Illusory... and Impractical**

The demand for energy and its related mass quantities is not going away, but the trends in the next 25 years differ slightly from current consumption patterns. Today, much of the world's energy consumption is concentrated in 36 countries belonging to the OECD<sup>5</sup> that work to stimulate economic progress and world trade. Fully developed countries use copious amounts of energy in their everyday lives and activities. From electricity in their homes, to large appliances and automobiles, the OECD countries are large consumers of energy, while emergent countries – essentially including Asian countries and mainly China – are eager to catch up with this consumption leeway and development gap. Whatever the case, many international agencies are forecasting that by 2040, the non-OECD nations' demand will far surpass that of the developed world... and these ever-improving nations will restructure global energy and its usage as well as the access to this energy in the future.

For the first time ever, the 'Green Growth' formulation was formally expressed at the 5th Ministerial Conference on Environment and Development in Asia and the Pacific, held in 2005 in Seoul: '*Achieving Environmentally Sustainable Economic Growth*'. In 2009, 34 countries endorsed a mandate for the OECD to develop a "*Green Growth Strategy*" bringing together economic, environmental, social, technological and development aspects into a comprehensive framework, stating that environment and development could "march shoulder to shoulder". The World Bank also argues that this Green Growth is "*a necessary, effective and already available solution*", although the barriers to be overcome are defined by "*a political and behavioural inertia as well as a lack of financial instruments*".

When IPCC<sup>6</sup> rings warning bells about global warming, it also brings its fair share of bad news for the economy. If nothing is done to find and improve new energy resources or energy efficiency, the economy will be thrown into a tailspin. As stated by the economist Gaël Giraud<sup>7</sup>, growth is structurally and permanently dependent on primary energy consumption: "*When primary energy consumption increases, GDP tends to increase by about 6-7%, with a*

possible further delay of up to eighteen months.” Energy would therefore appear to be a prerequisite for growth and not a mere facilitator.

Actually, energy, in combination with the other variables – capital, work, technical progress and innovation – is expected to be a key driver of economic growth. This justifies the need for investing massively in the zero-carbon energies, the waste-limit targets, the increase in energy efficiency and energy recovery and energy storage. This paradox is best expressed through the large diffusion of oxymora bringing together two conflictual situations or trends in a single element that upsets our ethical position: “*growth and green*” or “*clean and energy*”.

If Europe currently seems to be moving away from this trend, as illustrated by some pollution and climate change indicators that point out a stabilisation, the reason for this is primarily due to the relocation of the most polluting and energy-intensive industries to countries with less stringent standards relating to social and environmental policies. These energies – also billed as ‘green’ or ‘carbon-free’ energies since they break the habitual use of fossil fuels – are actually based on mining activities and industries that generate huge amounts of greenhouse gases. The pollution, which is no longer emitted in Western cities and urban areas thanks to the alleged ‘clean’ electric vehicles, is merely shifted to mining areas where the crucial resources for manufacturing them are extracted. Instead of trying to assume the leadership over such essential sectors, western countries prefer to transfer their production and the pollution elsewhere. In fact, the ‘greener’ world is increasingly and heavily reliant on unclean materials and critical minerals and metals.

Certainly, we cannot aim for a low- or zero-carbon society against growth, since any economic development requires optimal energy efficiency, irrespective of whether this comes from fossil resources or renewables. Moreover, the latter are not effective enough and definitely need to be complemented with conventional energy.

### **Intricate Illusion in a Worldwide Chimeras’ Theater**

Are the policy makers – not to mention public opinion – fully aware that some renewable energy sources have challenges not only in terms of their

economic viability or geographic limitations, but also in terms of frequency, regularity and reliability of supply? The idea that wind and solar power can be characterised as following a low carbon pathway is taken for granted and deemed obviously unquestionable while in reality the damage they generate will have serious consequences resulting from the greenhouse gases they release to the atmosphere at a global level. From 2000 to 2014, the annual energy consumption of coal globally increased by 2.5 billion of tonnes of oil equivalent, while solar was about 0.04 billion (that is thirty-five times less) and wind power ten times less. Since 2015, global wind and solar energy power has been growing fast, with over 80 Gigawatts added each year, but meanwhile 120 additional Gigawatts are provided from coal and gas production centres that work four to eight times longer per year as compared with wind and solar farms.

Should today’s primary energy sources be replaced by wind and solar farms, this would require twenty to forty times more capital investment, that is, two to four years of global GDP, to be also partly replaced every twenty years, not to mention investments in all other areas. Among the fossil fuels, coal ranks first in terms of overall greenhouse gas emissions – 44% – while oil represents 36% and gas 20%. Considerable amounts of energy from power-plants are needed for exploiting a mine, filtering and refining minerals, and then moving them towards a production and manufacturing centre in order to incorporate them in solar panels or wind turbines. Solar-panel production alone – particularly given the silicon contained therein – generates over 70 kilograms of CO<sub>2</sub>. If we consider an annual average increase of 23% for the coming years, the photovoltaic plants will produce each year about ten additional gigawatts of electricity, that is, 2.7 billion tonnes of carbon dioxide released into the atmosphere, or the pollution caused by 600.000 conventional cars per year. It has all the more serious repercussions especially where there are thermal-solar-power panels: some of these technologies consume as much as 3,500 liters of water per megawatt-hour, that is, 50% more water than is needed for a coal-fired thermal plant, often in arid lands whereby water resources are limited...

In addition, the production of electric cars actually consumes far more energy and produces more carbon dioxide emissions than the same process for conventional cars. Building a gas car produces 17 percent of its lifetime CO<sub>2</sub> emissions, the electric car

generates nearly 50 percent that way. Copper, nickel, lithium and related minerals are key components used to make electric-vehicle batteries, with implications for the long-term supply challenges that may occur with regards to these metals.

As the energy transition is based on intermittent sources which are supplied with interrupted and jerky flows, renewables and electric cars are fully dependent on rare earths or critical minerals (lithium, cobalt, coltan, etc.) whose modes of exploitation and production are excessively rich in carbon...

## Conclusion

The 'rebound' effect of technology innovation, which is supposed to gain energy and help increase the system capacity, basically doesn't enable us to reduce consumption and save energy. On the contrary, it is going to require additional energy and thwart the expected positive consequences. The energetic gains generate a financial saving that will lead to further consumption, often even more energy-consumptive. Using more efficient technologies leads to a disregard for any principles or scruples, and encourages more consumption with a clear conscience. Fighting against ignorance is indeed a top priority prerequisite in this growing crisis that society has such difficulty in overcoming. Somatogravic illusions occur when there is limited exterior visibility and the airline pilot, who is spatially disoriented, reacts to body senses over the actual flight path and instrument readings: instead of a pitching up motion, the natural reaction will be to pitch down...

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## References:

- <sup>1</sup> Margaret Eleanor Atwood (born 1939) is a Canadian novelist, literary critic, essayist and environmental activist.
- <sup>2</sup> William Langland (born c. 1330 - died c. 1400), presumed author of one of the greatest examples of alliterative poetry, is thought to have been born in Worcestershire, and been a cleric in London (educated at the Benedictine school).
- <sup>3</sup> State Owned Enterprises.
- <sup>4</sup> Google, Apple, Facebook, Amazon et Microsoft for the US, and Baidu, Alibaba, Tencent et Xiaomi for China.
- <sup>5</sup> On 1960, 20 countries originally signed the Convention on the Organisation for Economic Cooperation and Development (OECD). Since then, 16 more countries have become members of the Organisation. Headquarters in Paris, France.
- <sup>6</sup> The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body that was created to provide policymakers with regular scientific assessments on climate change, its implications and potential future risks, as well as to put forward adaptation and mitigation options.
- <sup>7</sup> Gaël Giraud, born in 1970, is a French economist, specialised in mathematical economy, and Chief Economist of the French Development Agency (AFD).