

Renewables geopolitics: towards a new generation of energy conflicts?

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Abstract

Building on the historical foundations of the geopolitics of energy, this essay argues that under capitalism, the “energy model” performs more functions than only supplying energy to the system. In the fossil fuel model, the territorial control of energy sources (coal, oil, gas, and uranium) preserves hegemony, and since the 1970s, oil revenue has been used to sustain *global imbalances*. Considering that the properties of renewable sources are radically different from those of fossil fuels (there is no possibility of territorial control or commodification), I discuss the concepts of soft and hard paths as established by Lovins (1976) and using the example of “new hydrogen geopolitics”, in an attempt to create a *hard path* renewable model similar to the fossil fuel one, may foster new tensions that could catalyze a new generation of energy-related conflicts.

Keywords: Energy transition, Hydrogen geopolitics, Capitalism, Soft and Hard path, Fossil mindset

Introduction

In 1976, Amory Lovins, in his iconic article *The Road not taken?* raised the possibility of a more just, democratic, and peaceful world if a *soft path* transition was made towards a renewable source energy model. Almost four decades later, these good omens have been transformed into possible conflict scenarios (Lloyd's 2022; Bazilian et al. 2020). After the outbreak of the war in Ukraine and the consequent Western sanctions, the term "ecology of war" was coined by Charbonnier (2022).

In this essay, I argue that this change in perspective is due to an attempt to create forms of capture, transformation, transport, and use of renewable energy (energy model) that are equivalent to those of the fossil fuel model.

Paradoxically, this option could open the door to a new generation of energy conflicts because of the war background in which these alternatives are proposed, the difficulty of thinking of alternatives outside the fossil fuel model mindset, the lack of geographical determinism for renewables or their universal abundance, and a possible attempt to set up renewable energy models with a role equivalent to that of the oil model within contemporaneous capitalism.

This new generation of energy conflicts is similar to the previous one in that its aim is to favor the creation of a geo-energy order that allows the control of energy flow and prices for the benefit of a few (the United Kingdom or the British Empire until the first third of the 20th century, and the United States or industrialized countries in the second half of the 20th century). However, it differs from the fossil fuel model in that, for this control to exist, the

conditions for territorial control of the products of renewable sources and their infrastructures must first be artificially created.

Fundamentals of the ideological pillars of the energy model

Energy historians (Malanima 2014; Wrigley 2010) and geographers (Bridge 2013) explain that, before the Industrial Revolution and the establishment of manufacturing capitalism, there were no significant inequalities in the world between territories due to energy. The shift to the coal model transformed this reality.

The geography of coal, like that of all minerals and hydrocarbons, is territorially unequal, which gives an advantage to some regions or countries over others, resulting in an elitist energy model. However, since coal is the product of a mine—as hydrocarbons are a deposit—the ownership or control of the territory in which they are located allows their holders to decide the conditions of accessibility. This economic-institutional feature tends to create a monopolistic, asymmetric market for fossil fuel energy, deepening the intrinsic inequality in the fossil fuel model. Therefore, the fossil fuel energy model is not only geographically elitist, but also tends to be exclusive. Building upon mainstream economic thought (Say, 1803), because coal, oil, gas, and uranium are commodity products of the land, individuals can make them private and exclusive property; consequently, their revenue becomes the profit of one (person, company, or state) to the exclusion of another.

In the United Kingdom in the 19th century, at the height of manufacturing capitalism and British hegemony, these characteristics were used by the British as a source of power and supremacy over the rest of the world (Jevons 1865). This led to the development of energy geopolitics. One type of geopolitics was built on the supremacy of some states (territories or empires) over others because the former were the owners (or controlled the resources) of the energy sources that the latter either did not have or could not access.

Because of the oil model, in the first third of the 20th century energy relations became internationalized. This added an additional layer to energy inequality, as it forged an energy order centered around crude oil that is extracted in one part of the world to be used in another after its transformation into useful energy. The degree of exclusivity of the fossil fuel model was reinforced as the large and transnational energy infrastructure further concentrated the control of energy flow (and prices) in the hands of a few agents, while increasing their power as monopolies.

As the history of the international oil industry attests, the process of creating such an order is highly conflictive (Petrini 2020). Fixing the territories of international oil extraction in the Middle East required the disintegration and partitioning of the Ottoman Empire, as well as the creation of new borders after the First World War. Subsequently, in the 1960s, the Middle East joined the Organization of Petroleum Exporting Countries (OPEC), a broader multilateral body. Their joint action in response to the 1973 Arab-Israeli War (known as the *Yom Kippur War*), which resulted in a sudden and significant increase in crude oil prices, added a new element to energy geopolitics: the idea of conflict.

Since then, the geopolitics of energy have been perceived as the result of conflicting relations between two categories of countries with antagonistic interests: exporters (producers) and importers (consumers). This idea of a dichotomous energy world, ultimately led to the creation of an oil order, grounded on the logic of energy "blocks" between two multilateral energy organizations: that of the exporting block (OPEC) and that of the importing block, the International Energy Agency (IEA). Thus, the concept of energy geopolitics became reality as a result of the confrontation between blocks.

Therefore, it could be said that contemporary energy geopolitics is grounded on three pillars: *energy elitism*, based on the territorial control of energy sources; *market exclusivity*, which

makes it possible to establish the conditions of access to energy sources; and the *idea of conflict* (or a collective imagined conflict) between exporting and importing countries.

The data do not corroborate the existence of such a conflict because, as shown by some authors, one of the consequences of the oil price rise in the 1970s was the reinforcement of the complementarity between the US economy and OPEC oil economies, mainly with the Saudi economy (Magdoff 1979; Basosi 2020). However, as exemplified by Nitzan and Bichler (2015), in the *Weapon - Petrodollar coalition*, the impression of conflict (including the possible scarcity motivated by OPEC's actions) is essential to create conditions for oil purchasing to feed global imbalances (Wade 2019; Mañé-Estrada and Albinyana 2023). To gauge the scope of this, it suffices to consider that approximately 50% (Sovereign Wealth Fund Institute, n.d.) of Sovereign Wealth Funds (\$11,358 trillion US in 2022, according to STATISTA (2023)) that sustain international capital flows originate from oil and gas income.

This is ultimately relevant since it shows that in the capitalist system, the fossil fuel model—and its ensuing geopolitics—is imbedded in properties larger than those that provide energy to the world economy. In fact, all that has been written to date shows that since the Industrial Revolution, the fossil fuel model has maintained capitalist hegemony through three channels: territorial control of energy sources, the design of an energy market, and transnational infrastructures that favor the exclusive control of a few agents, and the generation of income for financing the system.

The choice for a *hard path* energy transition

The transition towards an energy model sourced from renewable energy could favor a new way of understanding energy relations. As inferred from Table 1, the intrinsic characteristics of renewables may end the three pillars of fossil fuel geopolitics (geographic elitism, exclusive commodification, and the institutionalization of conflict).

[Table 1 near here]

This was the mindset of Armory Lovins when he advocated the *soft path* transition towards renewable models. As he explained, these renewables, which are diverse, flexible, and matched in scale forms of generating and using energy, would help create a more equal, democratic, and peaceful world. Hence, years later he argued that:

“the harder path is the soft path because it changes the status quo. It requires new institutions, new technology, science statemen rather than technician scientists [who] have a clear and extraordinary record in starting large scale projects” Nader (2010: 520).

Although there are *soft path* transition experiences in Europe, such as the German *Energiewende*, in recent years numerous renewable projects have been suggested, such as the Desertec project which, following a *hard path* transition model, centered around mega transnational energy infrastructures, aims to replicate the "block" structure, ideology, and power relationships of the fossil fuel model.

Proposals in the latter sense bloomed in response to the outbreak of war in Ukraine in February 2022. These are gaining prominence in the reports of multilateral energy organizations (advised by experts, as termed by Nader (2010: 521)), such as the International Energy Agency (IEA) and the International Renewable Energy Agency (IRENA). Such organizations are already draughting new hydrogen-based geopolitics. Similarly, *hard path* proposals materialize in the “*EU external energy engagement in a changing world*” (COM 2022:5), since “*it envisages three major hydrogen import corridors from the North Sea region (Norway and UK), the Southern Mediterranean and Ukraine*”, [being] a region with a particularly high potential to generate renewable hydrogen [...] the southern Mediterranean.

These proposals come with a pre-established geopolitical design that aims to emulate the fossil fuel model in two of its components: geographic elitism and market exclusiveness. This, with the example of hydrogen, requires the setting of two factors: to transform the air or the sun into an energy commodity and design a *hard path* transition, grounded in territorial delocalization and large energy infrastructures, to maintain control of energy flow and prices.

Hydrogen gas is a compound that is "manufactured". Thus, "hydrogen" is a secondary energy source, like electricity or fossil or nuclear fuel. Hydrogen is labeled as "green", when solar or wind energy is used to generate it. Therefore, it can be produced in any region worldwide using water (fresh or salt), sunlight, and air. According to Table 1, hydrogen, as a by-product of renewables, can be manufactured and used locally. Therefore, it is legitimate to think that opting to generate it in one part of the world and not in another is the result of a choice: delocalizing hydrogen production in another part of the world to be exported, instead of manufacturing it as a by-product of excess electricity, as a local way of storing renewable energy.

In the designed hydrogen geopolitics created by the IEA (2021 and 2022), and IRENA (2022 and 2023), green hydrogen is mainly existing in the form of ammonia to be exported to places where it would be possible to generate hydrogen. Interestingly, as can be deduced from the infographics accompanying some of those reports (e.g., IRENA (2022,12)), before the investments and agreements to achieve this have been made, a map of exporting (or regions) and importing countries has already been drawn. Unsurprisingly, this map is similar to the one that already exists today for global oil and gas flows. Therefore, it is legitimate to speculate whether a new form of energy elitism is being created to give birth to new geography and geopolitics of energy imbedded with its old properties.

These data do not support the anticipated scenario of the new green hydrogen geopolitics. Considering the IEA *Hydrogen Projects Database* (2021b), which has more than 1,400 projects registered in it, only 5% are listed as “under construction”, and of these, not all are labelled "green". This becomes quite meaningful when analyzing the gap between the designed geopolitics and its reality, as the last data available (EIA 2021) show that the main product of the hydrogen-ammonia chain is nitrogen fertilizers (70% of its production is destined for this purpose), whose source is gas (70%) or coal (30%).

This duality between wishes and facts may lead to a new generation of conflict which may originate from an attempt to artificially create hydrogen-based geopolitics similar to oil-based ones. This likely explains the negative perspectives of Bazilian et al. (2020) and Lloyd’s (2022). It may explain why it is displayed as the “Green Cold War” scenario; a transitional scenario in which:

“energy transition becomes yet another arena for great power competition and the world fractures into regional blocs, with countries gravitating around technology leaders and regional alliances forming around their respective integrated energy systems” (Lloyd's 2023:27)

Elements that foreshadow a new generation of energy conflicts

To date, three ideas have been proposed in this article: the emergence of a wartime hydrogen geopolitics, the role played by the fossil fuel model in capitalism beyond the steady supply of energy, and the dominance of a fossil fuel mindset. These three issues influence the design of a *hard path* energy transition, as such a design attempts to draw up a transnational energy relationship between exporters and importers. Since the intrinsic properties of renewable sources (Table 1) are different from fossil sources, the combination of these three matters could result in five new types of tension, because of the attempt to build up a simulated

recreation of a new energy order based on the “block’s” structure. Its likelihood could support the scenario of a green energy conflict.

- *Energy policy as a war policy.* This issue is related to the background of the war in which proposals for hydrogen were set. Charbonnier (2022) postulates that after the outbreak of the war in Ukraine, some sectors consider the push for renewables as a "peaceful weapon". To confirm this idea, the EU planned to create transnational hydrogen corridors within the framework of the *REPowerEU Plan*. These are considered as an example of a proposal for energy measures defined as "against the grain", since its objective is to eliminate the EU's dependence on Russian fossil fuels (COM 2022b). This approach unambiguously presents the new geopolitics of energy as part of an action arising from a war context, and therefore, may result in alliances or blocks that are defined as the result of war logic rather than energy logic.

- *Impoverishment caused by a green transition designed within the fossil fuel mindset.* Following Nader's (2010) line of thought: Underlying the flows already drawn on the maps of the new hydrogen geopolitics is the desire to keep almost everything as is, namely, the international division of labor between the Global North and South. The new hydrogen export design appears to be another lost opportunity to positively influence the productive development of Third World economies. Instead of generating energy for local use, they would be constrained to produce energy for export. Furthermore, betting on the delocalization of green hydrogen opens the door to the emergence of new sources of conflict caused by greater destabilization in one of the most conflictive regions of the world (the Middle East to North Africa) due to the impoverishment of the oil economies (Lloyd's 2023:29). This impoverishment may lead to two-fold tension within and among the petro-states. Tension may be caused by dwindling national income (rent) due to the loss of oil's weight in the world

energy mix. Similarly, it may spur conflict between oil producers for a significant share of the shrinking market.

- *Green colonialism as an outcome of a hard path energy transition.* Energy generation from universal and appropriate sources, such as the sun and wind, unlikely to maintain sovereignty over these resources. This could be considered as an unexpected outcome of energy transition and the cause of “Green colonialism” (Hamouchene and Sandwell 2023). Petro-states were established because of *General Assembly Resolution 1803 (XVII) on permanent sovereignty over natural resources* in 1962. However, if either oil or natural resources were unavailable, states would have no geopolitical power derived from resource control or income from exports. Therefore, the relocation of green hydrogen or green electricity production to exporting territories would not only reduce their income, but their relational sovereignty (Dixon and Monk 2012). Similarly, it grants more power to the owners of the technology and infrastructure of the hydrogen chain. That is why, “green colonialism” must be understood as the end of energy geopolitics (in its sense of relationship between states) or the likely return to the world of the "companies" and enclaves of the late 19th century.
- *Rivalry because of green investments not driven by unequal territorial distribution of resources.* As is already happening in North Africa (Mousjid and Hajbi 2023), another unexpected consequence of the mere announcement of possible hydrogen geopolitics is the growing rivalry between countries to attract investments and to become strategic hydrogen partners (in this case) to the EU. This new rivalry, added to the growing energy nationalism caused by the war in Ukraine, and the idea of what energy security is (Bazilian et al. 2019:3; Charbonnier 2022:6) could also encourage further non-

cooperative energy relations. This fragmentation indicates the plausibility of the chaotic and fragmented energy transition scenario enunciated by Lloyd's (2023).

- *New tensions arising from new forms of “rent seeking”*. Finally, and almost by way of an epilogue, it is worth mentioning that, although the territorial control of renewable energy flows can be artificially designed through the construction of transnational infrastructures, the transition to a renewable model raises an issue for the current functioning of the capitalist system. The impossibility of control (national sovereignty) of and trade in renewable sources (e.g., sun, air, and tidal) makes it improbable to propose a "reasonable" international market (or price), as there is for oil. Similarly, creating income from renewables is not feasible. From this perspective, energy transition is a global systemic risk for financialized capitalism, although in the current scenario, there are some alternatives, or complementary, sources of income. However, all of them would shake tensions, which may lead to conflict. From this perspective, there are three possible non-exclusive ways to reinforce the income associated with the energy model.

1. To increase hydrocarbon revenue, creating conditions in which gas trading is conducted in a similar way to international oil trading, creating the same conditions (inequality, scarcity, and unified market) for the generation of gas income. A phenomenon described as ‘*petrolization*’, a gas trade with oil-equivalent attributes (Mañé-Estrada, 2022).
2. To create an alternative to the hydrocarbon model, with electricity generation infrastructures (solar panels or wind turbines), and electricity storage elements (batteries) that would be very intensive in "critical" or rare minerals which, owing to their scarcity, if the conditions were also created, would likewise generate income.
3. To give the project of building large, transnational, and vertically integrated infrastructures for the generation, export, import, and final transformation of renewable

energies, such as hydrogen, to large private energy consortiums with massive market power and a great capacity to generate a "fictitious" monopoly income.

All three alternatives may have an impact on three tension groups of that could lead to further conflict: geopolitical and territorial tensions resulting from the reorganization of markets (gas or rare minerals), to increase global mining income; tensions with local communities for environmental, economic, and social reasons (increasing pressure from large mining companies and reinforcement of the extractive mentality); and tensions resulting from exclusion and energy poverty, owing to the growing power, because of the process and the concentration of economic activity and political power, among a few private energy monopolies.

Conclusions

The energy transition towards a renewables model has gone from being a (soft) path to achieving a more peaceful, just, and democratic world, to potentially opening the door to new conflict scenarios because of green energy. The explanation given here, exemplified by the case of hydrogen, is that multilateral energy organizations, such as the IEA or IRENA, promote a *hard path* renewables model. This option, considering the situation caused by the war in Ukraine, has been embraced by multilateral energy organisms and the EU.

We suggested that behind this choice lays a lack of intellectual alternative to the option of the "fossil fuel mindset". Therefore, the map of the new geopolitics of hydrogen was drawn as if it were a map of present-day world oil and gas flows. However, being likely to create a new energy order grounded on energy "blocks", because of the different properties of the renewable sources compared to fossil fuels, the artificial attempt to do so may result in new

conflicts caused by the emergence of new international and domestic energy inequalities and the reinforcement of the power of transnational energy majors, that instead of controlling the sources would control the infrastructures. This could prove to be true in times of war, as in the present.

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The author reports there are no competing interests to declare

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Tables (with captions)

Table 1: "a priori" differences between an energy model based on fossil and renewable sources.

Model based on	Geography	Energy sources	International trade
fossil sources	Located ⇒ Energy elitism	Merchandise ⇒ Exclusionary mercantilism	Exporting and importing states ⇒ Idea of conflict
renewable sources	Universal ⇒ Territorial equivalence	Free goods (sun, wind) ⇒ Non-mercantilism	Producing States ⇒ No antagonism

Source: own elaboration