



Allocating tradable quotas to all in order to drive the energy transition

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In France in 2019–2020,
a panel of 150 randomly
selected citizens will work
for six months, under the
Citizens’ Climate Convention,
to draw up proposals to
drive the energy transition
and preserve the climate in
accordance with the French
government’s repeated
international and national
commitments.

Four months after the beginning of this radically innovative process in French political culture, and after hearing many experts, the panel has not had the opportunity to be presented, let alone to debate, a systemic solution that is nevertheless obvious if we want to reconcile an effective management of the transition and social justice. This solution consists in **allocating each year, to each resident in the country, the same number of ‘carbon points’** corresponding to CO2 emission rights, recorded in a ‘carbon account’, these rights being transferable.



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To solve this mystery, we need to examine **four points** successively:

- 1** Why is this an obvious solution and the only one that reconciles efficiency with social justice? pp. 7-10
- 2** Why is it left unmentioned by experts and economists? pp. 11-16
- 3** How can such a system be set up? pp. 17-22
- 4** What are the specific difficulties of the transition period and of trading with the outside world? pp. 23-27





1

Why is this an obvious solution and the only one that reconciles efficiency with social justice?

‘Rationing can be seen as a pie to be shared among all individuals and families.’



1.1. The solutions that have been advocated since the 1992 Earth Summit have been clearly ineffective.

Despite repeated assertions of the necessary disconnection between the evolution of global gross domestic product, GDP, and fossil fuel consumption, the two have remained fully connected. Growth of greenhouse gas emissions has only been slowed by economic crises.



‘The evolution of global gross domestic product, and fossil fuel consumption [remain] fully connected’

1.2. Strategies based on raising prices through taxation have on the whole always failed but have remained the only remedy advocated by economists.

First of all, this failure is evident from the previous point: carbon taxation has been applied here and there, but has not produced the expected effects. As it is not practised on a global scale, the measure essentially leads to transferring energy-intensive production to other countries. More importantly, however, attempts of this nature have resulted in social revolts all over the world. The ‘yellow vest crisis’ in France is just one example in a long series. This is because these measures affect the poorest populations the hardest. This is obvious. By nature, fossil-fuel consumption is part of all aspects of daily life and is necessary for everyone regardless of their income.

This consumption increases with income, but less rapidly than income. Moreover, among the population below the median income, consumption is fairly homogeneous precisely because it is about meeting everyone’s needs: cooking, eating, dressing, heating and moving around. On the other hand, the higher the income, the more energy is consumed in connection with lifestyle choices, with a fairly broad dispersion of consumption from one family to another. Energy taxation is a regressive tax; it affects the poor much more than the rich. To make these measures socially acceptable, complex redistribution mechanisms need to

be invented, such that the effect of the tax is neutralised for the poor and provides sufficient incentive to redirect the consumption of rich households radically.

What would one say about doctors and medical schools prescribing the same ineffective remedy for thirty years?

1.3. Calling a spade a spade: it is essential to organise energy rationing.

Moving towards carbon neutrality at a given pace implies setting an overall emission cap year after year, with the cap decreasing each year at a rate corresponding to the set target. Currently, a reduction of 6 to 7% per year would make it possible to move towards carbon neutrality within the timeframe set by our international commitments. Having an emission cap, unless we cheat constantly as we have been doing for thirty years by not respecting it, is called rationing. This requires explaining how this quantity will be distributed among everyone. Energy rationing is actually the elephant in the room: everyone knows it is there, and everyone pretends not to see it, as if rationing were a dirty word. This rejection is all the more striking for energy given that the idea is obvious and is imposed every time a scarce resource needs protecting. Who disputes the need, for instance, to protect the fishing resource because of ever-increasing technical capacities, to allocate fishing quotas, the total allowable catch granted to a country or a fisherman for a one-year period?

1.4. Rationing can be seen as a pie to be shared among all individuals and families.

Why should companies and administrations not be excluded from sharing the burden? Quite simply, because both ultimately work for the benefit of citizens, some to provide goods and services, others to manage society. This is reflected in household spending, divided between purchases on the one hand and various taxes on the other. Businesses and administrations are therefore only intermediaries, where final consumption is that of households.

1.5. In France’s responsibility to the climate, it is not emissions on French soil that must be taken into account but what is known as the ‘ecological footprint’.

This is the totality of emissions resulting from the lifestyle of the French, whether through direct consumption of energy, such as in travel or heating, indirect consumption of energy through the consumption of goods and services produced on French soil or the consumption of imported goods and services. This third category is referred to as ‘grey energy’, which

is fossil energy consumed as a result of our lifestyle but made practically invisible since its value is confused with other elements of value in the price of the goods and services we buy and its production emits no greenhouse gases on French soil.

This distinction is fundamental. According to the June 2019 assessments of the High Council for Climate, total greenhouse gas emissions linked to the French way of life amount to 11 tonnes per year, including 4.4 tons of grey energy. This is definitely not a detail. All the less so as the more energy-intensive production is outsourced, the greater the share of grey energy. Thus, since 1990, it is estimated that emissions on French soil have been reduced by 20% but that during this period the quantity of grey energy consumed has doubled. Any carbon-neutrality policy reduced to emissions on the French soil would therefore be perfectly hypocritical. Rationing must cover all emissions, including grey energy.



‘Since 1990, it is estimated that emissions on French soil have been reduced by 20% but that during this period the quantity of grey energy consumed has doubled.’



1.6. When rationing is applied, the question is how a pie set to be shrinking by 7% a year is to be shared among everyone.

As in the case of food during the war, distribution ‘to the highest bidder’, in terms of how much each person is able to pay, is the most catastrophic. Fossil energy, like food during a war, has become a ‘basic necessity’. Moreover, its rationing does not come from the limits of production capacities but from the planet’s absorption capacities and the need to avoid catastrophic warming, that is to say from something that in essence concerns everyone and belongs to everyone. This is so true that the first question of climate justice was raised by carbon sinks. We know, to use Michel Rocard’s expression, that if with our greenhouse gas emissions the planet has not yet become a frying pan, this is thanks to the regulating role of ‘carbon sinks’, essentially the oceans, and secondarily the great steppes and forests, which still absorb three-fourths of emissions today. Allocating emission rights to the richest countries and, within the richest countries, to the richest populations, by means of a price, amounts to giving them ownership of the oceans and the great forests! This, incidentally, explains why a country like Brazil is strongly claiming ownership of the Amazon and the right to do whatever it wants with it. It sees no reason why rich people in rich countries should be the beneficiaries of nature’s aid without corresponding obligations.

An equal distribution of the shares of the pie, with the possibility for those who are capable of frugality to resell part of their share to the greedy, is therefore the only mechanism that is both effective and fair.

2

If this measure is so obvious, why is it held under the code of silence?

This is not a new idea, suddenly generated by a fertile brain. It was put on the table even before the 1992 Earth Summit, notably by Indian ecologists. It even surfaced in Great Britain in the national debate when David Miliband was the UK's Environment Minister in 2006–2007. It was then systematically hidden away and consigned to oblivion. How can this be explained? There are five mutually reinforcing reasons.

2.1. Political leaders are schizophrenic and have no intention of sacrificing, in the name of the common good, the short-term economic growth on which their political survival and re-election depend.

Although extreme, the case of Donald Trump is no exception; the only thing that can threaten his re-election would be a deterioration of the US economy before November 2020.

The real litmus test was 2009. Political leaders around the world were panicking after the global financial crisis that had been triggered by subprime mortgages. The G20 and the COP in Copenhagen took place two months apart that year. The same political leaders, two months apart, met at the G20 in Australia to discuss ways to boost consumption and prevent the financial crisis from turning into a social crisis and in Copenhagen to discuss ways to reduce consumption to protect the climate.



‘Defining quotas and reducing them year after year would condemn [leaders] to efficiency.’

The conclusions were obvious: schizophrenia at every level, with leaders making radically opposite speeches two months apart; and above all, ultimately, priority was given to boosting growth, notably by the major central banks' opening of all the doors to credit (American Federal Reserve, Chinese Central Bank, European Central Bank). Leaders do not know how to design the economic tools that will reconcile the two by developing another economic model, and they unanimously sacrifice the long term of our common future to the short term imperatives of their own political survival. Defining quotas and reducing them year after year would condemn them to efficiency. Understandably, this is not what they want.



2.2. Climate preservation requirements implicitly clash with the Western model of progress, which is linear.

Most societies have conceptualised their history in terms of historical cycles, including for the life and death cycle of dynasties (an ever-present idea in Muslim history – Ibn Khaldun – in Chinese history or in Jewish theological history). Very often the references are more those of an idealised past, the golden age of which should be rediscovered, than those intended to prepare better tomorrows. This is the major break introduced by the West with the Age of Enlightenment, a ‘view of the progress of the human mind’, to use the title of the book by the philosopher and mathematician Condorcet. It is the twofold promise of science and economics to free humanity from its fatalities, scarcity, disease and depletion of resources, which had triggered the fall of most of the great empires.

This linear vision, all the more powerful as it is sent back into the unthought, forms our collective unconscious, excludes both the idea of cycles of eternal re-beginnings and the idea of a ‘spiral’ development according to which humanity would go through the same types of challenges several times over, but each time with new means of meeting them. This implicitness of the Western imagination can be seen very clearly in the debates on organic agriculture. Today, it is a learned agriculture that implies very good knowledge of material exchange flows and the functioning of ecosystems, but for several decades its detractors have called it a ‘return to candle light’, an unstoppable argument for equating it with obscurantism and the refusal of ‘progress’. The expression speaks for itself.

It is urgent for us today to invent a development model and a lifestyle that will ensure the well-being of all while respecting the limits of the planet. This was exactly the major challenge facing societies before the industrial revolution. Quite simply, the balance between this quest for well-being and the limits of ecosystems was expressed three centuries ago at a local or national scale, that of a family, a farm, a region or even a country, whereas today it is expressed at the level of the planet.

Significantly, until the Age of Enlightenment, we did not speak of the economy but of the *o*economy, thus showing the etymology of the term: the rules, ‘nomoi’, for managing a home and domestic space, or our common space, ‘oikos’. This is why I speak of a new economic model of a ‘great forward comeback’ from the economy to the *o*economy; the challenges of our societies are of the same nature as those that preceded the industrial era, but must obviously be met at a different scale and with different methods.



2.3. Rationing, especially when applied to energy, appears to be an insult in Western imagination.

In the pre-industrial-revolution *o*economy, the major limiting factors were the soil and its fertility on the one hand and energy on the other. The replacement of human labour by fossil energy, of firewood by coal, is the very signature of our entry into the industrial age. The second stage, a century later, was the replacement of soil fertility, which had to be painstakingly maintained with chemical inputs. This was the twofold moment when an economy, until then circular by necessity, became a linear economy with on the one hand energy inputs (indispensable, including for the chemicals needed for soil fertility) and on the other hand the disposal of waste.

Fossil energy has been completely associated with the idea of abundance. The idea of rationing, however, has a very negative connotation in France. It recalls the memory of war and defeat (the historian Jean-Baptiste Fressoz reminds us that in the United Kingdom rationing does not have the same negative connotation: it is certainly associated with war but also with the English people's resistance capacity against the Nazis, an eminently positive connotation).



2.4. The presumed science of economics is actually an ideology, several axioms of which make our current problems insoluble.

That ‘economics’ is above all an ideology is easy to demonstrate. In two and a half centuries, nature has not changed, but natural sciences have undergone several revolutions that have shaken our understanding of the world. On the other hand, during the same period the world, the real economy and society have changed completely (just think of the world in which Adam Smith lived in 1776 when he published his famous book *The Wealth of Nations*, laying the foundations of economics). And yet, the founding axioms of economics have remained unchanged. Work that one out for yourself.

Two axioms are at the heart of the current crisis and explain the ‘code of silence’ opposing the obvious solution of negotiable quanta.

The first axiom is that of money. The economy is based on the establishment of an exchange price of different goods and services, and these exchange prices are regulated, in a given territory, by a single currency. It is assumed – obviously incorrectly, as illustrated by the simple example of nutrition, which means that the body needs elements of a very different nature (vitamins, minerals, proteins, lipids, etc.) that are not substitutable for one another – that in economics everything is substitutable for everything and that, since economic

choices are rational, they will change on their own according to the evolution of the price of the different factors. Hence the idea of a single currency for all trade. Therefore, according to this axiom, it is only an increase in the price of energy, of energy paid for in euros in the same way as human labour, that will push people to change their consumption habits by buying more human labour and less energy.

In the process, we first forgot that the idea of a single currency did not come from economists but... from the strengthening of the power of sovereigns who, in the late Middle Ages, did everything possible to eliminate the plurality of currencies that existed at that time in order to facilitate trade, issued by abbeys or feudal powers. In so doing, their aim was not to ensure the well-being of all but to appropriate all the resources derived from their seignorage, the rent derived from issuing coins.

‘The idea of a single currency did not come from economists but... from the strengthening of the power of sovereigns.’



There is a fundamental rule in the history of ideas: an idea for which origin has been forgotten becomes an intangible dogma. This is what happened with money... Today, the economic engine resembles a car that would have one and the same pedal for the brake and the accelerator – the best way to run into a wall. As long as we do not challenge the idea that everything is reduced to a price and a currency, we will be incapable of designing a system that will make it possible to reduce fossil-energy consumption more and more radically, and at the same time to develop all the goods and services that depend on creativity and human work. And this is what explains the schizophrenia of the leaders in 2009. Instead of reconciling the imperatives of social cohesion and climate protection, they have successively and contradictorily emphasised one or the other in international negotiations.



« DIG ON FOR VICTORY », Scotland, Peter Fraser, 1939-1946



2.5. The principle of quotas has been compromised in the minds of the public and experts by the excesses of the European 'carbon market'.

The idea of an international carbon market has been promoted less by environmentalists than by liberal advocates. It was introduced thirty years ago by US economists. It consists in saying: of course large companies, which are major emitters of greenhouse gases, must make an effort, but instead of asking them to transform their production system, which can be very costly, why not offer them the same savings by planting trees in Africa? We will have the same reduction but at a much lower cost to the company. This logic, attractive on paper, has had several cumulative effects that have led to undermining the very idea of selling carbon credits.

First of all, by defining these credits for large companies and allowing them to outsource the solution to the poorest countries, the idea has been accredited and has created the image of a 'right to pollute', which is likely

to raise the hairs of all ecologists. It was in fact similar to the approach consisting of Europe sending its waste to China and then to Africa or Malaysia, playing on the poverty of the population to make these poisonous gifts more acceptable.

The second factor was that the system, reserved for large companies and including this possibility of assuming one's duties by passing them on to the outside world, made manipulation easy, which quickly led to all kinds of wheeling and dealing.

Third factor: when setting the carbon credits, the various countries mostly had in mind to not penalise their own companies. The allocated credits were so high that their trading price fell to a ridiculously low level.

These factors combined have allowed the critics of a generalised tradable quota system to discredit it from the outset by saying 'look at the results, and yet it was applied to only a few large companies', which, as we have just seen, is completely fallacious reasoning.



'The economic engine resembles a car that would have one and the same pedal for the brake and the accelerator – the best way to run into a wall.'



3

The fundamental logic of tradable quotas

Behind its apparent simplicity, the mechanism includes a number of subtleties. The following description provides a more concrete view of how to implement it, but also of the choices that will have to be made in the context of democratic deliberation.

3.1. Carbon points are not a currency when allocated, but are when traded.

Let us take an example to make ourselves understood, that of a diabetic who is only allowed to consume so many grams of sugar per day. There is the obvious sugar like the sugar cube that we put in coffee, but most of the sugar consumed is hidden in all the products we eat: pastry, drinks, processed food, etc... Our diabetic can choose to consume whatever he or she wants, but in each of his or her purchasing acts he or she must be able to evaluate the 'grey sugar' hidden in everything he or she ingests and each time, deduct it from his or daily quota. In this respect, his or her daily sugar allocation, recorded in a 'sugar account', is not a currency; he or she does not buy the sugar content incorporated in what he or she ingests with a currency other than euros. On the other hand, he or she needs to know this quantity of sugar, clearly identified in relation to the rest of the components, in order to be able to debit it each time from his or her sugar account, which reflects his or her right to consume.

The same applies to carbon quotas. These are not quantities of fossil energy given free of charge at the beginning of the year to each household. It is an account that reflects, like a fishing quota for catch rights, emission rights, and each act of consumption will result in a debit to this account.

On the other hand, these emission rights are freely tradable in the market, between those who, making frugal efforts, will not use them fully and those who want to continue to use big cars, fly and go on holiday to the Caribbean but do not have enough to do so with their own quota. As such, fossil energy, as an accounting unit (tonne of oil equivalent or tonne of CO₂), as a means of payment (oil is the most widely used in international trade) and as a store of value, has all the characteristics of a currency in its own right. Technically, having a quota means having a digital wallet, possibly of the same nature as the card with which one pays in euros, and having this quota reduced with each purchase by debiting the quantity of fossil energy consumed.

Finally, over time, the purchase price in euros of carbon points changes. In this respect, we can speak of the evolution of the exchange rate between currencies, the carbon currency on the one hand and the euro currency on the other.



3.2. Households receive annual allowances, while businesses and administrations simply receive initial allocations to enable the system to operate.

Suppose such a system is started on 1 January. In order to buy the energy they need to operate, businesses and administrations do not have carbon credits. They will only get them when they sell their goods and services – for businesses – or collect taxes – for governments – from households that have received carbon credits. So the first step is to allocate to businesses and governments an allocation equal to their annual fossil energy needs. But, unlike household allocations, these allocations will not be renewable. If, for lack of energy-efficiency efforts, companies are no longer able to sell their goods and services, judged by their customers to be too costly in 'carbon points', they have only themselves to blame and this will be a powerful incentive to transform their production system.



'Taxes will be expressed in two accounting units, euros on the one hand and carbon points on the other'

Similarly, taxes will be expressed in two accounting units, euros on the one hand and carbon points on the other. For this it will be necessary for administrations or public services to analyse their own carbon footprint (something that some local authorities already do) and they will henceforth be judged by voters' or taxpayers' consideration of this public-spending component, and considering it all the more vigorously as the carbon credits allocated to households will rapidly decrease year after year. Thermal insulation and soundproofing of public buildings, street lighting, asphalt spread on roads, fleets of service cars will undoubtedly be scrutinised overnight. The rules for distributing the necessary carbon credits among taxpayers must be discussed collectively. What would be most consistent with the system as a whole would be carbon credits equally debited from each individual.



3.3. For this system to work, carbon traceability must be ensured throughout the production chain.

This will quickly lead to negotiations of a new nature. For example, who will be responsible for the carbon credits corresponding to employees' commuting to and from work? This factor is by no means negligible today in household mobility and is the reason for the existence of several cars in most households. Once it becomes necessary to really measure the quantity of carbon points that this represents and decide whether these carbon points are deducted from employees' budgets or charged to the company's carbon production costs, new forms of negotiations will instantly be introduced, for example towards free public transport, mobility assistance for all, car-sharing, collective pick-up, etc.

Critics of quota systems often dismiss the idea without much thought, saying simply that traceability is impossible and that the system is tremendously unwieldy. It is easy to show that this is not true, based on two very simple arguments.

The first is that all companies have accounting systems and know exactly what comes in (minus what goes out). They are simply not interested today in 'what doesn't have a price', which explains, among other things, why all emissions into the atmosphere, into water and into the ground are deliberately ignored. All that is needed is to individualise the 'fossil energy' item in the accounting and to transmit this information throughout the production chain, thus accumulating the system's ecological footprint.

Second argument: this mechanism is exactly the same as the VAT mechanism. At first glance, it was much more difficult to measure added value throughout the production system than it would be to measure the purchase and consumption of fossil energy; but the very existence of a value added tax mechanism has made this traceability 'natural'. Exactly the same mechanism would be set up for carbon points.



3.4. This traceability mechanism is made easier year after year by other ongoing developments.

We can mention three:

- Electronic money via credit cards and paying with a smartphone is being generalised. Is this reserved for the richest or most sophisticated? Recent history shows the exact opposite. Cell-phone-based paying spread initially in Kenya, one of the poorest countries in the world... simply because this paying system made the long and costly process of setting up bank branches throughout the country unnecessary. For the same sort of reason, in many African countries satellite-based telephoning,

despite its cost, has prevailed, making it unnecessary to install telephone networks, which was one of the stages of telephone development in France.

- Business accounting is evolving. Independently of the specific climate-management issue, there is a vast movement beginning to demand that corporate accounting should target not only, as is implicitly the case today, the integrity of financial capital but also the integrity of human and natural capital. Individualising corporate spending on fossil energy is therefore part of 'the flow of history'. At the international level, obligations imposed on dominant companies, known as 'ordering entities', to monitor the practices of their suppliers and sub-contractors are along the same lines. This trend was materialised in 2017 in France by the law on 'due vigilance'.



'In 2019 the mass retail group Carrefour planned to use block chains to ensure the traceability of the production of what was sold as 'free-range chicken.'

- Finally, the new 'block chain' technology, known mainly to the general public through the creation of a virtual currency, the Bitcoin, provides the technical conditions for controlling information on production systems throughout the chain. Although currently still energy-intensive, the system seems to be evolving towards a new generation. As an indication, in 2019 (I have not followed up on this information since then) the mass retail group Carrefour planned to use block chains to ensure the traceability of the production of what was sold as 'free-range chicken'. Still far from very sophisticated production.

“Only when the tide goes out do you discover who’s been swimming naked.”
Warren Buffett



3.5. This ensures the redistributive effect for the benefit of the poorest

Much has been said, and rightly so, that today's poorest families are those having the lowest energy efficiency. In developing countries, for instance, this is reflected in energy-inefficient ways of cooking food, in poorly insulated housing or in dependence for commuting on old cars with engines that are far less efficient than those of the most modern cars.

Will they then be the first 'victims' of tradable quotas because their low energy efficiency will use up their quotas, if not today, then at least in three or four years' time when the quotas will have been gradually reduced, whereas the rich would have both the latitude to choose any kind of lifestyle and the financial means to invest in energy efficiency, basically protecting them from the planned reduction?

All the figures show that this argument is wrong. The fact that the 'efficiency' of their energy expenditure is poor does not prevent the poor from consuming far less energy than the rich. The cost of energy translates into energy insecurity for them – an increasing burden of the energy budget in their total budget and above all a reduction in heating expenditure, including at the expense of health. Despite their low energy efficiency, they will be the first to benefit from the system, thanks among others to the fact that the carbon points they will sell will serve precisely to improve their own energy efficiency, an obvious benefit because selling these points will result in an increase in household income.



3.6. The issue of investment and borrowing is posed in the same terms as for monetary investment and borrowing.

Here, the idea will be to assess the cost in carbon points of an investment and the borrower's ability to repay them over a period of time consistent with the life cycle of the investment or equipment. For companies, this is reflected in the rules on depreciation periods depending on the nature of the equipment.

Speaking of financial crises, the famous US investor Warren Buffett came up with a nice expression: 'Only when the tide goes out do you discover who's been swimming naked'. In other words, when a crisis occurs is when we see those who did not predict or cover their risks properly. We can use the same formula to talk about investments that, in the new system, will go massively to energy efficiency since the reduction of quotas is perfectly known over ten years, allowing everyone to make an accurate economic calculation.

Let us take the example of the bonus-penalty schemes

for the purchase of vehicles presumed to be more economical. Two observations can be made about them today. First of all, the growing market, the juiciest for manufacturers, is that of SUVs. A perfect example of the rebound effect: engine efficiency is improved not to save energy but to allow more powerful and heavier vehicles to be put on the market. Secondly, the discourse on the bonus-penalty system focuses on fuel consumption per kilometre but carefully obscures the crucial question of the energy cost in the production of new cars. According to figures that are by now a little old, this production is equivalent to at least 30,000 kilometres of savings in terms of fuel. If investment in terms of carbon points becomes mandatory, the sea of advertising arguments recedes and we can actually see the arguments swimming around naked. The same goes for electric cars. There are very detailed analyses of electric cars throughout their life cycle. First of all, it is obvious that where electricity is produced by coal-fired oil and gas power stations, the cost in carbon points of the fuel is no different from an internal combustion engine. But even assuming renewable or nuclear power, the cost of producing the batteries is also carefully hidden. The introduction of tradable quotas amounts to a gigantic 'true price' operation.



'The bonus-penalty system focuses on fuel consumption per kilometre but carefully obscures the crucial question of the energy cost in the production of new cars.'



3.7. The system provides a high return on energy investments.

The predictability of the decrease in allowances will give a new and fundamental predictability to investments in energy efficiency. Take the example of housing. For more than twenty years now, people in France have been saying exactly the same thing: the old housing stock is a veritable sieve, and we would have to be able to renovate 500,000, 700,000 or 1 million homes a year to 'plug the holes'. And at the end of each period, we can see that achievements in this area have been well below the goals that we ourselves had set. Why has this happened? Because, as studies have shown, under the current system, investments in energy efficiency have

a very long payback time, often more than 50 years, because the real cost of energy is currently too low in France. For the same reasons, studies have shown that investment in energy saving does not add value to a home when it is resold. As we know, housing constitutes 80% of the assets of most of the French.

Today, the major problem in energy transition is not the money available – in 2019, 20,000 billion euros worldwide were invested at negative interest rates! – but the existence of sufficiently profitable projects. The situation is completely different with a quota system that will be reduced year after year and gives perfect predictability to the profitability of the investments that will be made, which are calculated in terms of money on the one hand and carbon points on the other. Return on investment will make it possible to determine the capacity of households to repay the carbon points invested in x years.

Investment that factors in the necessary carbon points and adds to the carbon account will automatically give banks a new vocation. They will have to assess the 'carbon' profitability of their loans and the borrower's ability to repay by regular withdrawals from their

carbon account, in exactly the same terms as their purely financial assessment today. We know that the current discourse according to which 'we spend more than expected today but it's to save more tomorrow' is a cosmetic discourse masking the inability to reduce our energy consumption. With the carbon-point system, this will be completely different because of the proven profitability of investments and because banks will be held responsible for repayment default, in the exact same terms as today. They will simply have to train their staff, with the help of the French energy agency ADEME, to assess the soundness of a project, the revenue or expenditure reductions they will generate and the ability of borrowers to repay. There has long been talk of 'third parties' who could take over the cost of energy-efficiency-related work and reimburse themselves from the reduction in the heating bill, but this does not work because the payback time is too long and because it is psychologically difficult to admit to paying 'because of a reduction in expenditure'. With a carbon-point system, we will get what we need, first because investments will prove highly profitable, and secondly because the third party will be remunerated by the revenue collected from the sale of surplus allowances.



What are the specific difficulties of the transition period and of trading with the outside world?

The tradable quota system is all the simpler to implement as it is universal, though it will not be so at first. It will therefore be necessary to design the managing of trade between France and countries not applying the tradable quota system to ensure fair conditions in terms of competition. If it were enough to buy from outside the country in order to avoid carbon-point debits, the system would collapse. This is also why experimenting a universal allocation system in a small area is doomed to fail – everyone would buy from the neighbouring area. We will now present the principles for managing this situation, after two preliminary remarks on the chances of extending the system.

4.1. A debate on extending the system to the European level could be rapidly engaged. The Citizen's Convention on Climate Change in France could be the detonator of this debate.

France's trade with other countries account for a large and growing share of our consumption and business activity every year, but the bulk of this trade is with other European countries. Given that the European market is unified, there is no 'membrane' at the borders, no filter to screen the trade, allowing us to grasp its content. Introducing a tradable quota system at the French level without extending it to the European level would therefore be an added difficulty. The French Citizens' Convention thus comes at just the right time. The new European term of office – renewal of the European Parliament and of the Commission in 2019 – has set two priorities: organising a Conference on the future of Europe, involving citizens as much as possible; and a 'Green New Deal' making Europe a pilot region in in terms of designing and leading the transition towards sustainable societies. The link between the two priorities is obvious. The Conference will have to address both the transformation of the economic model and rules for implementing the Green New Deal. This is precisely the purpose of tradable quotas. If a strong and clear proposal emerges from the French Citizens' Convention, it will definitely weigh heavily in the upcoming European debates.



'The new European term of office has set two priorities: organising a Conference on the future of Europe and a 'Green New Deal' making Europe a pilot region in in terms of designing and leading the transition towards sustainable societies.'



4.2. An at least partial generalisation of the tradable quota system is not science fiction.

Since the election of Donald Trump and his repeated blows to the multilateral system, starting with his withdrawal from the Paris Climate Agreement, this seems like a particularly bad time to dream of a universal extension of the system. But it may be better than it seems. Global issues are so interdependent today that nationalist stances can also be seen as a horse balking when it has to jump over a fence. Three unification processes are in fact at work. Although little known to the general public, they are grist to our mill: the unification of accounting standards; the multiplication of negotiations on standards; and the development of sector studies.

The unification of accounting standards. Accounting standards are already global, with the general adoption of IFRS (International Financial Reporting Standards). Having originated in the USA, they favour a financial approach and the valuation of companies 'at market value'. Nonetheless, this unification can also favour a rapid, widespread introduction of carbon accounting.

Negotiations on standards. In the past decade, bilateral and multilateral negotiations to liberalise trade have no longer focused on lowering tariffs, which were already low (before Donald Trump launched a trade war by brandishing tariff re-establishment as an absolute weapon). The major obstacle to international trade today is the plurality of standards. Everyone, in the negotiations, seeks to use their bargaining power to their own advantage by making their own standards prevail in order to facilitate their own exports. At the time when negotiations on the Transatlantic Trade and Investment Partnership (TTIP) were in full swing, European civil society's legitimate concern was the risk of aligning standards with those most lax in terms of the environment or health. But the habit of negotiating not on tariffs but on the unification of standards can facilitate a universal obligation to display the 'carbon content' throughout the production and distribution chain of goods and services.

Generalisation of sector studies. In the last ten years or so, the growing importance of socially responsible investment has prompted numerous studies of the social and environmental impacts of production chains. These studies of production chains make it possible to provide increasingly precise figures on their 'carbon content'. We have not yet reached the point where traceability of this content throughout a sector is mandatory, but we are gradually approaching it.



4.3. It is indispensable to take account of the carbon content of what is purchased abroad.

Failure to do so would make the system instantly collapse. How can this be done? The idea is to debit the carbon account of the company or individual purchasing the good or service. In intra-European trade, there will be a few deviations comparable to today's existing ones, for instance by going across the border to fill up a tank of petrol or buy a bottle of alcohol or packets of cigarettes if the prices are lower there. But the vast majority of purchases are made either through a French distributor, with a credit card or through the Internet. In all three cases, the purchase will involve debiting the corresponding carbon points from the carbon account. Let's take four examples: purchasing a car; video on demand; using Google; and purchasing on Amazon.



'Going abroad to buy a car by paying cash would be quickly spotted.'

Going abroad to buy a car by paying cash would be quickly spotted. The difficulty is less in debiting carbon points from the buyer's account than in assessing the amount of carbon points to be debited because the foreign manufacturer and seller are not required to establish carbon traceability throughout the production process. In this case, national registries are available at the French Environment and Energy Management Agency ADEME, providing the range of carbon content of the various major industrial products. It is then enough to decide that in the absence of traceability, the high value of the range is adopted. This is the logic of the lost motorway ticket: when you don't have one to present, you must pay for the longest journey.

Video on demand. Recent studies have shown that the overall energy cost of video on demand is equal to the total energy expenditure of a country like Spain; the so-called dematerialised economy is in fact the result of highly energy-intensive activities. In this case, the total carbon content of the service is easy to calculate as it is easy to impose on Netflix to report it, inducing a debit of carbon points when invoiced.

Using Google. Google's operations are based on the development of large computer farms, also highly energy-intensive. The apparently free nature of Google services – i.e. transferring our personal data to Google in exchange for the service provided – does not in any way prevent us from measuring the carbon content of its services and debiting it.



4.4. The carbon content charged on imported goods and services is a standard, not a tax.

The difference between a tax and a standard is essential here. The obligation to declare the carbon content of an imported good does not increase its value. Charging carbon points for this content only creates a level playing field between domestic and foreign suppliers, which is the basis of international free trade agreements. If it were a tax, the system would not be compatible with current WTO rules and would therefore require international negotiations of uncertain duration and outcome. On the contrary, the standard for displaying the carbon content is compatible with the WTO.

Imported products are already subject to European standards. These standards relate to the content of the product, the conditions of production and the display obligations. In the United States, major battles have been fought over whether or not to impose the display of the presence of GMOs in food products. More recently, in France, consumer associations and industries have fought over the obligation to clearly display the nutritional qualities of food products or the reparable or non-reparable nature of industrial products.

Finally, the only difference between goods and services acquired abroad and goods acquired in France is that in the first case, the carbon points debited to the buyer's account do not feed into a carbon credit of the supplier since he does not need it.



4.5. Carbon points associated with goods and services sold abroad must be returned to French producers.

This is the symmetrical issue to the previous question. In order to produce domestically, companies will have had to have the carbon points needed to purchase the fossil energy used to produce them. On the domestic market, this supply of carbon points comes from customers. When a good or service is sold abroad, in the absence of a similar system, the supplier will not be able to obtain these carbon points from the customer. It is then the declaration of sale abroad that will allow a national carbon agency to give back a carbon credit equivalent to the one incorporated in the good sold. In summary, in the case of a sale on the national territory, the sale of a product or service and

‘It is indispensable to take account of the carbon content of what is purchased abroad.’



the acquisition of carbon credits are one and the same; in the case of a sale abroad it comes from two different sources.



4.6. Foreign residents purchasing goods and services in France will have to acquire a carbon account which will be refunded to them on exit in a manner comparable to the VAT refund.

Since any purchase in France will be accompanied by a debit of carbon points, this also applies to foreign visitors. As they do not receive an annual carbon allowance, they will have to acquire these carbon points when they come to France in exchange for financing, on a basis to be fixed, such as the average value of the carbon points exchanged the previous year or any other such measure. In the logic of the system, they will have to be able to obtain these credits at any bank counter in the same way that one currently reloads one's Navigo card at any metro station. On leaving the territory, the carbon points associated with the products they take with them will be refunded to them at the price they bought them for, following the same procedure as the current VAT refund.



‘As [foreign visitors] do not receive an annual carbon allowance, they will have to acquire these carbon points when they come to France in exchange for financing.’



