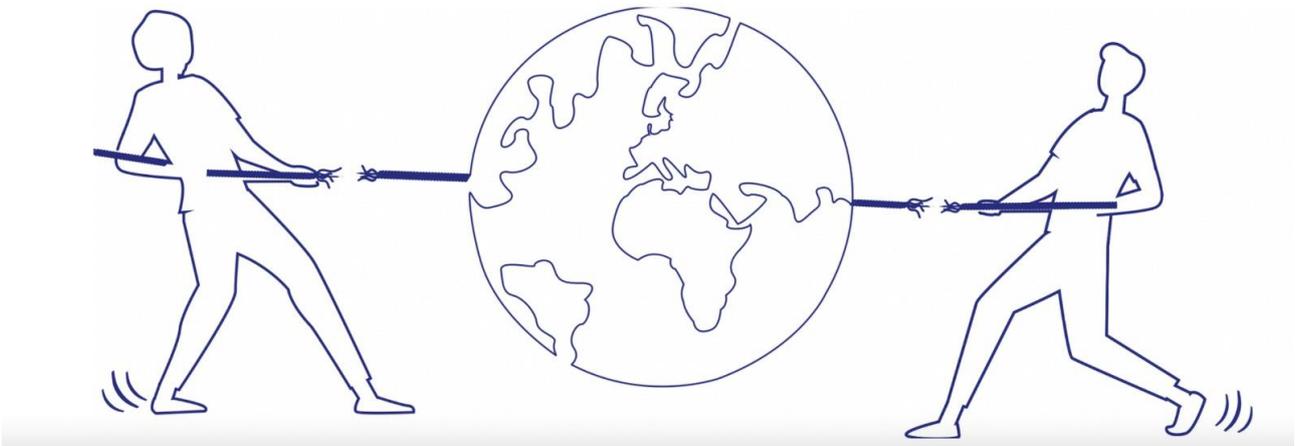


SHORT VS MEDIUM TERM: IS THERE A TRADE-OFF BETWEEN ENERGY CRISIS AND CLIMATE CHANGE?

October 2022 (IN PROGRESS – DRAFT)¹



This paper is an attempt to provide a preliminary answer to a fundamental question – the relationship between Climate change and Energy Crisis) by addressing three key issues: the markets where gas price is established in the (very) short; policies for decoupling economic growth and energy in the short – medium; and renewables as the only structural answer in the medium term.

The very short-term solution: the paradox of the gas market (TTP)

“If I had believed in the theory of the efficiency of the financial markets, I would still be in the business of delivering newspapers” It was Warren Buffet who made fun of the theory according to which stock exchange markets would be able to capture the value of the stocks traded.

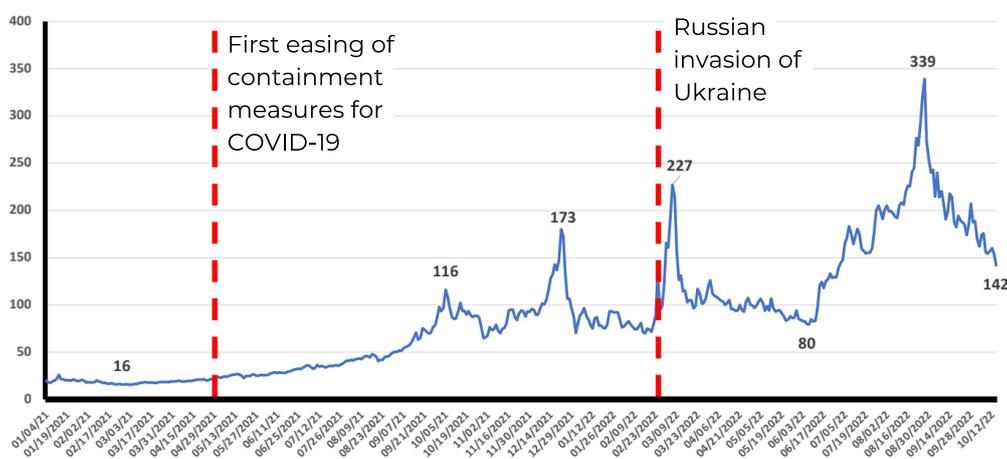
¹ VISION working group includes Margherita Curti, Clara Donati and Francesco Grillo.

Actually, Buffet himself managed to earn a great deal of money going from delivering newspapers to trading stocks, bonds and commodities.

And yet it is true that stock exchanges are typically useful to allocate scarce resources to their most efficient uses.. Sometimes, however, they become money machines with zero risks for some, leading to the financial ruin of many others.

This seems to be the case of the virtual Dutch market (TTF, Title Transfer Facility), which became increasingly important during the pandemic and where trading rights for natural gas are exchanged: more specifically, it was a mistake to link the price of gas bills to the TTF..

Evolution of the price of natural gas on the Dutch market (TTF, futures, euro)



Source: VISION on Financial Times data

The paradox of gas bills is captured by the graph above.

The past 18 months were marked by three curves with very different trends:

- a) the price of gas on natural gas markets was below 20 euros until May 2021, became 15 times higher on March 2022 and was 140 euros last week; the price paid by consumers is more stable and, yet, follows a gradual trend such that in a country like Italy, doubled its value compared to last year (according to ARERA, Italy's regulating agency);
- b) in the meantime, the amount of product offered to again Italy, for instance, stays absolutely the same: the gas we buy from Russia, covering 30% of our gas demand, has almost halved (according to data provided by SNAM, an Italian utility). However, the missing supplies are being completely replaced by larger imports from Northern Europe.

This situation might get worse when winter comes and yet there are three elements which don't add up: the first is that the cut of Russian supplies (-15% of the total) is not enough to explain such a dramatic increase in gas prices neither in the TTF (+1500%) nor in the bills

paid by consumers (100%); the second is that the energy crisis actually started way before the War as gas prices started climbing right after the COVID-19 lockdowns; the third is that Russia is earning more money even though it cut its export to Europe, selling less but at a higher price. The benefit of higher prices is outweighing the cost of less exports. The result is a paradoxical transfer of resources from European families to Russia – even though the intention was to penalize the latter – and to other speculators buying gas at regulated prices and then re-selling it on the Dutch market.

To understand what is wrong in the TTF, we must remember that two are the conditions of a financial market to be efficient: the first one is the existence of an high enough number of buyers and sellers, where no participant has significantly more information than others; the second condition is that any investor can exchange different stocks with low transaction costs. In the TTF, both conditions do not exist: among this market players there are few companies that supply gas (there are few Russian and Western companies, while those of the Middle East and North Africa are almost absent); secondly a gas buyer cannot change supplier because its choices are conditioned by the existence of gas pipelines whose construction takes years and billions of EURO. Under these conditions, linking the price of gas paid by an European family to the Dutch market is like taking out a mortgage at a rate which is not only variable, but whose rate is also determined by the banker.

Russia can, theoretically, reduce supplies to the EU to increase the gas price, to a level where its final revenues are the same; and to increase them with the gas saved that would be sold back to the Dutch market.

Among the minimum moves necessary to respond to a crisis, there is the need to replace the volatility of a very imperfect market, returning to long-term contracts and stable prices. But there is a difference compared to the past: these agreements would be closed with each supplier country from the EU on behalf of Member States that finally decide to share a common energy policy. This would make buyers stronger and the European market more integrated and less vulnerable.

Financial markets have, in theory, the great advantage of building prices that better reflect the value of a company or an asset and that better allocate scarce resources to those who use them more productively. In cases like the TTF, they risk becoming a trap, just because there is a seller who, without not even having the intuition of Warren Buffet, finds himself to be able to establish the price of the goods he proposes and of which buyers cannot do without. It is good for the markets themselves if governments rely on them with the prudence and intelligence of those responsible for the fate of families and businesses that will never know of the existence of such virtual mechanisms.

The short/medium-term policy: savings as a strategic lever

It is not entirely true that COVID19 has been the first massive interference of the State on citizens' freedom of movement. In November 1973, European governments imposed

draconian measures: during weekends nobody could drive their car and it was pointed out that the fines – including the seizure of the car - would have hit even not complying Minister.

The memory of that “austerity” recalls the upcoming autumn also in the causes that triggered that crisis: Israel, attacked by an alliance that brought together all its Arab neighbors, reacted by occupying the Sinai and the Golan; the countermove was the blockade of oil supplies to the West which brought to out-of-control inflation and the first recession after years of economic miracle.

How important can savings be - today, after half a century - as a lever to respond to the energy crisis?

The plan presented by the European Union, immediately before and after summer, seems to rely on automatism which are difficult to control and on communication actions. The risk is to lose the opportunity to transform the emergency in the occasion to conceive a concrete strategy.

In Italy for instance, the Ministry that should accompany the ecological transition (**MITE**) launched, in early September, a plan to contain gas consumption that must respond to the brutal cut that war involves: Russia, in 2021, covered about 40% of the final consumption of gas in Italy (29 billion cubic meters standard - SMC - out of 76). **The plan envisages that half of the Russian imports are going to be replaced - within 2023 - by supplies from other Countries** (above all from Algeria) and that for another 15% they are going to be replaced **by internal production of gas and other fossil fuels**. The government, on the other hand, seems to be less confident on the fact that renewable energy can make an immediate contribution (it is expected to provide the equivalent of about 2 billion cubic meters of gas more by next year). And, finally, the focus is on saving 3.3 billion on gas through three mandatory reductions in heating, lowering: the temperature of one degree in buildings; the duration of daily ignition of an hour; and the annual period of operation for plants of fifteen days.

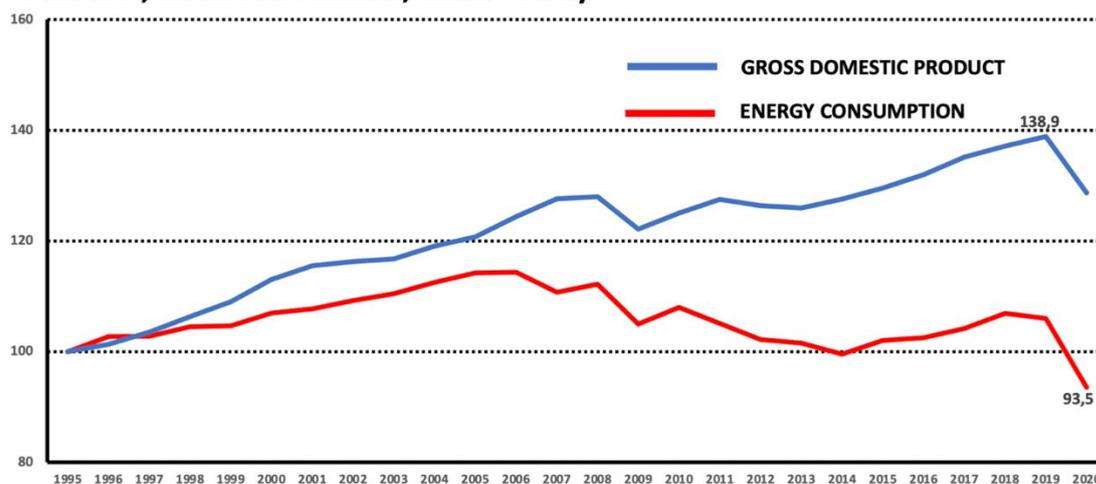
The plan is in line with the European regulation adopted by the European Council at the end of July on the **Union's energy security**, which, however, has at least three problems (even without considering the insufficient ambition for renewables).

The first problem is that the plan does not entirely eliminate the gap between supply and demand that a reset of Russian supplies would cause and which, however, would be realized by 2023, not in time to avert the emergency by next winter.

The second problem is that is a missed opportunity to adopt a comprehensive strategy of energy savings: the title itself speaks of reducing the consumption of gas only (whereas it is urgent to cut oil consumption too) and, moreover, the measures only take into consideration heating gas, leaving aside that gas is consumed to a greater extent for electricity deliver.

The third and greater issue is that there is a missing chance to create incentives to consumption containment which should reward the innovation that saving requires and that the crisis can strongly stimulate. Actually, as shown by the graph that accompanies the article, it is not true that you need to consume more energy in order to grow.

**EVOLUTION OVER TIME OF GDP AND DOMESTIC ENERGY CONSUMPTION
(1995 - 2020; TOP 4 ECONOMIES OF THE EUROPEAN UNION - GERMANY,
FRANCE, ITALY AND SPAIN; 1995 = 100)**



Source: Vision on Oxford University Data, BP, World Bank, UN

The price we pay today per cubic meter of gas or per kilowatt of electricity (or, even, per litre of water) do not change as much as consumption. This happens because of the "protected" market - controlled by the regulatory agency ARERA – but it also happens in the free market that is replacing it. Also, cost differentiations to heat an empty house are reduced (waste is worth a third of the bills) compared to those, for example, of an office at full capacity. In this situation, the rationalizations end up being entirely entrusted to mandatory containment measures (even if there are doubts about how to control the temperature of the houses) or, on the contrary, mildly entrusted to communication campaigns.

Instead, saving must become a strategic lever capable of affecting the entire consumption of fossil energy. And it must pass through the market.

Production technology and distribution of energy – mainly realized by photovoltaic and new transmission technologies (DERS) – allow to differentiate the price according to transition targets. However, without arriving at a more sensible use of prices as a signal that guides everyone - families and large energy-intensive factories - towards new frontiers of innovation, it would make sense to begin to encourage the introduction of bills rewarding those who save compared to what they consumed in the past and penalizing those who do not change habits. No less effective would be to involve municipalities in an action to mobilize their local communities: mayors who demonstrate, in a measurable way, to be at the forefront of what is a decisive battle (whereas the PNRR fails to make this distinction) should be supported - with further investment.

In 1973, the car bans were accompanied by a movement that made Italians discover the possibility of cutting unnecessary consumption and the beginning of a wave of innovations that we still call "home automation". Saving on energy consumption cannot only be the answer to an emergency, waiting for the next crisis. Indeed, we have a moral duty to use the only positive aspect of the crisis: to review production and consumption models that take our future without, even, creating advantages for those who waste languidly.

The medium/ long-term strategy: how much money and time would a complete energy transition cost/take?

The war in Ukraine seems to put us into a corner. It seems to force us to make an impossible choice between three vital goals: to avoid – in the next couple of months - a recession that can lead to the closure of thousands of businesses crushed by bills, to get rid – in the medium term - of the threat of tyrants we have financed for years by buying their fuel; and to reach by 2030 the European objective of a 55% reduction in carbon dioxide emissions compared to 1990. The question to which Italian candidate parties are seeking an answer is: is there any idea that could safeguard all these three needs at once? Is there a solution that can be applied without being forced to make a choice that would lead us inexorably to collapse on two of three sides?

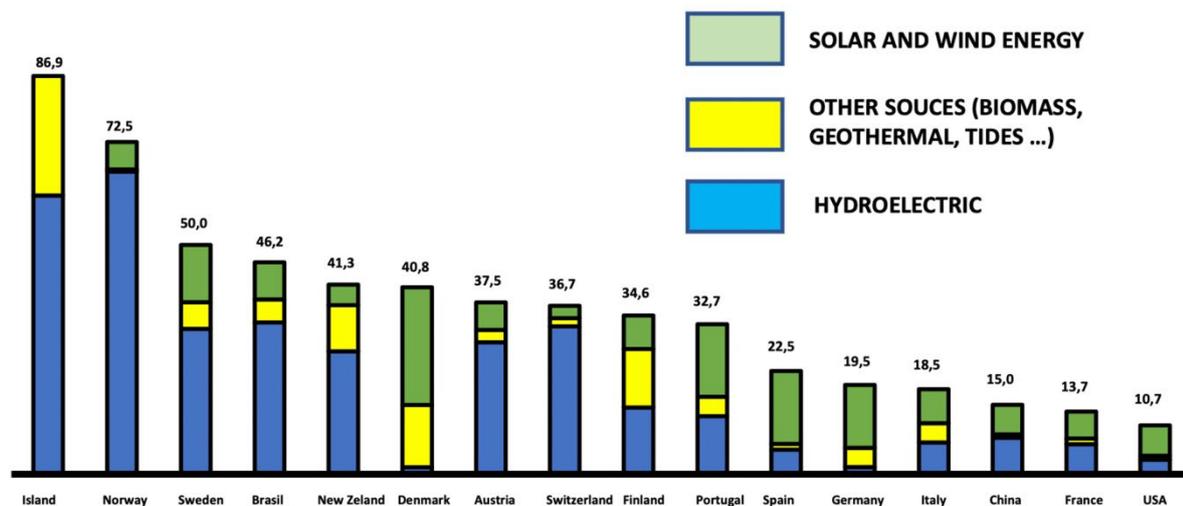
We don't have to go far to find an answer. There are companies that have prepared for the perfect storm by making a choice to which we should devote all our political, technological, and financial resources. Sweden, Denmark, Finland, Austria, Portugal itself and Switzerland outside the European Union, indicate a path that has no alternative.

The latest economic forecasts of the OECD in Paris were published in July in a document called "the price of war". Europe pays to the conflict a slowdown of almost two points and a half. This ghost is called **stagflation** (inflation plus recession) and we met it in 1973 when Arab countries cut off oil supplies to those who had supported Israel in the war between Sinai and Golan. In such a gloomy picture, there are some "happy islands": Austria, Portugal and Switzerland pay to the energy crisis only half point. In Lisbon the GDP growth is still 5.3% and in Zurich inflation is just over 2%. The situation is slightly worse for Finland and Sweden, but only because they are used to exporting to Russia.

The ability to resist crises also means greater political independence. Sweden and Finland ask for NATO membership just as Russia tries to crush Ukraine and blackmail Germany. Austria and Switzerland defend a neutrality enshrined in Constitutions and Treaties that allows these countries to be the seat of some of the most important international organizations.

There is an additional factor that these European countries have in common and that partly explains the miracle of their resilience: **the leadership in the development of renewable energy**. The forementioned six countries are – in the Oxford University number – among the ten countries of the world with the highest share of energy coming from sources that are not subject to exhaustion: Sweden is at 51% and Portugal covers one third of its demand. Germany, France, and Italy are below 20%, as evidenced by the chart accompanying the article.

SHARE OF DOMESTIC ENERGY CONSUMPTION COVERED BY RENEWABLE SOURCES* (PERCENT, TOP 10 COUNTRIES BY RENEWABLE IMPACT AND MAIN EUROPEAN UNION AND WORLD ECONOMIES, 2021)



* Does not include nuclear energy
Source: VISION on Oxford University and BP

The data on the composition of renewable energy is also interesting: Portugal, Denmark – but also Germany and Spain – wind energy and photovoltaics are valued more than hydroelectric. Finally, countries that have already converted to renewables benefit from the advantages of a clean environment: it is not only thanks to the tax benefits that Portugal hosts many pensioners, while the entire Po Valley is levelled red in the monitoring of air quality.

The war in Ukraine urges for a transformation of the entire production, distribution and consumption of energy. But how much does it really cost to achieve it in a country like Italy?

ENEL Foundation has recently calculated the value of a plan divided into three components: the first one is the reduction of the consumed amount of energy per euro of GDP produces; the second is increasing the share of energy delivered through electrical technologies; the third is increasing the weight of renewable (especially photovoltaic and wind energy) on the mix used to produce electricity. To each step correspond, however, impressive innovation trends.

This plan can make us reach Portugal and Spain in 2030 but its flaw is in its costs: it could cost as much as five RRPs (1,056 billion EURO) in the next eight years. However, the real news is that the benefits of such ambitious transformation would be far greater than the costs: each euro spent would produce a return (of EUR 1.64) higher than that the returns provided for by the PNRR (1.2 at best), creating 2.6 million jobs. It will be, as for the PNRR, equally necessary to remove the regulatory constraints that are the bottleneck of much less demanding investments, and that distance us from countries benefitting from a smaller size and complexity.

The three crises that can trigger the perfect storm - war, inflation and drought - put Europe at a more definitive crossroads than we have answered with NEXT GENERATION EU. There is a need to replace mild transitions with courageous transformations, to spend more but with more focused investments and a much clearer return. On these grounds we can build a strategy that in the Stability Pact is regulated by criteria that are differing from those

that we will continue to use to manage old and less "good" debts. A similar logic can also be applied to draw an emergency response to which it is useful to dedicate a separate reflection. We must use **the energy of crisis** to firmly enter a radically new world.