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THE RISE OF CARBON TAXATION IN FRANCE

From environmental protection to low-
carbon transition

*Analysis of the policy, legal and economic aspects
of nearly three decades of carbon tax history*

Alexis R. Rocamora

May 2017

Abstract

This paper goes through the three historical experiences of carbon taxation in France and provides a detailed overview of the past attempts and current challenges to effectively put a price on carbon. By analysing the characteristics of each case, it explains the reasons for failure and success in adopting such tax and tries to help the reader understanding the various dynamics that played an important role in the turn of events. This study shows that, across the three different periods, carbon taxation in France consistently struggled to find its place as a catalyst for low-carbon transition, in a context of growing climate change awareness and strained economic circumstances. Through various reflexions on policy aspects, this paper addresses the broader question of the role of carbon taxation in a changing society.

Key findings

While different observations could be made for each carbon tax adoption experience, common tendencies and recommendations emerged from this study:

- The social acceptability and constitutional legality of a carbon tax depend on the quality of its tax structure. Although not an exhaustive list, the French case notably sheds light on the importance of tax transparency, fairness, stability and predictability.
- The major condition for the success of a carbon tax is a sound preparation process. In this respect, policy makers should notably ensure a continuous and consistent high-level political support to the tax proposal. Broad stakeholder consultations also facilitate the creation of a social consensus. Additionally, a clear communication strategy from the government is one, if not the most essential requirement in order to explain the benefits of a carbon tax to the public.
- It is crucial to clarify that a carbon tax is neither a revenue-based tax, nor even a simple incentive-based tax, but an economic instrument with an environmental purpose. It is a measure that aims to create an economic incentive for all economic actors to shift away from carbon-intensive behaviours and to redirect them towards low-carbon alternatives. Such tax would allow the transformation of the entire fiscal system by moving the tax burden from economic and social costs to environmental externalities.
- Policy makers should avoid framing a carbon tax as a tax for the environment, whether intentionally or not. A measure perceived as mainly environmental will likely remain secondary to other policies and cloistered to a minor role in the national dynamic. To unleash its full potential, a carbon tax should be put at the centre of a broad economic, social and fiscal reform. Carbon taxation must be seen as the cornerstone of low-carbon transition. This way, taxpayers will understand that they are not paying for the environment, but accompanying an ongoing change that will affect the whole economy and generate social benefits.

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Introduction

As countries around the world strive to address the issue of climate change by reducing their greenhouse gas (GHG) emissions, governments are looking for efficient policies to facilitate the decarbonisation of their economies. Among the most common solutions, carbon pricing mechanisms such as carbon taxes or emission trading schemes (ETS) have emerged as the two cornerstones of public climate action.

By putting a price of a ton of CO₂ emissions, a carbon tax sends a price signal to the energy market, aiming to incite consumers to favour low-carbon alternatives in their economic decisions. This means that the tax will have an influence on choices as diverse as the means of transportation of a worker commuting to the city centre, the heating type of a retired couple in the countryside, the place of residence of a young couple looking to buy a first house, or the investment decision of a company renewing its equipment.

Paying a higher price for commodities that have a harmful impact on the environment allows what is called in economic theory, the internalisation of externalities. This approach considers that prices in a free market do not fully reflect the cost of environmental externalities of economic activities. Therefore, a public policy is required to restore the “real” price of those activities, a price that will cover the loss or degradation of an environmental service. Although it is impossible to evaluate the exact economic value of environmental services, a carbon tax creates an additional price burden on the commodity that generates externalities, fossil fuels in particular and over-energy consumption in general.

Abundant economic literature has also shown how the redistribution of the revenues of environmental taxes by decreasing other taxes can create a so-called “double dividend”¹: an environmental dividend due to the reduction of environmental externalities, and an economic dividend due to the economic benefits of the decreased taxes. However, while fitting the description of environmental taxes, carbon taxes somehow stand as a distinct subcategory.

A carbon tax indeed raises tax revenues, but those revenues are not its primary objective. Its base is environmental (the carbon content of the energy it taxes), but a carbon tax is not meant to solve a very specific environmental issue, such as taxes on air pollution, or to finance an environmental public service, such as taxes for water collection or waste treatment. A carbon tax aims to address climate change, nothing less. Such a goal implies a change in the way we produce, consume, trade, generate energy and redistribute wealth. Simply put, addressing climate change requires rethinking our economic and social model, the basic structure of our civilisation. To do so, a carbon tax utilises a price signal to reorient the behaviours of all economic actors susceptible to using energy in any field of activity. So perhaps the multi-dimensional aspect of its intended effect is what best defines a carbon tax.

However, regardless of the ambition of its purpose, a carbon tax remains by nature a tax, or at least a component of another tax. Two main consequences derive from this characteristic. The first consequence is that a tax is a well-known policy instrument of governments. Since the early beginnings of public authority, taxes have stood as the backbone of public institutions across various continents and their use has greatly influenced the development of several nations. Incentive-based taxation is a more recent use of this tool, but the tax system itself is ancient and widely accepted as a normal way to finance public

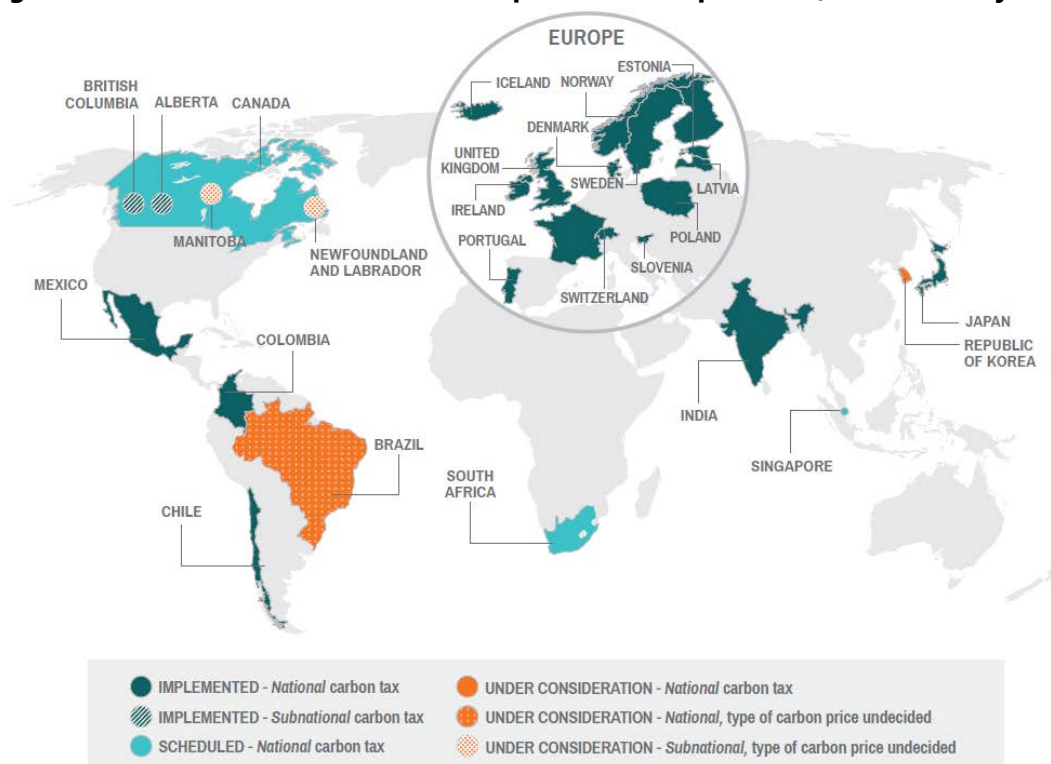
¹ See notably Pearce (1991), Poterba (1993), Goulder (1995), Parry (1995) and Ekins (1997).

services. While a carbon tax raise challenges of its own, its structure lays on solid foundations, which makes it a familiar mechanism for governments to use.

The second consequence of a carbon tax being a tax is that it has to obey the strict rules of any fiscal system. We thus have an instrument that works as an economic signal on the energy market, that affects the reality of a wide variety of economic actors, that redistributes wealth, reinvests in low-carbon alternatives and aims to address the global issue of climate change, but needs to follow the same basic rules as any compulsory levy. The dichotomy of using an ancient policy instrument, one of the very symbols of a nation's sovereignty, in order to address the cross-cutting causes of the modern issue of human-caused climate change might sometimes create difficulties. Not only has the carbon tax to comply with legal requirements of traditional taxes, such as tax equality, but it also influences the way everyone sees the tax. The nature of tax might blur the carbon tax message, which is to provide an incentive to switch to low-carbon behaviours, and lead the public to think of it as a regular revenue-raising tax.

The macroeconomic implications and impacts of a carbon tax have been widely studied, and will not be directly addressed in this paper. Rather, this study is about analysing how the aforementioned characteristics of carbon taxation were illustrated in the specific case of France. Many other studies currently recommend the use of carbon pricing to achieve countries' emission reduction targets, notably in the wake of the Paris Agreement, and many countries are turning to carbon taxes to do so (see Figure 1 below). In this context, it might be interesting to look at the details of the particular experience of a country that has a long experience of carbon tax adoption.

Figure 1: Countries with a carbon tax implemented or planned (as of February 2017)



Source: Partnership for Market Readiness (PMR), 2017

Nevertheless, France is not the first country to adopt a carbon tax. Nordic countries such as Finland, Norway, Sweden and Denmark are famous for experimenting with carbon taxation from the beginning of

the 1990s (see Table 1 below). The successful case of carbon tax in Sweden is a good example of a carbon pricing scheme that showed environmental results while witnessing a concomitant economic growth. With the world record of a carbon price of EUR120 per ton of CO₂, Sweden also leads the way in sending a strong price signal to its economic actors.

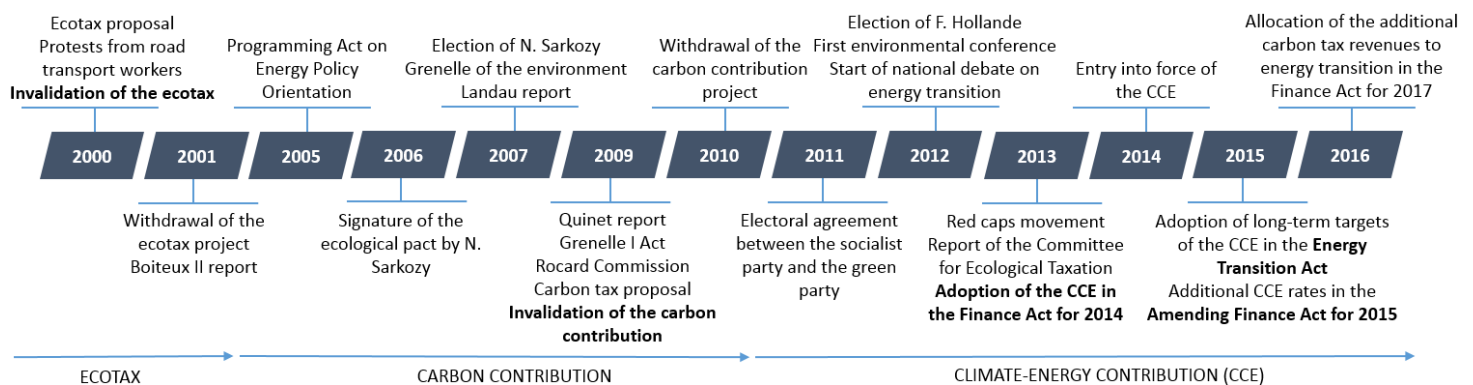
Table 1: Examples of carbon taxes rates and adoption year in selected countries

Country	Finland	Norway	Sweden	Denmark	Switzerland	Canada (British Columbia & Alberta)	Ireland	Japan	Mexico	France
Year of entry into force	1990	1991	1991	1992	2008	2008	2010	2012	2012	2014
Tax rate in €/tCO ₂	35-60 (2015)	45 (2015)	120 (2015)	22.80 (2015)	76 (2016)	20 (2015)	20 (2015)	2.4 (2015)	0.9 (2015)	30.5 (2017)

Source: adapted from French Ministry of Environment- Energy and the Sea, 2017

The case of France is not interesting for its outstanding success, but rather for its long time struggle. For a country used to high tax levels and strong economic interventionism, the development of a carbon tax surprisingly went through several failed attempts and encountered many difficulties. Proposed in 2000 with the ecotax project, reattempted spectacularly in 2009 with the carbon contribution project, a carbon tax was only adopted in December 2013, under the name of “climate-energy contribution” (see the Annex 1 for a detailed comparison table between the three taxes). The whole process was highly political, and derives from a series of domestic events and measures (see Figure 2 below). It was also influenced by international affairs, notably the negotiations and commitments taken under the United Nations Framework Convention on Climate Change (UNFCCC).

Figure 2: Chronology of main domestic events and measures that had an influence on the development of a carbon tax in France



This paper goes through each of the three experiences and tries to understand where each one failed and succeeded. It considers the political background of the policy adoption process, takes a detailed look at the characteristics of the proposed tax, and analyses the reasons behind the outcome of the three experiences. This study eventually brings up the discussion of the challenges left in order to implement a carbon tax that effectively addresses the issue of climate change in a holistic manner.

1. THE ECOTAX: A FAILURE THAT ESTABLISHED THE GROUND RULES FOR THE DESIGN OF A FAIR CARBON TAX

1.1 A TAX PROPOSAL INFLUENCED BY INTERNATIONAL ENGAGEMENTS AND SOCIAL UNREST

1.1.1 A failed carbon taxation at the European Union level that redirected the political impulse to the national level

The first attempt of carbon taxation in France has to be seen in the broader context of growing international climate negotiations and the failure of the European Union (EU) to enact subsequent policies to implement internationally-agreed goals. In preparation for the Rio Earth Summit of 1992, the EU decided to adopt a harmonised tax on fossil fuels, which would have established minimum tax rate levels for each fossil fuel across all Member States.

The European Commission (1992) presented a directive proposal in June 1992, called “*Ripa de Menea*”, according to which national taxes would tax fossil fuels depending on their energy content and CO₂ emissions released during their use². While major exemptions were planned for energy-intensive industrial sectors, the harmonised tax rates would have resulted in an increase of USD 3 per barrel of petroleum in 1993 and USD 10 per barrel in 2000, corresponding to a tax of USD 22 per ton of CO₂ (O’Connor, 1997). However, the proposal was abandoned due to opposition from some governments³.

In May 1995, the European Commission (1995) reiterated a new directive proposal, similar to the previous one but with more flexibility. Member States were free to fix tax rates during a transitional period, with an aim to reach an indicative target of USD 10 per barrel. However, opposition from some governments resulted in the proposal being rejected once again.

It should be pointed out that both proposals in 1992 and 1995 consisted of harmonised tax levels across EU Member States, and that the question of a unique tax collected by the EU for its own budget was almost non-existent in the political debate (Padilla & Roca, 2004). With those two failed attempts, it became apparent that a tax on fossil fuel would be impossible at the EU level and that the right political

² As note Padilla & Roca, “the tax was specifically designed so that in the case of petroleum, half of the tax burden would come from its energy content and the other half from its carbon content”.

³ According to the EU Treaties, decisions affecting the fiscal systems of the Member States need to be adopted unanimously, making it extremely easy for a minority opposition to block the enactment of such decisions. The opposition from France played a role in this failure, as the government wanted to protect the economic competitiveness of the French heavy industry. We can note that this was a misconception, as the French industries were much less vulnerable to a carbon tax than their competitors, such as the carbon-intensive German industries (Hourcade & Combet, 2017).

arena to adopt such policy would be the Member State level. While the EU started to opt for the cap-and-trade approach of an emission trading scheme (ETS)⁴, some countries decided to put a price on carbon at their own national level, either with carbon taxes (at that time, Denmark, Holland, Norway, Sweden, Ireland, and Italy) or with an increase in energy taxes (Austria and Germany).

In France, the debate took place under the framework of pollution prevention and among a tradition of fragmented environmental policies. Environmental taxes with specific goals had accumulated in France in the 1980s and 1990s to the point of forming an “uncoherent fiscal meadow with no relation to the will of environmental protection and the fight against pollution” (Bricq, 1999).

In view of this situation, the French government adopted the General Tax on Polluting Activities (TGAP) in 1999. The adoption of the TGAP had a double goal — to rationalise the environmental tax system in France by aggregating five pre-existing environmental taxes⁵, and to implement the polluter-pays principle by creating a fiscal incentive towards behavioural changes.

1.1.2 A carbon tax with many exemptions as a result of social protests

Following the conclusions of the Inter-ministerial Mission on the Greenhouse Effect (MIES) indicating that current policies would not be enough to fulfil France’s GHG emissions reductions commitments under the Kyoto Protocol, the government aimed to extend the TGAP to the energy sector. The TGAP-energy project, called ecotax, included an allocation of tax revenues to the fund for compensation of social security contributions, as a way to finance the new 35-hour working week policy.

However, in reaction to the bill proposal, several economic actors and large industrial groups started protesting against the measure. This led to social negotiations and resulted in substantial amendments to the initial legislative proposal. In September 2000, intensive protests from road transport workers resulted in a decrease of the Domestic Tax on Consumption of Oil Products (TIPP) from 35 to 20 cents of francs per litre of fuel.

Following the social unrest, industrial companies also engaged in negotiations with the government. Usinor, which merged to become ArcelorMittal in 2006, announced their intention to shut down production factories on French territory and relocate them abroad if the tax extension was adopted. Companies in the cement industry also declared being ready to build their new cement plants in Morocco rather than paying more taxes in France (Libération, 4 October 2000).

Against this backdrop, tensions between the Minister of the Economy, Dominique Strauss-Kahn, and the Minister for Social Welfare, Martine Aubry, both influential politicians, slowed down the process. As a result, inter-ministry negotiations focused primarily on two priorities, respectively: extend the tax to

⁴ Unlike a carbon tax, which is considered as a tax measure and thus requires a unanimous decision at the EU level, a market-based measure such as the ETS only requires a qualified majority, despite having the same environmental goal.

⁵ The former tax on air pollution, tax on basic oils, tax on mitigation of sound pollution and tax on storage of household waste.

electricity so that it would not benefit the nuclear industry too much, and exempt households from the tax⁶ (Hourcade & Combet, 2017). After several counterproposals from the Secretary of State for Industry and the Ministry of Environment, a mediation from the Prime Minister led to a final proposal that was published through an official joint communiqué from the Ministry of Economy and Finance, the Ministry of Environment and the State Secretariat of Industry.

In December 2000, the government of Lionel Jospin adopted the ecotax in the Amending Finance Act for 2000 by extending the scope of the TGAP to intermediate fossil fuel energy and electricity consumption (French National Assembly, 2000). As shown in Table 2 below, electricity, natural gas and coal, heating oil, heavy fuel oil and liquefied petroleum gas were subject to the tax, with a tax rate depending on their carbon content, for a carbon price of 260 francs per ton of CO₂⁷.

While the tax did not set an automatic price increase over time, the Prime Minister announced that the carbon price would be raised to reach 500 francs in 2010. The wide coverage of energy products was meant, in the mind of the legislator, to spur an incentive towards not only GHG emission reduction but also a reduction of energy consumption (Marini, 2000).

Table 2: Tax rate of the ecotax and conversion table to TOE

Energy product	Unit	Rate/unit (in francs)	TOE/unit	Rate/TOE (in francs)
Electricity	Megawatt hour	13	0.222	58.55
Natural gas	Megawatt hour	13	0.077	168.83
Heating oil	1,000 litre	189	0.845	223.67
Heavy fuel	Ton	234	0.952	245.79
Liquefied petroleum gas	Ton	208	1.095	189.25
Coal	Ton	174	0.619	281.09

Source: adapted from Marini, 2000

Many tax exemptions were planned to ensure social acceptability of the tax, the first one being a threshold of 100 tons of oil equivalent (TOE) of energy product per year, below which taxpayers were not subject to the tax. This threshold exempted *de facto* households from the tax, as they usually consume less than 10 TOE per year, leaving the tax burden to companies only.

As a result of intense social negotiations, the government included many exemptions for companies:

- The ecotax comprised a specific abatement coefficient for energy-intensive companies, defined as companies with an energy consumption above 25 TOE per million francs of added value (in which case the common 100 TOE threshold did not apply).
- Companies with an annual energy consumption above 50 TOE per million of francs of added value were

⁶ Hourcade and Combet also note that this total exemption of households from the list of taxpayers spurred the industry lobbies to convince the government to give them several exemptions as well, arguing that the future EU ETS would one day cover their emissions.

⁷ This carbon price was higher than the price range of 150 to 200 francs per ton of CO₂ agreed in the White Book of 1999, a document reflecting the result of discussions with representatives from the industrial sector.

to be authorised from 2002 to sign voluntary emission reduction agreements with the government. Such agreements would have to be taken into account to reduce the tax rate.

- Additionally, companies benefited from exemptions related to specific use of energy products. Fossil fuels were exempted from the tax when used as raw material, as fuel for vehicles, for operation of rail, port, airport, or fluvial installations, for the production of commercial products⁸, or for the needs of installation, transporting and storing energy products⁹. The list of taxpayers exempted from the tax included public administrations, and taxpayers receiving those energy products for reselling them, or producing heat or using for themselves (and not for reselling). Energy-intensive companies (with more than 20 TOE per million francs of added value) were totally or partially exempted from the tax¹⁰.
- Lastly – and this was the main cause of invalidation of the ecotax – the tax rate to be paid by companies subject to the tax was calibrated by an abatement coefficient, mitigating the rate depending on energy consumption. As shown in Table 3 below, the abatement coefficient increases progressively with energy consumption, calculated in tons of oil equivalent (TOE). This abatement system would have resulted in covering only a fraction¹¹ of emissions from the more energy-intensive companies that were not exempted from the tax.

Table 3: Formulas of the abatement coefficient of the ecotax

Tons of oil equivalent (TOE) by millions of francs of added value (A)	Abatement coefficient
From 20 to 50 TOE/added value	$1/60 \times (A - 20)$
From 50 to 100 TOE/added value	$0,5 + 0,006 \times (A - 50)$
From 100 to 200 TOE/added value	$0,8 + 0,001 \times (A - 100)$
From 200 to 400 TOE/added value	$0,9 + 0,00025 \times (A - 200)$
From 400 TOE/added value	0,95

Source: adapted from Marini, 2000

Besides, as a result of the tax exemptions, only 45,000 of the total 2.8 million companies in France were to be subject to the tax. The aggregate effect of abatements and exemptions meant that the rate of the TGAP was halved (Libération, 4 October 2000). Initially, the extension of the scope of the TGAP to energy was supposed to constitute most of the tax revenues, predicted to reach 12.5 billion francs in 2001 (around EUR 1.9 billion at 2016 rates). In the final law proposal, high-emitting companies, which were at first supposed to pay a total of 8 billion francs (around EUR 1.2 billion at 2016 rates), ended up being supposed to pay only 3.8 billion francs (around EUR 579 million at 2016 rates).

⁸ Such as energy products, steam, hot and cold water and for needs of heating residential areas.

⁹ It includes the French State Company for trains (SNCF) and State Company for electricity generation (EDF).

¹⁰ This exemption was included by the government after public consultation with economic actors in order to preserve the competitiveness of French companies.

¹¹ According to estimates, a high emitting industrial company such as Usinor would have been subject to an ecotax covering only 5% of its emissions.

The flaws and drawbacks of the ecotax were subject to the criticism of the political opposition, which introduced an action to the Constitutional Council to seek its invalidation¹².

1.2 THE UNCONSTITUTIONALITY OF THE ECOTAX: THE VICTORY OF TAX EQUALITY OVER THE INCLUSIVENESS OF CARBON TAXATION

1.2.1 The two arguments of the Constitutional Council: social inequity and environmental inefficiency of the tax

The ecotax was however invalidated by the Constitutional Council - the French constitutional court - in its Decision 2000-441 DC of 28 December 2000 for breach of equality with regard to public burdens. The Council begins by confirming the constitutionality of incentive-based taxes as a whole with regards to the principle of tax equality. It affirms that the principle of tax equality (or principle of equal treatment of taxpayers) "does not prevent the enactment of specific taxes that aim to incentivize tax payers to adopt behaviours consistent with public interest, as long as the rules set to enforce those taxes are directly related to this public interest" (French Constitutional Council, 2000; point 34).

The Council then acknowledges the purpose of the tax, mentioning two sources. Firstly, the presentation of motives of the law mentions that its goal is to "strengthen the fight against global warming under the framework of international engagements of France by incentivizing companies to reduce their consumption of energy products"¹³. Secondly, Parliament records also show that the purpose of the tax was to "incentivize private companies as a whole, notably the ones that have the highest emission reduction potential, to improve their energy efficiency and to reduce the pollution they generate" (Official Journal of the French Senate, 2001).

After clearly stating the purpose of the Act as mentioned in relevant texts, the Council declared it will assess the alleged violation of the principle of tax equality, which was the main argument of the plaintiffs, in light of this purpose.

Having clarified this, the Council based its decision on two main arguments:

- In its first argument, the Council points out the fact that "the modalities of the tax calculation system of Article 37 of the Act could result in one company being taxed more than a similar one, even though it

¹² In France, the Constitutional Council can only pronounce a judgement if the authorized party refers to it. The parties able to do so in an ex ante procedure were, in the original Constitution of 1958, the President of the Republic, the Prime Minister and the Presidents of both Houses of Parliament (the lower house, or National Assembly, and upper house, or Senate). With the constitutional reform of 1974, the political opposition was also included, with the requirement of gathering the signatures from at least 60 elected representatives of either the National Assembly or Senate. With the constitutional reform of 2008, an ex post procedure became available, inspired by practice of other countries' Supreme Courts, notably in the United States. Since then, any party to a lawsuit can appeal to the Constitutional Council to ask the control of an Act that is already in force (though the appeal has to be formally made by the two French high courts: the Cour de Cassation or the Conseil d'Etat).

¹³ Article 37 I, II and III of the bill. The original text is not available, as the Constitutional Council invalidated the article.

contributed less to global warming” (French Constitutional Council, 2000; point 36). This situation is a result of a threshold effect created by important gaps between abatement rates, as seen in Table 2 above.

- In its second argument, the Council echoes the plaintiffs’ argument according to which the tax was environmentally ineffective. In light of the many tax exemptions, the plaintiffs criticised the tax due to the fact that two thirds of CO₂ emissions were exempted, while hydraulic power electricity and nuclear electricity – which are considered low-carbon – were being taxed, as a result of the undifferentiated inclusion of electricity in the tax. The Council partially validated this argument, judging that taxing electricity ignores the fact that, “given the nature of electricity generation in France and its self-sufficiency regarding energy, electricity consumption is a very small contributor to GHG emissions, and allows, by substitution to the use of fossil fuels, to alleviate the greenhouse effect” (French Constitutional Council, 2000; point 37).

Based on those two arguments, the Council concluded that “the differences of treatment that would result from the implementation of the law are not in conformity with the purpose adopted by the legislator” (French Constitutional Council, 2000; point 38). Therefore, it declared that the ecotax infringes the principle of tax equality of Article 13 of the French Declaration of the Rights of Man and Citizen of 1789¹⁴.

1.2.2 A validation of incentive-based taxes enshrining the constitutionality of carbon taxes

This confirmation of the principle of legality of incentive-based taxes¹⁵ falls in line with the constant jurisprudence of the Council. Caudal (2001) has shown that there are three types of tax equality principle: equality before taxation (or equal treatment of tax payers), equality before public burden, and equality before fiscal law. The Constitutional Council, in its jurisprudence, repeatedly refers to the principle of equality before taxation, stating that all citizens must be taxed according to their capacity, by linking it to Article 13 of the French Declaration of the rights of man and citizen of 1789. An incentive-based tax, by nature, is independent from the income capacity of the taxpayers and stands as an exception from this principle.

Prior to this decision, the Council in its decision 99-442 DC regarding the TGAP, stated that the legality of the allocation of a tax to a public institution does not depend on the compatibility between the “nature” of the tax revenue and the revenue allocation (French Constitutional Council, 1999). Therefore, in this case, a tax on polluting activities (the TGAP), whose purpose is to mitigate GHG emissions, can legally be used to finance reductions of labour costs paid by employers in exchange for a reduction in employees’ working

¹⁴ By which “a common contribution is essential for the maintenance of the public forces and for the cost of administration. This should be equitably distributed among all the citizens in proportion to their means”.

¹⁵ The difference between incentive-based taxes and tax incentives must be here emphasised. Tax incentives are tax rebates that aim to influence an economic behaviour by making the favoured option cheaper. Incentive-based taxes also aim to influence an economic behaviour but do so by adding a new tax or increasing an existing tax. Incentive-based taxes are thus types of taxes that do not primarily aim to raise tax revenues (contrary to the traditional revenue-based taxes), but make something more expensive in order to redirect economic behaviours in another direction.

time (Pellet, 2001).

The uniqueness of the decision 2000-441 DC is that it was the first time that the Council affirmed so clearly the compatibility between the incentive-based tax and the principle of equality before taxation. The Council based its argument on Article 34 of the Constitution, according to which the legislator is the one to determine the rules by which taxpayers must pay each tax. This Article, along with the decision 97-338 DC of the Council, validates incentive-based taxes as a whole. However, going further, the decision 2000-441 DC added a strong condition: an incentive-based tax is valid as long as its taxation system conforms to the purpose of the tax (Caudal, 2001).

It is not surprising that the legality principle has to be repeated, as incentive-based tax measures, by nature, are derogatory, and thus generate discrimination (Orsoni, 1995). However, once the constitutionality of incentive-based taxes rules are being confirmed, we can consider that the polluter-pays principle, on which incentive-based taxes are based, constitutes a rationale of extension of equality before taxation principle (Schoettl, 2001).

Pellet (2001) provides a certain nuance to the Council's decision, pointing out the fact that the principle of prohibition of allocation of a tax to a particular expense is not a fiscal principle that would apply to all fiscal law, but a budgetary principle. Therefore, this prohibition is only applicable for the budget of the State or the country's territories, whose expenses cannot be funded by pre-allocated tax revenues. Such pre-allocated tax revenues can however be allocated to the expenses of independent administrative institutions or even private companies responsible for an administrative public service.

1.2.3 The inequity of the abatement coefficient of the ecotax

Cottin and Ribes (2000) extensively researched the application of the law's abatement coefficient to a concrete case. The authors have shown in several simulation scenarios, that two identical companies would be taxed differently depending on their fossil fuel consumption, to the disadvantage of the one emitting fewer GHG, which is the behaviour promoted by the legislator.

Table 4: Comparison of tax rates derived from tax abatements in Cottin and Ribes' scenarios

Year	FIRST SCENARIO				SECOND SCENARIO			
	Energy consumption subject to the tax (in TOE)	Abatement coefficient (in %)	Part taxed after deduction (in TOE)	Tax paid (in Francs)	Energy consumption subject to the tax (in TOE)	Abatement coefficient (in %)	Part taxed after deduction (in TOE)	Tax paid (in Francs)
Y-1 Reference Year	7,000	62.0	NA	NA	7,000	62.0	NA	NA
Y	7,000	62.0	2,560	629,222 F	7,000	62.0	2,560	629,222 F
Y+1	4,000	33.3	1,567	385,072 F	4,000	33.3	1,567	385,072 F
Y+2	4,000	33.3	1,567	385,072 F	5,000	50.0	1,400	344,106 F
Y+3	4,000	33.3	1,567	385,072 F	5,000	50.0	1,400	344,106 F
Y+4	4,000	33.3	1,567	385,072 F	5,000	50.0	1,400	344,106 F
Sum of the 5 years	23,000	NA	8,827	2,169,507	26,000	NA	8,327	2,046,612

Source: adapted from Cottin and Ribes, 2000

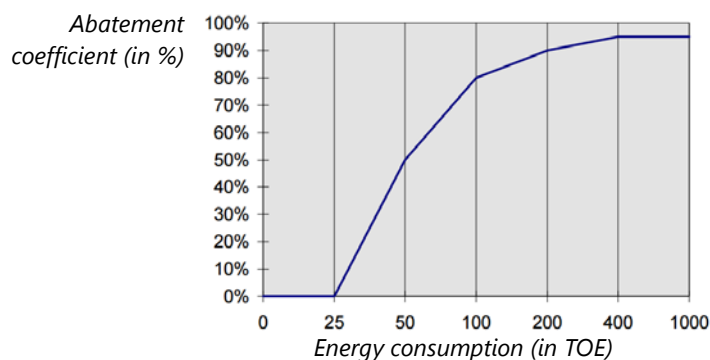
As seen in Table 4 above, the study envisages a company with an added value of 100 million francs and that has an initial consumption of 7,000 TOE of GHG-emitting fuels in both scenarios. In the first scenario, the company decreases its consumption of pollutants to 4,000 TOE per year during the next four years, which means that it would have consumed 23,000 TOE in 5 years. Accordingly, an abatement coefficient of 33.3% is applied for each consumption of 4,000 TOE, leading to an energy consumption of 8,827 TOE being taxed over 5 years (instead of the initial 23,000 TOE).

In the second scenario, the same company decreases its 7,000 TOE consumption to 4,000 the first year but goes up to 5,000 TOE for the next 3 years, consuming 26,000 TOE in 5 years. The abatement coefficient of 0.333% is thus applied to the first year, but another coefficient of 50.0% is applied to energy consumption of 5,000 TOE of the following years. In total the company will be taxed for a share of 8,327 TOE over 5 years, instead of the initial 26,000 TOE.

Consequently, we can see in this calculation that the company in the first scenario will be taxed according to a higher tax basis than in the second scenario in which it pollutes more. As a result, in the first scenario the company would pay around 2.17 million francs for emitting 23,000 TOE, while in the second scenario it would pay around 2.05 million francs for emitting 26,000 TOE.

The potential adverse effects from the abatement coefficient system was raised during Parliamentary debates. The Marini report for the French Senate noted that the incentive to reduce energy consumption will decrease along with the abatement coefficient, as shown in Figure 3 below. The Marini report to the Senate (2000) warned that thresholds effects might intervene in this system, as "a taxpayer might see his tax rate decrease by increasing its energy intensity ratio (either by increasing his energy consumption or by slowing down his energy saving efforts) to reach an abatement level superior which will reduce his tax burden" (Marini, 2000; p.237).

Figure 3: Progression of the tax abatement coefficient depending on energy intensity



Source: adapted from Marini, 2000

While overall the ecotax would have probably successfully created a certain form of incentive towards reduction of GHG emissions and energy consumption by a third of French companies, the inequity of its tax rate did not pass the control of the High Court.

1.2.4 The invalidation of the inclusion of electricity in the tax base: the sign of a carbon tax seen as a secluded environmental measure

The Council states that “taxing electricity ignores the fact that, given the nature of electricity generation in France and its self-sufficiency regarding energy, electricity consumption is a very small contributor to GHG emissions, and allows, by substitution to the use of fossil fuels, to alleviate the greenhouse effect” (French Constitutional Council, 2000; point 37). The Council seemed to fully acknowledge the incentive aspect of the ecotax. The objective of the tax was indeed clearly written in the law, so as to lead to behaviour change through energy savings, as well as to a switch from fossil fuel to low-carbon energy consumption and transformation of the electricity generation system.

However, while recognising the particularity of the ecotax, the Council did not grasp the full scope of the environmental objective and the incentive it intended to create. Caudal (2001) considers that the Council misunderstands the purpose of the tax, “which is not exactly to alleviate the greenhouse effect *by* incentivizing control of energy consumption, but rather to alleviate the greenhouse effect *and* incentivize control of energy consumption” (Caudal, 2001; p.228). In the proposed tax system, the incentive for reducing energy consumption is additional, not conditional, to the main purpose of alleviating the greenhouse effect¹⁶. While the ecotax was meant to address climate change, the Council saw it as a simple air pollution tax, hence the limited approach of the environmental purpose of the tax.

One could also question the accuracy of the environmental assessment of the decision. The Council invalidates the taxation of electricity for failing to prevent climate change, stating that electricity is only responsible for a minor share of GHG emissions in France. However, Pellet (2001) notes that it would have made sense to tax electricity in order to target the remaining carbon-intensive electricity generation such as coal-fired power plants, and to cover the non-emission risks of the nuclear industry such as radioactive pollution (noting that, after all, an environmental tax should address all environmental risks).

The author also points out that the Council seemed to base its decision by considering the tax basis only, and refused to take into account the destination of tax revenues. The redistribution of tax revenues is not the primary function of environmental taxes. However Pellet notes that if the Council went as far as to analyse the environmental effectiveness of the tax, “judges should assess the respect of the tax equality principle by taking into account not only the tax basis and rate, but also the destination of tax revenues, when revenues are not directed to the State budget” (Pellet, 2001, p.931).

Indeed, while the Council’s decision strongly recognised the legality of incentive-based taxes, it was not sufficient to assess this legality in the same way as regular taxes. The proposed ecotax was not intended to be a regular revenue-based tax financing the public budget, but an incentive-based tax trying to spur behavioural changes. Therefore, the tax should have been judged relatively to the incentive it aimed to

¹⁶ This narrow interpretation of the tax purpose by the Council paradoxically constitutes an incentive for the legislator to write the objectives of law proposals as broadly as possible. Indeed, the ecotax would probably not have been invalidated if its objective was not only to reduce GHG emissions but to decrease energy consumption in general, regardless of the emissions emitted (Pellet, 2001).

create, and to do this the whole tax structure should have been taken into account.

Aside from legal interpretations, Hourcade and Combet (2017) note that the invalidation of the inclusion of the electricity in the ecotax could be seen as a way for the Council to counter the political reason behind it, which was to avoid benefitting the nuclear industry too much. In this sense, this decision could be interpreted as a way to remind the legislator that the purpose of a carbon tax is to reduce CO₂ emissions, and not to address any other risks. In any case, the remark of Caudal (2001), who considered that “this decision contribute[d] to darken the future of any energy ecotax in France” (Caudal, 2001; p.214), appeared to be prophetic, as the next carbon tax proposal in France was attempted nearly ten years later.

2. THE DAWNFALL OF THE CARBON CONTRIBUTION: THE NECESSITY TO PUT CARBON TAXATION AT THE CENTRE OF A BROADER REFORM

2.1 SOUND TAX PREPARATION DID NOT PREVENT POOR COMMUNICATION AND PUBLIC OPPOSITION

2.1.1 A carbon tax project carried by a renewed political impulse

A new tentative adoption of a carbon tax was conducted in 2009, as a result of a campaign pledge and a concrete tool to implement domestic and international targets. The political impulse was renewed in 2006 in the course of the campaign for the 2007 presidential election, when Nicolas Hulot, a popular environmental figure, called on the candidates to include environmental considerations in their programmes. To formalise this call, he invited the candidates to sign the "Ecological Pact", a document containing environmental objectives and measures.

Nicolas Sarkozy, then Interior Minister and presidential candidate, signed the Pact on 22 December 2006 (L'Obs, 22 December 2006). The second of the five measures proposed by the Pact consisted of the adoption of a progressive carbon tax, promoted as an essential milestone to fulfil the goal of reducing GHG emissions and consumption of fossil fuel energy (Fondation Nicolas Hulot, 2006).

Once elected as the president, Nicolas Sarkozy aimed to materialise his environmental agenda through the "Grenelle of the Environment"¹⁷, an open multi-stakeholder debate that went on from September to December 2007, gathering representatives from the government, local governments, employers, labour unions and NGOs¹⁸. Nicolas Sarkozy reiterated his support in a speech at the United Nations on 25 September 2007 where he famously called for a "new global order" and a "New ecological and economic Deal" (UN News Center, 2007).

In a speech on 25 October 2007, he further declared that he "want[s] the Grenelle to be the founding act of a new policy, a new ecological deal in France, in Europe, in the world", and that the Grenelle "has concluded to the necessity to consider the creation of a climate-energy tax", which would be a tax on fossil fuels (Vie Publique, 25 October 2007).

Aside from fulfilling campaign promises, a carbon tax was also a way to meet France's various commitments, whether legally binding or not. At the domestic level, the Programming Act on Energy Policy Orientation of 13 July 2005 set the target of reducing GHG emissions of France by four by 2050 –

¹⁷ Named after the so-called "negotiations of Grenelle" that took place in 1968 regarding wages.

¹⁸ The original stakeholder consultation included only the government, labour unions and employers, but general strikes in the country led the government to enlarge the list of participants to NGOs and local governments.

the so-called "Factor 4"¹⁹ – corresponding to a 2 to 3% annual reduction²⁰. At the international level, aside from the (binding) EU target of 8% emissions reduction for the first commitment period of the Kyoto Protocol, France was one of the G8 countries that pledged in July 2009 to cut their GHG emissions by 80% by 2050²¹.

Boosted by the political impulse from the Grenelle as well as a compliance requirement for domestic and international engagements, the Grenelle I Act was eventually adopted with near unanimity²² on 23 July 2009, two years after the discussions of the Grenelle negotiations²³. The Grenelle I Act is by substance a so-called framework act, setting several environmental objectives – the first one being to alleviate climate change – which have to be implemented by successive decrees and finance acts. The engagements of the Grenelle I Act were also a way to fulfil many targets from EU Directives. The Grenelle I Act notably transposed into national legislation the objectives of the Climate and Energy package for 2020, adopted by the European Council and the European Parliament on 26 March 2009 and aiming at a 20% reduction of GHG emissions²⁴ (European Council, 2009).

The adoption of a carbon tax – a "climate-energy contribution" (CCE) – was considered as an essential measure to reach the objectives of the Grenelle Act. The government started to prepare the ground for a sound bill proposal from the end of the Grenelle negotiations by commissioning successive expert reports on a potential CCE.

2.1.2 A succession of expert recommendations building consensus with stakeholders

The carbon tax project of 2009 was carefully prepared over the years by public debates trying to reach consensus among stakeholders before publishing policy recommendations. The Landau Group, the Quinet Commission and the famous Rocard Commission produced three milestone reports that were influential in adopting the tax (though they were not enough, as will be shown later). They all had a hybrid

¹⁹ The adoption of this law notably led to the publication of a report commissioned by the government, making 28 recommendations on how to reach a fourfold emission reduction in France. (Boissieux, 2006)

²⁰ The law also contains other targets regarding energy consumption, renewable energy growth and energy efficiency, notably in the building sector. (Legifrance, 2005)

²¹ This target was adopted at the L'Aquila summit with the general goal of achieving a worldwide emission reduction by 50% by 2050, in spite of the differences raised by developing countries. (The Guardian, 8 July 2009)

²² The Worldwatch Institute (2010) notes that the negotiations of the Grenelle were far from drawing a consensus from stakeholders, and that some environmental NGOs even withdrew from the discussion table. In spite of this, the government used accelerated proceedings for the deliberations, giving the National Assembly only 30 hours to review around 1,600 amendments. Concerned about its lack of coherence, the Socialist and Green parties voted against the law, but the bill passed anyway due to the majority of seats being held by the conservative party.

²³ The Grenelle I Law is formally known as the law number 2009-967 of 3 August 2009 regarding planning of the implementation of the Grenelle of the environment. A Grenelle II Law was also to be adopted on 12 July 2010, formally known as the law number 2010-788 of 12 July 2010 of national engagement for the environment. The Grenelle II complements the Grenelle I Law with more concrete implementation measures. The two laws are commonly referred to together as "the Grenelle Laws".

²⁴ Under this package at the EU level, France had taken a commitment of reducing its domestic emissions outside of the EU ETS by 14%.

composition, gathering experts, government officials, labour unions, local elected representatives, corporate representatives and NGOs. Rather than focusing on technical or scientific issues, the discussions consisted in trying to reach a consensus on main positions from participants and testing their social acceptability (Godard, 2010).

The Landau Group

Originally tasked in May 2005 by Prime Minister Jean-Pierre Raffarin to prepare for the development of an incentive-oriented environmental tax, a working group on the use of economic instruments for sustainable development was formed in February 2006. The group was chaired by Jean-Pierre Landau, then Vice-governor of the French Central Bank. The report, published in July 2007, advocates the use of environmental taxation and carbon markets to go beyond mere environmental regulations, with the aim of spurring behavioural change from economic actors. One of the commission's main conclusions was the necessity of a price signal to act on climate change mitigation and GHG emission reduction (Landau, 2007).

The Quinet Commission

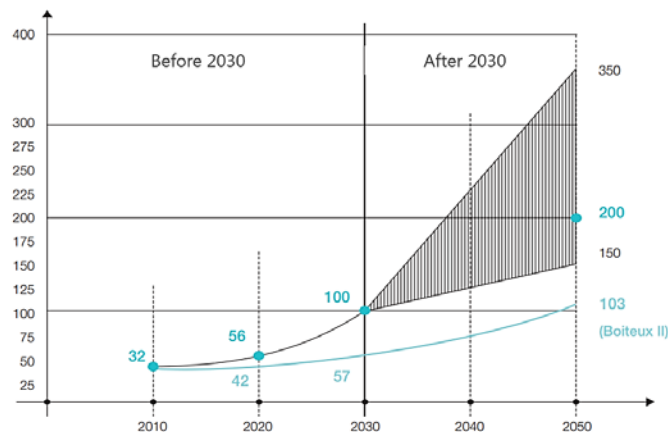
As a follow-up to the discussions of the Grenelle, in January 2008 Prime Minister François Fillon proposed to find a new carbon price, and the Centre for Strategic Analysis formed the Quinet Commission to respond to this request. Chaired by Alain Quinet, the Commission was composed of experts from several organisations²⁵ and led to the publication of the Quinet report on the Shadow Price of Carbon in early 2009. Building upon the Boiteux II report (2001), the Quinet report (2009), as seen in Figure 4 below, recommended a progressive carbon rate of EUR 32 per ton of CO₂ in 2010, EUR 56 in 2020, EUR 100 in 2030, and EUR 200²⁶ on average (between EUR 150 and 350) in 2050.

It can also be noted that a report from the French Environment and Energy Management Agency (ADEME) published in June 2009 also recommended a price of EUR 32/tCO₂ (Callonec, 2009, see Annex 2 for more information).

²⁵ The National Center for Scientific Research (CRNS), the International Energy Agency (IEA), the Organisation for Economic Co-operation and Development (OECD), the Deposits and Consignments Fund, the Ministry of Environment and the Ministry of Economy, Industry and Employment

²⁶ The report explains that the high price on carbon is justified by the necessity to be in conformity with GHG emission reductions targets at the European level.

Figure 4: Carbon price level recommended by the Quinet report



Source: Quinet, 2009

The Rocard Commission

In order to build a solid proposal backed by experts and politicians from both major political parties, the government asked the former socialist Prime Minister Michel Rocard to preside over the Commission on Consensus regarding the Climate-Energy Contribution, known as the Rocard Commission²⁷, with the task of formulating recommendations on how to implement a carbon tax. The Commission held a conference of experts on 2 and 3 July 2009 and published a report on 28 July 2009. Due to the impact, even until now, of this Commission, it is important to take a look at it in detail.

The report recommended the adoption of a climate-energy contribution with a carbon price of EUR 32/tCO₂²⁸ in 2010, progressively increasing to EUR 100 in 2030 (around 6% increase per year). It was pointed out that ideally the tax should start at a price of EUR 45 in order to support the necessary research in energy savings. However, building upon the Quinet report, a EUR 32²⁹ carbon price was chosen to ensure the acceptability of the tax, noting that a mid-term price signal is more important than the initial price level (Rocard Commission, 2009).

Four major principles for an effective price signal were described:

- Predictability: the price signal must span over the long-term, while remaining flexible enough to adapt to new scientific data.
- Progressiveness: the carbon price must increase over time.
- Additionality: the climate-energy contribution must be a new system, distinct from existing taxes.

²⁷ It is considered that the nomination of a socialist figure by the conservative government to lead the commission was both a way to exhibit political consensus on the climate-energy contribution as well as a “clever” way to avoid taking responsibility for the commission report in case the public did not accept it. (L’Obs, 10 June 2009)

²⁸ In spite of the name of the “climate-energy contribution”, the final report recommended a tax on CO₂ only. The question of whether to include other gases was not even discussed in the debates.

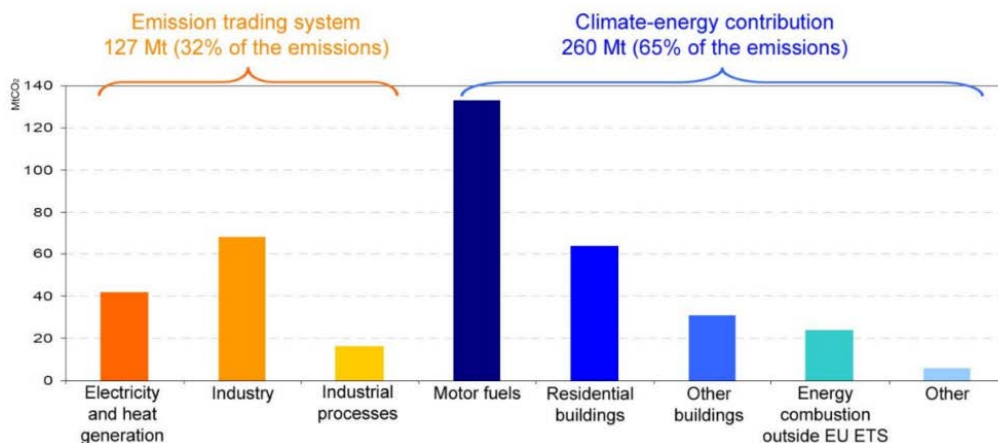
²⁹ Ironically, the proposition of the Movement of the Enterprises of France (or MEDEF, the main employers’ organisation in France) to align the carbon price of the tax on the market price of the ETS (then EUR 15/tCO₂) was rejected, while it will be adopted in the final law proposal, as seen below (Godard, 2010).

- Environmental objective: the tax must be designed according to the goal of GHG emission reduction and behaviour change, without being subject to considerations of fiscal revenue.

According to the French Union of Oil Industries, the proposed carbon price was estimated to result in a raise of EUR 0.77 per litre for gasoline and EUR 0.85 per litre for diesel fuel, corresponding to an increase of USD 20 per barrel of crude oil. Overall, tax revenues were believed to have reached EUR 8 billion, of which EUR 4.3 billion was supposed to be paid by households.

Compensation was recommended for households through a green check or a decrease of other taxes (income tax, VAT), and for companies through a rebate of social security contributions or a decrease of the existing “professional tax” (a corporate tax funding the budget of local governments). It is to be noted that, contrary to the ecotax project in 2000, the proposed carbon-energy contribution focused on fossil fuel consumption only (see Figure 5 below) and did not include electricity, as the electricity generation sector was already covered by the EU ETS.

Figure 5: Sectoral scope of the proposed climate-energy contribution and the EU ETS



Source: Rocard Commission, 2009

The report also recommended that companies that are subject to the ETS should be excluded from the climate-energy contribution. This question was greatly debated and the following four options on how to articulate a carbon tax with the ETS were discussed in the report:

- Option A: Exempting carbon tax ETS companies.
- Option B: Including ETS installations in the carbon tax.
- Option C: Creating a differentiated climate-energy contribution, by which the sum of the ETS allowance and the differentiated tax rate would be equal to the full rate of the climate-energy contribution.
- Option D: Creating a separate rate for non-ETS installations, supposedly close to the market price of ETS allowances.

Option A was judged the easiest to implement, but posed a risk of tax inequality between ETS and non-ETS companies. Option B was deemed excessive (as companies buying priced ETS allowances would end up paying twice for the same emissions) and unrealistic (as companies buying free ETS allowances are not supposed to be exposed to international competition). Option C was deemed

to offer the best guarantee of carbon price unity. Although this option was favoured from a theoretical point of view, the report rejected the idea, noting that it would only constitute an economic burden for the French industries subject to international competition. Finally, Option D was thought to lead to double pricing between industrial companies (in or out of the ETS) and other energy users in France.

Concerning the economic impact on households, the commission took into account the two variables of housing location (urban or rural area) and heating method (heating oil, gas, electricity). The main message was to acknowledge the diversity of households in assessing the impact of carbon tax depending on those factors, and to design the compensation schemes according to individual situations, as households relying heavily on cars for transportation and oil for heating would be the most affected by the tax.

The report concludes by warning that conditions for the success of the climate-energy contribution include the absence of major exemptions, the importance of orienting the tax towards the fight against climate change and not the creation of fiscal revenues, and the political acceptance of the tax through good communication of the relevance of the proposed system.

2.1.3 The inability to communicate the social benefits of carbon taxation resulting in a sharp loss of public support

In spite of careful preparation, the government failed to deliver positive communication on this project, which resulted in low public acceptance of a carbon tax. The tax was wrongly perceived as a “present to employers”, making car drivers pay for the restriction of local governments’ financial independence through the suppression of the professional tax. Although Michel Rocard declared in the commission report that “the adoption of the CCE should not be assimilated to the financing of the reduction of the professional tax”, he also recognised that “the idea that the tax revenues generated would contribute to this financing is accepted by most stakeholders” (Les Echos, 22 July 2009).

Hourcade and Combet (2017) also note that some supporters of the tax advised the President in July 2009 to announce the tax as soon as possible (before September 2009), in order to avoid inter-ministry conflicts and to focus on a simple communication strategy. However, because of this hastiness, many important elements of the tax, such as revenue recycling, rate progressivity and inclusion of electricity, remained unclear until its submission to Parliament (Criqui, 2009). This unsteady position of the government regarding some major elements of the tax³⁰ confused the message regarding the benefits of the tax, and the public worried about fiscal neutrality. The government tried to provide some reassurance, and President Nicolas Sarkozy declared on 10 September 2009 that “the objective of environmental taxation is not to generate tax revenues for the State budget but to incite individuals and companies to transform

³⁰ Regarding compensation to households, while the Environment Minister Jean-Louis Borloo declared being in favour of a redistribution of tax revenues in the form of a green check, the Economy Minister Christine Lagarde stated in return that “a green check could be one way to go but not an accomplishment” (Geo, 23 July 2009c). The president of the conservative party UMP, Jean-François Copé, also hinted at the possibility of a decrease in income tax as a compensation measure (Actu-Environnement, 2009). Regarding tax coverage, while the discussions from the expert conference did not reach a definitive conclusion, Michel Rocard declared being personally in favour of including electricity (Le Monde, 22 July 2009).

their behaviours. The establishment of a carbon tax will not harm the purchasing power of the French people and will not hamper the competitiveness of companies” (CBP, 16 December 2009).

However, harm had already been done to public opinion and the government did not succeed in convincing the public of the relevance and tax neutrality of the carbon tax. The result of this confusion in public opinion was striking, as shown in successive polls. A survey launched in April 2009 revealed that 66% of the French people were in favour of the carbon tax³¹. However a few months later, a survey published in September 2009 revealed the opposite result, with 66% of the French people opposed to the tax, and 73% considering that the tax would fail to reduce energy consumption³².

The failure of the government to conduct a sound communication strategy and to gain public acceptance of the tax revealed several issues in the process of adopting a carbon taxation. Not only the public but the majority of politicians were also not familiar with the complex structure of such a tax. Because of this technicality, the main objective of the measure was not properly recognised and the debate focused mainly on the modalities of revenue recycling and compensation mechanisms, which were not finalised and remained unclear. The aforementioned survey of April 2009 confirmed this lack of information. In addition to the standard survey, another collaborative survey was organized with 12,750 persons on a voluntary basis, which showed an approval rating of 84%. While massively approving the tax, 77% of participants declared that they were not sufficiently informed of the characteristics of the tax. Finally, the collaborative survey included a learning session during which it presented explanatory videos to a selected sample of participants. After this learning session, 94% of participants answered being in favour of the tax (Geo, 1 July 2009a), showing the need for communication and education regarding carbon taxation.

It seems that the government failed to explain what a carbon tax is, rather than failed to demonstrate the relevance of the carbon tax. It is regrettable that the government did not disseminate the expert knowledge carefully gathered prior to the proposal. As taxes are traditionally associated with revenue raising rather than an incentive to switch to low-carbon behaviours, the proposed climate-energy contribution was regarded as another tax burden and a punitive measure in the name of environmental protection.

As the government did not have full understanding of the economic impacts of the tax, due notably to the uncertainty over compensation measures, it failed to convey to the public the important aspects of revenue neutrality and double dividend. While the potential economic and social benefits created by the double dividend might have guaranteed public acceptability, the government could only justify the carbon tax with climate change, an environmental concern which was still considered as an economic constraint in the context of an economic crisis (Sénit, 2011).

As Combet (2015) points out, the first challenge to carbon tax reform is to organise a social dialogue in a modern, democratic and highly mediatised society. The second challenge would be to address the legitimate concerns the public might have by creating a tax that answers to the requirements of efficiency,

³¹ The survey was conducted by LH2 for the Nicolas Hulot Foundation. The result of 66% comes from a standard survey of 1,000 persons.

³² The survey was conducted by TNS Sofres-Logica for Europe 1 with a sample population of 1,000 people. (Capital, September 2009)

equity and competitiveness. In the case of the 2009 experience, “the difficulty to grasp the overall effects of the carbon tax reform allowed many misunderstandings regarding its cost-benefits assessment, which prevented the emergence of a consensus while facilitating anti-fiscal reflexes and ideological barriers” (Combet, 2015; p.29).

2.2 A CARBON TAX SACRIFICING ENVIRONMENTAL OBJECTIVES TO SOCIAL ACCEPTABILITY

2.2.1 A tax reflecting an attempt to regain public support through economic concessions

The climate-energy contribution, renamed “carbon contribution” by the Senate, was finally adopted in the Finance Act for 2010 (French Senate, 2009a). The tax set a carbon price of EUR 17 per ton of CO₂, which was supposed to reflect the market price of ETS allowances from the beginning of the second phase of the ETS in February 2008. One of the main drawbacks of the proposed carbon tax was the absence of a pluriennial increase of the tax rate, with the Finance Act for 2010 leaving the question of progressivity of the carbon contribution to a potential follow-up committee.

The legislator opted for a narrow tax coverage, as the carbon contribution targeted only the consumption of fossil fuels, essentially petrol, diesel fuel, coal and natural gas, each having a different tax rate depending on their carbon component. Electricity was not included in the tax, considering that around 90% of the electricity generation process in France does not release a significant amount of carbon emissions, and that the remaining 10% that does release carbon emissions (generated by gas, fuel oil and coal-fired power plants) is already subject to the EU ETS.

With this rate and coverage, the carbon contribution was expected to result in an increase in energy prices of 4.1 cents of euros per litre for petrol and 4.50 cents per litre for diesel, as shown in Table 5 below. According to the same estimates, the tax would have generated a tax income of EUR 4.5 billion (other estimates say EUR 4.1 billion), of which EUR 2.6 billion would have been borne by households and EUR 1.9 billion by companies.

Table 5: Expected impact of the carbon contribution on energy prices

Energy category	g CO ₂ per kWh	Increase, excluding VAT	Increase, including VAT
Housing			
Natural gas	206	+EUR 0.0035 per kWh	+EUR 0.0042 per kWh
Heating oil	271	+EUR 0.0046 per kWh	+EUR 0.0055 per kWh
Transport			
Petrol	246	+EUR 0.041 per litre	+EUR 0.049 per litre
Diesel	271	+EUR 0.045 per litre	+EUR 0.054 per litre

Source: calculation from ADEME (retrieved from Bureau, 2012)

The adopted carbon contribution included numerous “exemptions to preserve the competitiveness of the economy and compensations to guarantee the purchasing power of households” (Carrez report to the

National Assembly, 2009; p.38). Two sorts of exemptions were planned:

- The 1,018 industrial installations included in the EU ETS (mainly refineries, cement factories and glass factories) were totally exempted from the tax. The exemption targeted the companies that were already under the ETS, as well as the companies that were scheduled to join the ETS³³ and the ones benefiting from equivalent measures³⁴.
- Eight exemptions and reduced tax rates were included for non-industrial sectors, either to protect their competitiveness or because the sector was deemed to contribute enough to GHG emission reductions under other policies or voluntary efforts. As shown in Table 6 below, those exemptions concerned the sectors of agriculture, fisheries, commercial road freight³⁵, public transportation, commercial fluvial freight, national maritime freight, lucerne dehydration and biogas.

Table 6: Sectoral exemptions to the carbon contribution

Exemptions originally introduced by the government	Exemptions added by the Parliament
Agriculture – Ex post reimbursement of 75% of the contribution.	Commercial fluvial freight – Tax rate reduced by 35% for domestic fuel used by ships. (Added by the Senate)
Fisheries – Tax rate reduced by 75%.	National maritime freight – Tax rate reduced by 35%. (Added by the Senate)
Commercial road freight – 35% of the contribution compensated through an increase of an existing reimbursement of the TIPP.	Lucerne dehydration – Total exemption. (Added by the National Assembly)
Public transportation – Total compensation through an increase of an existing reimbursement of the TIPP.	Biogas – Total compensation through an increase of the reduced rate of the TIPP. (Added by the National Assembly)

Source: adapted from the report on the Finance Act proposal for 2010 (French Senate, 2009b)

As per requirement of tax neutrality, the carbon contribution included compensation for both companies and households. For companies, in contrast to the recommendations of the Rocard Commission, indirect compensation was planned in the form of elimination of part of the professional tax concerning investments. For households, the government finally chose to allocate tax credits (or green checks), depending on the two factors of household structure and place of residence.

As shown in Table 7 below, the amount of tax credit received per household increased by the number of persons and remoteness from urban areas and could reach up to EUR 152 for a couple with three children living in a rural area.

³³ This was the case of chemical industries. While they were not subject to the EU ETS at that time in 2009, they were still supposed to join the ETS from the third phase in 2013.

³⁴ This concerned the paper, ceramic, tile and brick sectors, which were allowed to pull out of the ETS on the condition that they demonstrated that they are subject to measures leading to equivalent emission reductions.

³⁵ Commercial road freight was exempted from paying the carbon contribution to avoid double taxation, taking into account the tax on heavy-weight vehicles that was planned for 2012 with aim to address externalities from the road freight industry. However, the project, called "ecotax" again, was abandoned in November 2013 following intense social unrest and protests from transporters, known as the red caps movement.

Table 7: Tax credit (green check) rates per household in the carbon contribution

Taxpayer category	Urban area	Rural Area
Single without children	46 euros	61 euros
Couple without children	92 euros	122 euros
Couple with three children	122 euros	152 euros

Source: adapted from the report on the Finance Act proposal for 2010 (French Senate, 2009b)

2.2.2 Return on the structural flaws of the carbon contribution proposal

The final tax as adopted by the Parliament was received negatively by both the public and the political opposition, the main criticisms pointing out the inequity of the taxation system. As the Bricq report to the Senate in 2011 puts it, “with a reduced rate and narrow tax base, the carbon contribution was also crippled with sectoral derogations that immediately diminished its legibility and significance” (Bricq, 2011; p.50).

As mentioned above, the first noticeable drawback of the adopted tax was the low rate of EUR 17/tCO₂, which is well below the recommendation of EUR 32/tCO₂ from experts in the Quinet Commission, ADEME report and Rocard Commission. This choice begs the question of why the government would ignore the experts’ recommendations that it carefully mandated in preparation for the law proposal. The government justified this price level by the constraints of clarity and acceptability. Setting a tax rate at a similar level to the market for ETS allowance would have allowed the creation a unique price signal to economic actors and facilitated understanding of carbon pricing as a whole. Besides, given the misunderstandings that prevailed in the months preceding the adoption of the tax, the government prioritised the acceptability of the carbon contribution by ensuring a moderate tax rate and generous compensation measures.

While experts recommended a carbon price level that would effectively lead to the necessary emission reductions, the government opted for the practical choice of creating a tax system that may not be the most ambitious, but that economic actors would accept. The creation of a one-price logic was therefore an important element of the desired acceptability. Dominique Bureau in “The Political Economy of the 2009 French Carbon Tax Project” (2012) notes that “the message from politicians to experts was therefore that the latter should not underestimate the pedagogy constraints: a Green Tax Reform must pay sufficient attention to establish the legibility of the price signal” (Bureau, 2012; p.11).

However, as mentioned above, the objective of clarity chosen by the government was unsuccessful due to the numerous tax exemptions, reduced rates and unbalanced compensation measures. The exclusion

of electricity³⁶ from the tax base was a notable criticism of the tax. The successive expert reports recommended a “climate-energy contribution”, aiming to reduce all energy consumption, whether the energy source generates GHG emissions or not. The aim of a CCE would have been to create not only a low-carbon society but also a low-energy consumption society. Therefore, by excluding electricity from its base, the carbon contribution failed to become a real climate-energy contribution that would have facilitated the transition towards a new energy and economic model (Bricq, 2011).

Additionally, the many exemptions and reduced rates of the tax presented a problem in terms of tax coverage and, thus, equity, leading eventually to the invalidation of the tax by the Constitutional Council, as will be shown below. The exclusion and reductions *a priori* of certain sectors, due to economic bias and assumptions, would have resulted in blurring the price signal of the tax (Bricq, 2011). By excluding electricity and setting so many exemptions, most emissions from the industrial sector were exempted from the tax. Because of this, the main impact of the carbon contribution would actually have been limited to an increase in the price of fuel and gas for housing and office heating, and for transportation (apart from road freight, maritime and fluvial freight and air transportation).

Poorly calibrated and overly generous compensation measures also contributed to feed the criticism of inequity of the tax. Regarding compensation for companies, the elimination of the professional tax based on investments³⁷ resulted in an over-protectionism of certain economic sectors, leaving most of the tax burden on households. As Bureau (2012) points out, the government made the mistake of analysing equity impacts for firms in the same way as it did for households, ignoring the fact that, unlike households, companies paying a higher tax usually pass the additional costs onto their customers (in which case there is no need for a bonus-malus type of compensation). It would have therefore been more equitable to only apply such compensation to companies that cannot pass on the tax payment to their customers, such as the agriculture sector.

Lastly, compensation for households, which was an important pillar of tax neutrality, would have resulted in significant disparities in tax burden allocation due to limited selection criteria. As a tax based on energy consumption, the carbon contribution would have had a larger impact on households that are both the

³⁶ As mentioned above, the justification for the exclusion of the electricity sector lies in the fact that the small share of electricity generation that emits GHG is already subject to the EU ETS. Taxing this sector would thus have resulted in a double taxation. However, Godard (2010) objects that this argument comes mainly from an accounting approach in terms of tax burden and allocation, which is foreign to the incentive approach of a carbon tax, aiming to encourage a decrease in CO₂-emitting energy consumption. Indeed, in spite of the relative low-carbon electricity generation in France, the electricity sector subject to the ETS is still the largest emitting sector among ETS industries in France, and therefore should have been taxed anyway. Bureau (2012) adds that the purpose of a carbon tax being to stimulate a shift to cleaner products or services, it is necessary that each sector bears all its external costs. In this respect, he suggests that the carbon contribution might have been more successful if it had been adopted alongside a tax on nuclear risks targeting the nuclear industry.

³⁷ Godard (2010) notes that the elimination of the professional tax would have mainly benefited emission-intensive industrial groups, which were already benefiting from free ETS allowances and were exempted from carbon contribution. He adds that this measure would not have favoured job-creating industries, but would have “intensified the French tendency to prioritize a type of technical progress that improves labour productivity, which is already high, through a substitution of capital to labour, but reinforcing in the same time, under this technological aspect, the causes of structural unemployment in this country”.

poorest and most dependant on fossil fuel energies³⁸. However, the carbon contribution included, as a criterion for the level of tax credit rates, a modulation depending on household composition and place of residence, ignoring income levels (refer to Table 8 above).

Besides, although the government did not take the risk of creating an abatement rate as it did for companies in the ecotax project in 2000, the lack of more refined categories for place of residence (which was limited to urban and rural areas) nonetheless created a severe threshold effect. These limited criteria for tax credits allocation, justified by the will to create a simple and transparent system, did not ensure the required social equity and thus failed to guarantee public acceptability.

The carbon contribution in its final version attracted the opposition from the entire political class³⁹ as well as NGOs⁴⁰. As a result, the socialist opposition brought the matter before the Constitutional Council, seeking invalidation of the carbon contribution in the Finance Act for 2010.

2.3 THE UNCONSTITUTIONALITY OF THE CARBON CONTRIBUTION, A DECISION DEEMED LEGALLY RIGHT YET ECONOMICALLY WRONG

2.3.1 The two well-known arguments of the Council: environmental inefficiency and infringement of tax equality

Following a similar fate to the project of TGAP extension in 2000, the carbon contribution was invalidated by the Constitutional Council in its decision 2009-599 DC of 29 December 2009, judging that the exemptions were against the objective of climate change mitigation and the principle of tax equality (French Constitutional Council, 2009).

³⁸ The study of Combet et al. (2010), showed that this dependency on fossil fuel energy is mainly determined by the dependency on private vehicle transportation. Only 65% of the poorest 5% of the French population depends on private vehicle transportation, against 80% of the 30% of the French population with modest income. This means that the difference in energy spending in households' budget is much higher inside an income category than between income categories, depending on place of residence, housing type and heating method. The study concludes that general tax compensation schemes, such as green checks, would fail to reach their goal of ensuring social equity of tax burden allocation. Regarding the historical reasons for this situation, Hourcade (2015) notes that the low price of energy paved the way for the urban sprawl, resulting in lower energy efficiency for buildings, drop in rail and fluvial transportation and rise of energy-intensive agriculture. As a consequence, "a whole portion of society is now more vulnerable to an increase in energy price than forty years ago".

³⁹ Laurence Rossignol from the Socialist Party qualified the carbon contribution of a tax on the poor with "all the disadvantages of a new tax and none of the benefits of an environmental taxation". Cecile Duflot from the Green Party denounced the fact that the tax "is not part of a logic of energy savings, but part of a logic of additional fiscal revenues". NGOs also reacted negatively to the tax, with Greenpeace declaring that the carbon contribution "will not change anything and will not stimulate energy savings, nor renewable energies" (Geo, 2009b).

⁴⁰ The influential consumer association UFC-Que Choisir called the CCE a "fiscal hold-up", and declared it would "fight the proposal, which, if adopted by the government, would constitute the worst scenario for consumers' purchasing power" (Le Monde, 22 July 2009).

The Council based its decision on the Charter for the Environment of 2005⁴¹, referring specifically to three articles:

- Article 2: "Everyone is under a duty to participate in preserving and enhancing the environment."
- Article 3: "Everyone shall, in the conditions provided for by law, foresee and avoid the occurrence of any damage which he or she may cause to the environment or, failing that, limit the consequences of such damage."
- Article 4: "Everyone shall be required, in the conditions provided for by law, to contribute to the making good of any damage he or she may have caused to the environment" (French Charter for the Environment, 2005).

The Council then affirmed that the Act should be assessed by evaluating the compatibility between the tax objectives and the means put in place to reach them. In this respect, the Council noted that, according to Parliamentary debates, the objective of the carbon contribution was to establish an additional tax on fossil fuel consumption in order to significantly reduce GHG emissions.

Before proceeding to the assessment directly, the Council affirmed that reduced or special tax rates in general can be justified by reasons of public interest, citing as an example the "preservation of competitiveness of economic sectors particularly exposed to international competition" (French Constitutional Council, 2009; point 82). It went further by stating that total exemptions were even possible if exempted economic sectors were particularly contributing through other mechanisms⁴².

However, the Council considered that, in this instance, the exemption of companies subject to the EU ETS was not justified, as ETS allowances were being allocated for free and would only start being auctioned from 2013⁴³. The Council pointed out the fact that this exemption would "consequently" result in the exoneration of 93% of greenhouse gas emissions from industrial sources from the tax, and that less than half of the country's total GHG emissions would be subject to the tax⁴⁴. In the end, the carbon contribution would have been essentially a tax on heating systems and fuel for transportation, which are only two sources of emissions. In light of these considerations, the Council deemed that the tax exemptions, by their scale, "are contrary to the objective of fight against climate change and create a breach of equality

⁴¹ The Charter, prepared by the Coppens Commission and adopted by President Jacques Chirac in 2005, is a text giving constitutional value to ten environmental principles.

⁴² The Council's decision commentary reveals that the Council considered valid some exemptions and tax rate reductions to the carbon contribution, such as the exemption of agriculture, fishery, commercial road freight, maritime freight and airfreight. (French Constitutional Council, 2010)

⁴³ The EU Directive 2009/29/EC of 23 April 2009 established the principle of progressive increase of auctioning of ETS allowances for the industrial sector (except for the electricity sector), from 20% in 2013 to 70% in 2020 and 100% in 2027, though exemptions are possible to preserve the competitiveness of vulnerable sectors (EU Directive 2009/29/EC, 2009). Overall, the European Commission estimates that over the 2013-2020 period, 57% of allowances will be auctioned, against 4% during the 2008-2012 period.

⁴⁴ Indeed, according to a report from Fabienne Keller for the Finance Commission of Parliament in 2009, cited in the Council's decision commentary, the 1,018 industrial installations subject to the EU ETS at that time represented 37% of carbon dioxide emissions in France. The share of GHG emissions falling under the carbon contribution was estimated to be only 48% of the country's total emissions.

with regard to public burdens” (French Constitutional Council, 2009; point 82).

This decision, which surprised almost everyone but the legal experts, was remarkable by its pedagogy. As in the decision 2000-441 DC when the Council confirmed the constitutionality of incentive-based taxes as a whole before invalidating the ecotax, in the decision 2009-599 DC the Council first confirmed the legality of tax derogations justified by public interest before invalidating the carbon contribution. The decision even took care to mention that such exemptions can be justified if they aim to protect the economic competitiveness of economic actors, or if the economic actors are already contributing to the tax objective through other means. It almost seems like, each time, the Council encouraged legislators to adopt environmental taxes but required them to follow some basic rules.

2.3.2 The inconsistency of judging an incentive-based tax according to the tax equality principle of revenue-raising taxes

The choice of the legal basis of the control of constitutionality may seem just a detail at first, but it effectively determines the criteria by which the law is assessed, and in this instance, by which the carbon tax was invalidated. In this respect, it is noteworthy that the Council did not refer to Article 13 of the French Declaration of the Rights of Man and Citizen of 1789, consecrating the principle of tax equality. Instead, it recalls its jurisprudence regarding incentive-based taxes⁴⁵ and mentions Article 34 of the Constitution, which acknowledges the prerogative of the legislator to determine the characteristics and rules of taxes. More importantly, the Council refers, though not for the first time, to the Charter for the Environment, and notably its Article 4, which is the constitutional basis for the polluter pays principle.

However, in spite of not referring directly to Article 13 of the French Declaration of the Rights of Man and Citizen, the Council invalidates the carbon contribution for notably creating “a breach of equality with regard to public burdens”, which corresponds to the spirit of this article. By basing its decision on the polluter-pays principle of the Charter while indirectly sanctioning the tax for infringing on the tax equality principle, the Council created confusion⁴⁶ between revenue-based taxes and (behaviour-oriented) incentive-based taxes (Barilari, 2010). If a carbon tax generates a fiscal revenue, its primary purpose is however to incentivise low-carbon behaviours. In this sense, a carbon tax qualifies as an environmental tax, whose purpose is to integrate the cost of damages in the price of the service of goods from which originate the risk of pollution (Mastor, 2009), and not to generate a “common contribution” for maintaining the State’s public force and administration, in the sense of Article 13 of the Declaration.

The Council’s decision led some scholars to consider that incentive-based taxes with an environmental purpose could be legally justified solely by the Charter for the Environment without application of the

⁴⁵ As a reminder, this jurisprudence, established notably by the decision 2000-441 DC, states that the principle of tax equality does not prevent the enactment of specific taxes that aim to incentivize taxpayers to adopt behaviours consistent with public interest, as long as the rules set to enforce those taxes are directly related to this public interest.

⁴⁶ Combet also noted the “difficulty to completely distinguish incentivizing carbon taxes from ecotaxes with a financial purpose affected to the financing of restorative activities (such as the levy on water and the parafiscal tax on water pollution) and from revenue-based taxes that have incidentally an environmental impact (such as the domestic tax on consumption of oil products)” (Combet, 2015; p.21).

principle of tax equality, as the Charter establishes the responsibility of everyone to preserve the environment (see notably Barilari, 2010; and Mastor, 2009). However, others considered that this decision proved that the tax equality principle of Article 13 of the Declaration serves quasi-systematically as the basis of the control of fiscal law by the Constitutional Council, because the Council used its essence without expressly referring to it (Ambomo, 2010)⁴⁷. While the use of the Charter for the Environment in the control of constitutionality of the carbon contribution was a promising step forward, this legal confusion over the legal basis shows that the Council missed a unique chance to consecrate the full particularity of carbon taxes as incentive-based taxes with an environmental purpose.

2.3.3 A decision conducting a rare extended control of constitutionality

Perhaps due to uncertainty on the legal basis mentioned above, the Council did not analyse the numerous exemptions to the carbon contribution one by one, but only referred to the exemption of ETS installations. In this case, one could wonder why the Council invalidated the whole carbon contribution instead of simply censoring the one litigious exemption. While the decision itself does not address this point, the Council's decision commentary reveals that the Council refused to do so as it would have resulted in usurping the legislator's prerogative (French Constitutional Council, 2010). Nonetheless, the carbon contribution was invalidated for environmental inefficiency (or rather for inefficiency of its environmental incentive), which could also be interpreted as an assessment of the modalities of the tax that should be conducted solely by the legislative power.

While legal experts tend to agree with the decision's legal reasoning, most of them note that the control of constitutionality of this decision was unexpectedly strict. Rarely in its jurisprudence did the Council assess the efficiency of a fiscal measure⁴⁸. In the decision 2000-441 DC, the Council controlled the compatibility between the objective of the ecotax and the ecotax itself. In its decision 2009-599 DC, the Council controlled the potential consequences of the tax exemptions with regards to the envisaged environmental incentive. Not only do the tax characteristics have to conform with the tax purpose, but its performance must also allow the tax to effectively reach this purpose. This switch from a control of compatibility to a control of proportionality was said to herald the emergence of a new obligation of environmental efficiency, required by the Constitutional Council for the adoption of a new or extended environmental fiscal resource (De Carvassal, 2011). The reason for this reinforced control of constitutionality might lie in the insertion in the Constitution of new environmental norms through the Charter for the Environment (Magnon, 2010), which the Council cited as the legal basis of its decision. While it was not strictly speaking the first time the Council used the Charter, this decision was nonetheless considered as the Charter's implementation kick-off moment.

⁴⁷ The author points out, nonetheless, the obsolescence of Article 13 of the Declaration to be used as the metric for a modern fiscal instrument such as a carbon tax. He notes that the environmental goal allocated to the carbon tax "goes beyond traditional [fiscal] approaches and migrates to territories that remained, until now, outside of the fiscal discipline, such as global warming."

⁴⁸ Even for the adoption of other fiscal measures with an incentive purpose (e.g. tax credits for the development of social housing) or with an environmental purpose (e.g. bonus-malus system or tax rebates for the development of renewable energies), the efficiency of the measure is not always a criterion of constitutionality for the Council (De Carvassal, 2011).

Yet the Council used this control to invalidate the tax by justifying its environmental inefficiency based on two reasons. The first reason was that the exemption of ETS installations is unjustified because ETS allowances are allocated for free, and the second was that this exemption would result in exonerating 93% of industrial emissions from the tax, which is "contrary to the objective of the fight against climate change and creates a breach of equality with regard to public burdens". While the Council linked those two reasons with the word "consequently", one can hardly see a clear relationship between them. Whether free or auctioned, the price of ETS allowances has no impact on the share of GHG emissions being excluded from the tax through the exemption. From a theoretical perspective, even if the ETS allowances were auctioned, 93% of industrial emissions would still be exempted and the decision of invalidation would have remained the same. However, the sole fact that the Council connected those two reasons seems to indicate that the same carbon tax would have been validated if the exemption of ETS installations were justified with auctioned allowances (Magnon, 2010).

The argument regarding the free allocation of ETS allowances appears as a strict interpretation of the law. Since ETS allowances are allocated for free, the exemption of ETS installations cannot be justified, unless anticipating the post-2013 period (Ambomo, 2010). It would have made sense for the Council to invalidate this exemption only, inviting the legislator indirectly to adopt it again after 2013 when the exemption would become justified, but the Council considered such micro-control of the law as an encroachment to the legislator's prerogatives. As per an all-or-nothing reasoning, the logical solution was the complete invalidation of the tax.

The fact that the decision first acknowledged the possibility for total exemptions if the conditions are right while invalidating the exemption of ETS installations, can also lead one to think that the Council did not consider the ETS, as a whole, as a valid reason for a tax exemption. Firstly, we could note that the purchase and auctioning of ETS allowances by the State were not assimilated as a fiscal measure in administrative law, so nothing legally obliged the Council to consider participating in the ETS as "particularly contributing through other mechanisms." Secondly, it cannot be excluded that the Council took into account climate policy considerations. Indeed, as France is legally committed to reduced its GHG emissions, the Council might have judged that, no matter whether allowances were free or not, the mere participation the ETS would not allow France to reach its climate goal, due for instance to high emission caps (Godard, 2010). Thus, the exemption of ETS installations might have appeared even more "contrary to the objective of fight against climate change". However, in spite of this sound legal reasoning, the Constitutional Council took much of the blame for slowing down the progress of environmental taxation in France.

2.3.4 A decision that failed to acknowledge the benefits of a carbon tax's economic mechanisms

Rarely had a decision from the Constitutional Council been so widely criticised and mediatised. Many reproached the Council for its strict legal interpretation of the carbon tax, noting that "to the economic motives developed by the government, the constitutional judges answered within the strict framework of the law in force, adding to it a green conscience allowed by the Charter for the Environment" (Mastor, 2009).

By conducting an extended control of constitutionality, the Council ventured into making interpretations based not only on the law, but also on environmental and economic sciences. It is interesting to note that the same reasons the Council used to declare the non-justification of the exemption of ETS installations could have been used to reach the opposite decision. Indeed, the tax exemptions would have resulted in exonerating 93% of industrial emissions and 52% of GHG emissions in France. However, while taxing 48% of GHG total emissions might have been insufficient to reach France's climate goals, it would still have produced a significant impact in terms of emission reductions, bringing the country closer to implement its climate target. Besides, although ETS allowances were still allocated for free at the moment of the adoption of the tax, their progressive auctioning was already enshrined in the EU Directive 2009/29/EC of 23 April 2009 and set to begin in 2013. It would therefore not have been unreasonable to allow an exemption, whose justification was set to materialise soon after and was already legally set to happen (Caruana, 2015).

Additionally, the fact that ETS allowances are allocated freely does not mean that allowances themselves are free⁴⁹. The free allocation of allowances is merely a specific mode of redistribution of the income earned by the State from the cap-and-trade system, giving back this income to companies for free, following the same compensation logic as the green check for households (Keller, 2010).

Economists vigorously criticised the decision, accusing the Council of perfectionism while urgent climate issues should have prompted the adoption of a tax which could be improved later if necessary. Gollier and Tirole (2010) notably highlighted that the main goal of an environmental incentive-based tax is to raise awareness among economic actors. As long as companies are included in a carbon pricing scheme, the incentive goal is already reached, whether ETS allowances are free or not. Therefore, by invalidating the tax due to the fact that ETS allowances were free, "the Council was wrong".

Moreover, assessing the environmental efficiency of the tax solely by considering its coverage of GHG emissions shows a poor understanding of the economic dynamics of a tax, because an upstream tax has repercussions downstream (Glachant & Leveque, 2010). If the government had followed the Council's reasoning, it would have made ETS installations subject to the tax (even for a transitory period). However, this solution would not have been environmentally efficient, as there is no additional environmental benefit from adding a national tax to paid ETS allowances for companies. An increase in the carbon price would generate emissions reductions in France, at the same time freeing up ETS allowances that would be sold to emitters in other ETS countries. Combining a carbon tax to the cap-and-trade system for the same companies would therefore simply end up shifting carbon emissions to another country (Perthuis, 2010).

Looking back, this invalidation reveals the constitutional difficulty of creating a new environmental tax (or even to extend the scope of an existing one, as with the ecotax in 2000). In light of this barrier, rather than

⁴⁹ During the round table of the Finance Commission in February 2010, Charpin (2010) compared ETS allowances to land. The fact that most land is inherited does not mean that its value is non-existent and does not mean that it is not functioning on a normal market. Freely allocated ETS allowances cannot be said to be entirely free market-wise, as their quantity is still limited by a cap, and other allowances in the market are being auctioned.

to create a complex carbon tax structure, some authors raised the point that it might have been more efficient to simply raise the rate of existing taxes on fossil fuels and declare that their revenues would be compensated or reallocated to environmental investments (Hertzog, 2011). This solution would not have had created a long-term price signal, but the price itself would have, at least, been raised to the desired level.

Yet, in spite of its imperfections, the carbon contribution still presented various advantages. As mentioned above, the tax would still have resulted in some emission reductions. Its revenues could have been used to facilitate a shift from an income-based taxation system to an externalities-based system and to fund further environmental actions. More importantly, the carbon contribution could have had a sociological impact by initiating a society-wide environmental consciousness, eventually leading to behavioural changes, which was the goal of the tax in the first place. Given all those reasons, it was widely considered that the Constitutional Council might be legally right, but is politically and economically wrong (Mastor, 2009).

The decision appeared as a lost gamble from the Council, whose strategy seemed to rely on driving the government to revise its tax proposal in order to avoid losing face to the electorate (De Carvassal, 2011). The weakness of this strategy is that it overestimated the sturdiness of the political will behind the project. Following the Council's decision, the government first declared that it would submit another proposal by the end of 2010. However, in the face of growing general discontent, the relative failure of the Copenhagen conference and the socialist victory in the regional elections, the government announced on 23 and 24 March 2010 that it had abandoned the carbon contribution project (Le Monde, 23 March 2010). President Sarkozy declared that he had had enough of ecology and that the adoption of a national carbon tax should be on condition of the creation of a carbon-based border tax, in order to protect the competitiveness of French companies.

The Council dealt the final blow to a wavering political will and climate agenda, such that "the biggest unfairness of this decision is not to have impeded the creation of the carbon tax as presented in the law, but to have allowed the political power to exonerate itself from its fundamental responsibility" (De Carvassal, 2011; p.18).

3. THE CLIMATE-ENERGY CONTRIBUTION: A SIDELINE TO THE ENERGY TRANSITION REFORM IN SEARCH OF A LARGER ROLE

3.1 A TAX PROPOSAL SPURRED BY POLITICAL COMMITMENTS AND BACKED BY AN EXPERT REPORT

3.1.1 A strong environmental agenda emerging slowly after tumultuous leadership changes

The invalidation of the carbon contribution by the Constitutional Council in 2009, followed by the relative failure of the Copenhagen conference and the abandoning of the carbon tax project altogether by the government in 2010 left the general impression that the government gave up on the environment and that the environmental tax reform was off the table for good. The carbon taxation project was not re-attempted until the end of term of the Conservative Party. However, the presidential elections of May 2012 brought the Socialist Party to power – which had not happened in ten years since the government of Lionel Jospin – along with a new environmental agenda.

While not expressly a campaign promise, François Hollande declared prior to his election that “the energy and ecological transition of the economy will be raised to the highest level” (Actu-Environnement, 2012a). The electoral agreement signed between the Socialist Party and the Green Party (Europe Ecologie Les Verts, or EELV) notably included the proposal of adopting a “climate-energy contribution” (CCE), with a carbon price increasing from EUR 36/tCO₂ in 2012 to EUR 56/tCO₂ in 2020 (Europe Ecologie Les Verts, 2011).

Adopted after the first environmental conference on sustainable development organised by the government in September 2012, the “Roadmap for Ecological Transition” (a non-binding policy orientation document) did not include a national carbon tax, but proposed nonetheless some other developments in environmental taxation (French Ministry of Environment, 2012). In spite of this political will, the environmental agenda of the new government had a difficult start. Following the setting up of the government by Prime Minister Jean-Marc Ayrault in May 2012, the prerogatives of the Ministry of the Environment were reduced, and the Minister of the Environment fell down to ninth place in the government official hierarchy⁵⁰ (Actu-Environnement, 2012b).

On top of diminished prerogatives given to the Ministry, the two successive Environment Ministers were quickly dismissed over a political conflict. Upon taking up office, Nicole Brick, a respected Member of Parliament and a renowned expert on environmental taxation, decided to suspend offshore oil drilling

⁵⁰ The two former Ministers were at the second and fourth place respectively, during what was known, in the first case, as the “super” Ministry of the Environment and sustainable development under Minister Jean-Louis Borloo.

permits in French Guyana. This resulted in an intense lobbying from the executives of Shell, Total, the French Union of Oil Industries (UFIP) and the Movement of the Enterprises of France (MEDEF) to the highest levels of government. In June 2012, only one month after her appointment and in the midst of the Rio+20 conference, Nicole Brick was dismissed by the Prime Minister and appointed to another Ministry (Le Monde, 22 June 2012). Her successor, Delphine Batho, was also dismissed in July 2013 after criticising the government's budget proposal for 2014. She qualified the proposal of a "bad budget", arguing that the 7% decrease in government credits allocated to her Ministry called into question the capacity of the government to take concrete actions on the promised energy and ecological transition (Liberation, 2 July 2013).

Against this backdrop of uncertainty regarding the environmental policy of the government, the socialists' allies in the Green Party expressed their worries and warned the government that the absence of environmental taxation in the Finance Act for 2014 would put their political alliance in peril. Some Members of Parliament had adopted a parliamentary resolution proposal in June 2013, asking for the introduction from 2014 of a CCE with a progressive rate and the adjustment of tax rate levels between petrol and diesel fuel, historically in favour of diesel fuel in France (French National Assembly, 2013b).

Building upon this impulse, the following month the Green Party submitted a bill proposal to Parliament aiming to create a CCE that would tax all energy consumption (including nuclear energy, but excepting renewable energies) and whose tax rate would be determined every year by successive Finance Acts (French National Assembly, 2013a). In the meantime, the new leader of the MEDEF, Pierre Gataz, declared his opposition to any environmental taxation during an interview on the radio station RTL about energy transition, pointing out the dangers of an additional tax burden on economic competitiveness (RTL, 7 July 2013).

Answering the call from Members of Parliament and its EELV allies, the government eventually decided to take action on green tax reform. At the annual EELV meeting in Marseille in August 2013, the Environment Minister Philippe Martin, successor of Delphine Batho, announced the intention of the government and the Prime Minister to create a climate-energy contribution, which would be included in the Finance Act for 2014 (Actu-Environnement, 2013b). Opposition to the idea rose quickly, even among the socialists⁵¹. To provide some reassurance, Martin, along with other government officials⁵², declared that the CCE would not be a new tax and that it will be different from the carbon tax proposed under Nicolas Sarkozy (Le Monde, 23 August 2013).

⁵¹ The President of the socialist group in the Senate, François Rebsamen notably declared that a new ecological tax would be "punitive". The former presidential candidate Ségolène Royal also stated that the timing for establishing a new tax was not right and that ecology should not become a sanction to consumers.

⁵² The Minister of the Economy, Pierre Moscovici, declared that the proposed tax was not meant to punish the French people but to reorient behaviours towards a low carbon society. The Finance Minister, Bernard Cazeneuve, added that environmental taxation will not add an additional tax burden by creating a new tax, but will transform the current tax system in order to incite behaviour changes.

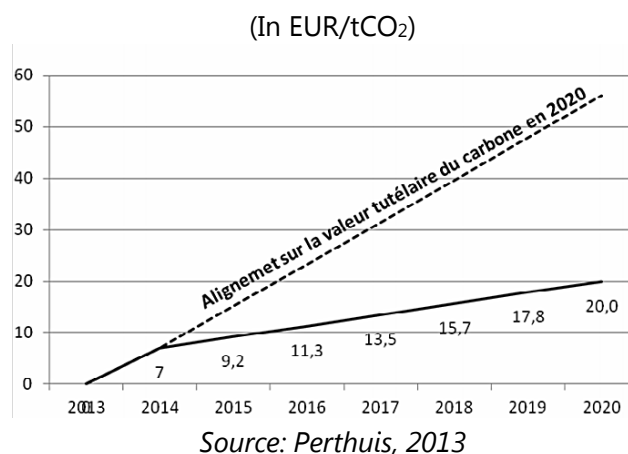
3.1.2 The recommendations of the report of the Committee for Ecological Taxation: how to adopt a carbon tax without repeating past mistakes

It was around the time of the announcement by the Environment Minister that the Committee for Ecological Taxation released its report, which was expected to be influential in the development of a carbon tax in France. Planned by the Roadmap for Ecological Transition, the Committee was formed in December 2012 and chaired by the economist Christian de Perthuis. It gathered together various stakeholders, following the model of the Grenelle conference, and was tasked by the Ministers of the Environment and the Economy to make propositions on environmental taxation that would be included in the Finance Act for 2014. The report, released in July 2013, aimed to progressively reorient the energy taxation in France from revenue-based taxation to purpose-driven taxation (Perthuis, 2013).

As shown in Figure 6 below, the report proposed the creation of a carbon component to energy taxes, with a carbon price of EUR 7/tCO₂ in 2014, corresponding to the average market price of the EU ETS in 2012, and increasing to EUR 20/tCO₂ in 2020⁵³, corresponding to the price level recommended by the European Commission⁵⁴.

Regarding coverage, the report advocates a tax that would be complementary with the EU ETS, so that most companies under the ETS would not be subject to the tax, as is the case in other European countries that have adopted a carbon tax. Being included in the EU ETS, electricity is therefore ruled out of the recommended carbon component. Regarding the environmental impact, the report estimates that the emission reductions generated by the proposed carbon component would reach 1.9 MtCO₂ in 2015 and 4.7 MtCO₂ in 2020.

Figure 6: Tax rate of the carbon component (report of the Committee for Ecological Taxation)



The report recommended to make the economic impact of the carbon component completely neutral in 2014 by decreasing the rate of the domestic consumption tax on energy products (TICPE, formerly TIPP).

⁵³ Among the contributions from stakeholders sitting on the Committee, the Nicolas Hulot Foundation judged this carbon price not high enough and proposed an alternative scenario starting at the same price of EUR 7/tCO₂ in 2014 but increasing to EUR 40/tCO₂ in 2020.

⁵⁴ See the consolidated report released in 2014: European Commission, 2014.

The following years, the economic impact of the measure would be mitigated by reducing the difference in tax rates of petrol and diesel fuel by one cent per year.

According to the modelling used in the report, it was estimated that the carbon component would generate EUR 2 billion of tax revenues in 2016 and EUR 4.8 billion in 2020. The introduction of the carbon component would effectively raise the tax rate of petrol by 4% and of diesel fuel by 23% in the TICPE. This change would lead to an increase in energy price of 5.3 cents of euro per litre for diesel fuel and 4.9 cents of euro per litre for petrol in 2020, as shown in Table 8 below.

Table 8: Impact of the carbon component on energy prices

(from the report of the Committee for Ecological Taxation)

Fossil fuel	Price of a ton of CO ₂	
	7€/tCO ₂	20€/tCO ₂
Diesel fuel (c€/L)	1.86	5.3
Petrol (c€/L)	1.7	4.9
Heating oil (c€/L)	1.86	5.3
Natural gas (c€/kWh)	0.13	0.37
Coal (c€/kWh)	0.24	0.69
LPG (c€/kWh)	0.16	0.46

Source: adapted from Perthuis, 2013⁵⁵

The Committee insisted strongly on the importance of compensation measures, noting that the 2009 experience showed that “the introduction of a carbon component cannot be socially and economically accepted without an appropriate compensation system, simple and understandable by all” (Perthuis, 2013; p.15). The compensation mechanisms must therefore take into account the competitiveness of economic actors, particularly that of small and medium size enterprises, the different categories of households depending on their vulnerability to energy prices, and the motives of unconstitutionality raised by the Constitutional Council. The Committee also noted the fact that the social and economic context of the financial crisis makes it even more difficult than in 2009 to gain the people’s support for such a project. Because of these circumstances, “it is important that a carbon component is understood as an incentive instrument, rather than an additional revenue-based tax increasing tax burden” (Perthuis, 2013; p.16).

Bearing this in mind, the report recommended as a general consideration to adopt a wide tax coverage, with as few exemptions and possible, balanced by comprehensive compensation measures, summarised in Table 9 below. For households, the main measure would be a regressive tax credit focused on low-income households. This tax credit would amount to 30% of the contribution required by the carbon component and reach a total of EUR 300 million in 2016 and EUR 800 million in 2020. Complementary measures include a reduced VAT on essential goods and services for energy transition, and tax incentives

⁵⁵ Natural gas was expressed in c€/kWh in the report so the author assumes that a conversion of units had been made.

to remove diesel fuel vehicles.

For companies, the main measure would be to use the tax revenues to finance the Tax Credit for Competitiveness and Employment (CICE⁵⁶), which reduces the labour costs for companies employing workers. The financing of the CICE is estimated to reach EUR 1.6 billion in 2016, EUR 2.5 billion in 2018 and EUR 3.5 billion in 2020. Complementary measures include some sectoral compensation measures of 10% of the contribution required by the carbon component for the most vulnerable professions and in the rare cases of overlap with the EU ETS.

Table 9: Compensation measures of the CCE, in EUR billion

(from the report of the Committee for Ecological Taxation)

Year	Estimated gross tax revenues	Tax credits for households	VAT + bonus for households	Compensation for companies	CICE
2013	-	-	-	-	-
2014	0.3	0	0.2	0.1	0
2015	1.1	0.2	0.3	0.1	0.6
2016	1.9	0.3	0.2	0.1	1.3
2017	2.7	0.4	0.2	0.1	1.9
2018	3.4	0.5	0.2	0.2	2.5
2019	4.2	0.6	0.3	0.2	3.1
2020	5.0	0.8	0.5	0.3	3.5

Source: adapted from Perthuis, 2013

3.2 THE CLIMATE-ENERGY CONTRIBUTION, A CARBON TAX THAT DOES NOT GUARANTEE THE MATERIALITY OF A CARBON PRICE

3.2.1 The discrete adoption of a carbon tax with a long-term price trajectory depending on short-term political commitments

Equipped with the report of the Committee for Ecological Taxation, the government was ready to submit a proposal. During the second environmental conference held in September 2013, President François Hollande confirmed his government's plan to introduce a carbon component in the Finance Act for 2014, which would serve to finance the energy transition and would have to be "just, efficient and legally undisputable". The president reiterated that the measure would not be an additional tax and that

⁵⁶ Created by the Finance Act for 2012 and entered into force in January 2013, the CICE is a tax rebate for companies paying social contributions for labour costs of their employees. It consist of a tax credit of 7% of employees' wages for the company (2017 rate). The CICE's purpose is to finance companies' competitiveness improvement through efforts in terms of investments, research, innovation, employment, ventures into new markets, ecological and energy transition. The CICE cannot be used to finance a raise of distributed profits or to raise executives' remuneration. In total, the CICE yielded EUR 14.2 billion of savings to companies in 2014, and EUR 16 billion in 2015. This corresponds of a rebate of EUR 650 per employee and per quarter, for a SME of more than 20 employees. Regarding employment, the CICE is estimated to have led to the creation or conservation of 140,000 jobs (OFCE estimates, Dec. 2015).

households and companies would benefit from various compensations (Actu-Environnement, 2013a).

Presented to Parliament in September 2013, the Finance Act for 2014 was adopted in December 2013 without much modification (Legifrance, 2013). While the creation of the “climate-energy contribution”⁵⁷ through Article 32 of the Act went rather unnoticed, it constituted nonetheless an important milestone for the development of carbon pricing in France. The Minister of the Environment, Philippe Martin, declared in this respect that “taxing less labour and more CO₂ emissions, at a constant tax rate, makes us enter in the taxation of the 21st century”.

As suggested in the report of the Committee for Ecological Taxation, the CCE is not a new tax but a new carbon component of existing energy taxes, mainly the domestic consumption tax on energy products (TICPE), the domestic consumption tax on natural gas (TICGN) and the domestic consumption tax on coal (TICC). Although not directly mentioned in the Finance Act, a circular from the Ministry of Economy shows that the CCE creates, overall, a carbon price of EUR 7/tCO₂ in 2014, EUR 14.5/tCO₂ in 2015 and EUR 22/tCO₂ in 2016 (French Ministry of Economy and Finance, 2014). It targeted only natural gas for the year 2014, taxing its price at EUR 1.27 per MWh of gross calorific value in 2014, then EUR 2.64 in 2015 and EUR 4.01 in 2016.

This price increase was however compensated by an equivalent decrease in the basic price of gas for the year 2014, following the recommendation of the Committee report to make the measure fiscally neutral for the first year⁵⁸. The next fossil fuels to be subject to the CCE were heavy fuel oil and coal later in 2014, and the rest of fossil fuels from 2015 (petrol, diesel, heating oil etc.).

A long-term progressive increase of the carbon price was added in the Energy Transition for Green Growth Act of 17 August 2015, sometimes called the “Royal Act”, in reference to the new Minister of the Environment, Ségolène Royal, who spearheaded the bill proposal. Adopted after a long process of national public debate and stakeholder consultations regarding energy transition⁵⁹, the Energy Transition Act is a piece of major environmental legislation comprising more than two hundred articles and requiring around a hundred implementation decrees (French National Assembly, 2015).

Adopted with the goal of showing to the world an ambitious environmental agenda at COP21 in December of the same year, the Act was described by President Hollande as one of the biggest

⁵⁷ It is to be noted that the legal texts do not mention the term “climate-energy contribution” but only the “adjustment” or the “carbon component” of the domestic consumption tax on energy products (TIPCE). The term climate-energy contribution, which became popular with the Rocard Commission report in 2009, was meant for a carbon tax aiming at both fossil fuel consumption AND electricity, in order to create a low carbon society AND a low energy consumption society. The current measure is still widely called climate-energy contribution (or carbon tax), in spite of targeting only fossil fuel consumption, and not electricity. Some experts call it, more rightly so, the “carbon component” (to be understood as “the carbon component of existing energy taxes”) but for the sake of understanding, it will be still referred as climate-energy contribution in this report.

⁵⁸ The fact that the climate-energy contribution was economically neutral for its first year of implementation might have been one of the factors explaining why its inception went relatively unnoticed.

⁵⁹ See notably the environmental conference of September 2012, followed by a national debate on energy transition from November 2012 to summer 2013, with the third environmental conference held in November 2014.

accomplishments of his term. It was complemented by a decree setting up the first three “carbon budgets”, which define the upper limits of GHG emissions at the national level for three successive periods up to 2028⁶⁰.

The measures adopted by the Energy Transition Act cover many sectors such as energy and environment but also road, transport, consumption, labour, insurance, defence, urban planning etc. It involves many actors such as local authorities (Assemblée des Communautés de France, 2015) and is supposed to incite economic actors to invest in low-carbon solutions. It also contains several primary goals such as:

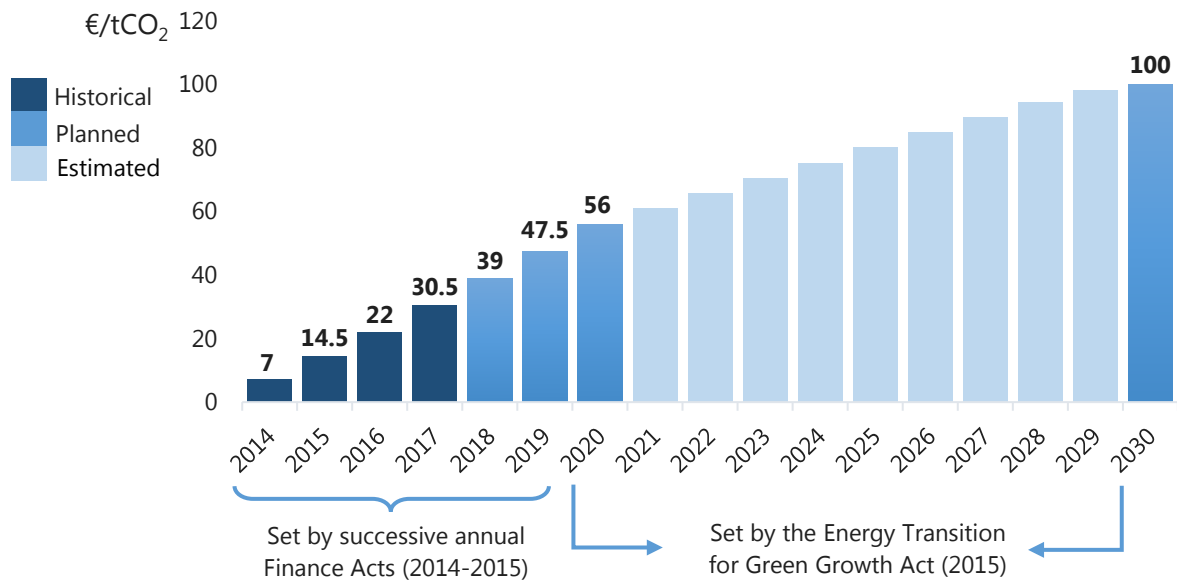
- Reducing 40% of GHG emissions of France by 2030 compared with 1990 levels, and by 75% by 2050 (the so called “factor four”).
- Reducing energy consumption by 20% by 2030 compared with 2012 levels, and by 50% by 2050.
- Reducing primary consumption of fossil fuel energy by 30% by 2030 compared with 2012 levels.
- Increasing the share of renewable energy in the gross final energy consumption to 23% in 2020 (Grenelle I target) and 32% in 2030.
- Reducing the share of nuclear power in the energy mix from 75% to 50% by 2025.

Aside from those primary targets, which received most of the media’s attention, the Energy Transition Act also adopts, in its article 1-VIII, a long-term carbon price for the CCE of EUR 56/tCO₂ in 2020 and EUR 100/tCO₂ in 2030. Following the impulse of COP21, the Act was amended in December 2015 by Article 16 of the Amending Finance Act for 2015, setting a carbon price for three more years as follows: EUR 30.50/tCO₂ in 2017, EUR 39/tCO₂ in 2018 and EUR 47.50/tCO₂ in 2019 (Legifrance, 2015).

We can note that the legal structure of the carbon tax is thus twofold: long-term carbon prices adopted in the milestone legislation of the Energy Transition Act, and short-term carbon prices confirmed in the annual Finance Acts (see Figure 7 below). This duality is new in the French carbon tax history, as the two former attempts to adopt a carbon tax were only contained in the Finance Acts for 2000 and 2010 (see the two previous sections). If this structure itself does not constitute a guarantee of the legal sturdiness of the measure, it may be seen as somehow creating a link between the carbon tax and the broader goals of the Energy Transition Act mentioned above.

⁶⁰ The National Low Carbon Strategy (SNBC), a policy orientation document that was adopted as an annex to the carbon budgets, includes indicative emission reduction targets by sectors of activity.

Figure 7: Progression of the carbon price in the Climate Energy Contribution



Source: Finance Act for 2014, Energy Transition Act of 2015 and Amending Finance Act for 2015

Under this system, the government is expected to adopt an increased carbon price every year or every few years for the years to come, supposedly following the long-term goal of EUR 100/tCO₂ by 2030, as planned by the Energy Transition Act. There is, however, no strict obligation to do so, and the progression of the carbon price will depend on the political will behind the carbon tax in the years ahead⁶¹. Therefore, while the Energy Transition Act provided an overdue predictability on the carbon price evolution, it does not guarantee an automatic increase of the CCE, which requires constant political commitment from the political power⁶².

El Beze (2014) notes in that sense that “the environmental effectiveness of the measure will depend on the future trajectory of the rate of carbon pricing, and on its readability over time. (...) It therefore appears that the relevance and effectiveness of [the CCE] will be linked to the ability of the political power to maintain an ambitious pace in terms of environmental policy in a difficult economic context” (El Beze, 2014; p.9).

3.2.2 The impact of the Climate-Energy Contribution on energy and public finances depending on energy prices and energy tax rates

As seen above, the CCE is not a new tax, but a new calculation method of existing taxes. It is a modification of the existing energy excise duty forming a carbon component of the domestic consumption tax on

⁶¹ The French Electricity Union (2017) notably recommends to confirm the price trajectory of the climate-energy contribution in its recommendations for the 2017 presidential elections.

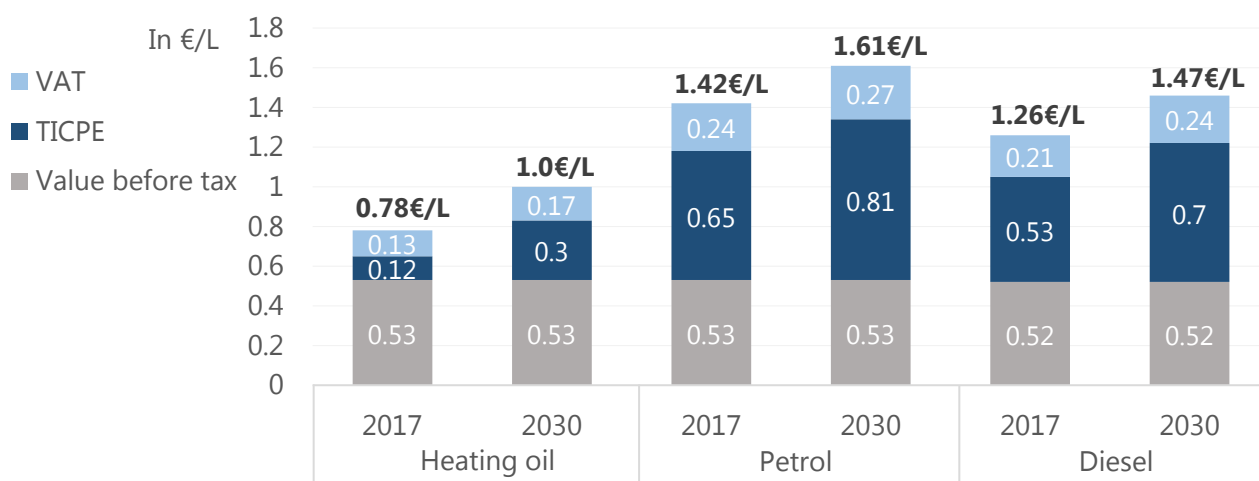
⁶² We can note that, probably due to the political consensus around the Energy Transition Act, the constitutionality of the climate-energy contribution was not brought up to the Constitutional Council. The Council did not even mention the measure in its decision 2013-685 DC of 29 December 2013 validating the Finance Act for 2014, or in its decision 2015-718 DC of 13 August 2015 validating the Energy Transition Act (French Constitutional Council, 2013 and French Constitutional Council, 2015).

energy products (TICPE), the domestic consumption tax on natural gas (TICGN) and the domestic consumption tax on coal (TICC) (Chiroleu-Assouline, 2015). It corresponds to a greening of existing taxes with an increase of some domestic consumption taxes that is gradual and proportional to the level of CO₂ emissions (Eckert, 2013). This tax structure has two consequences: the CCE remains indifferent to price variation of the taxed energy products, and the tax rate of the carbon component is independent from the taxes in which it is included.

Impact of the climate-energy contribution on energy prices

The non-indexation of the carbon tax on fossil fuel prices implies that the actual price paid by consumers depends on both the tax rate and the market price. As shown in Figure 8 below, the Electricity Industry Observatory estimates that the increase of the carbon tax between 2017 and 2030 will result in a price increase of EUR 0.18/L for heating oil, EUR 0.16/L for petrol and EUR 0.17/L for diesel. When taking into account an increase in VAT, this result rises up by EUR 0.22/L for heating oil, EUR 0.19/L for petrol and EUR 0.21/L for diesel⁶³. Those estimates are based on almost constant energy prices; however, the likelihood of a sharp increase in oil prices in the short or mid-term may lead one to think that the actual energy prices will be much higher than this forecast.

Figure 8: Estimated impact of the CCE on oil products prices



Source: adapted from Electricity Industry Observatory, 2017

Impact of the climate-energy contribution on public finances

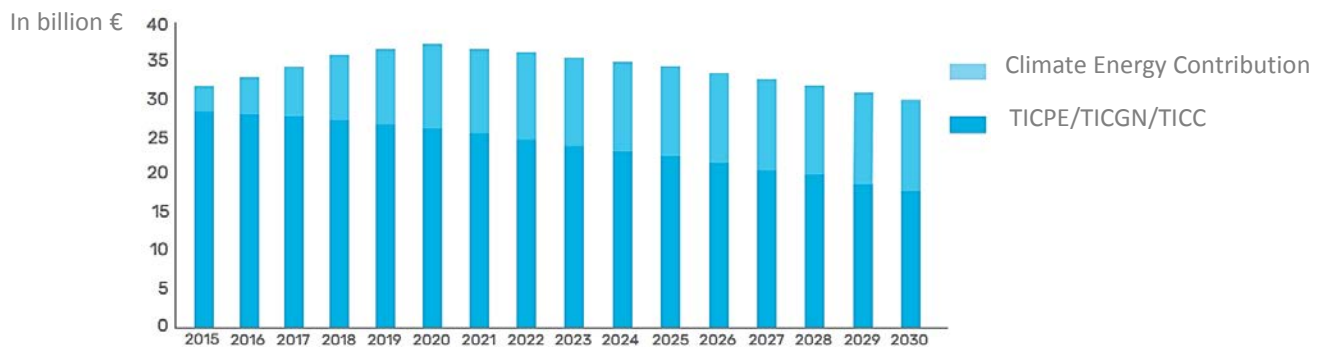
The second consequence of the tax structure of the CCE is that it increases independently from the basic energy taxes. In fact, we have seen above that during the first year of implementation of the tax in 2014

⁶³ According to an early estimates from the French oil lobby (Union Française des Industries Pétrolières), an increase in the carbon price in 2016 would raise the price of diesel by 2 cents a litre and the price of gasoline by 1.7 cents a litre. The planned price rise to EUR 56 a ton in 2020 would add 9 cents a litre to the price of diesel and 7 cents a litre to gasoline compared with 2016 prices.

the price increase for gas resulting from the introduction of the CCE was compensated by a proportional decrease in the basic rate of the TICGN. This kind of mechanic decrease of the energy tax rate corresponding to the increase of the carbon component is not expected in the future. However, it is clear that the increase of the CCE will create a direct and equal price increase for consumers, as the government seems to consistently ease the pain of the carbon tax by some decrease in the corresponding energy tax.

Considering this factor, the French Electricity Union published estimates reflecting the increase of the CCE as well as the decrease in the corresponding TICPE, TICGN and TICC. As can be shown in Figure 9 below, while the increase of the CCE's rate by 2020 results in a slight increase in tax revenues, a corresponding decrease in the three energy taxes brings back the total tax revenues in 2030 to a similar level to those in 2015. In consequence, though the actual price paid by consumers might be impacted by the increase in oil prices, the gradual evolution of the CCE by 2030 is unlikely to result in higher energy taxation levels.

Figure 9: Evolution of tax revenues from the CCE and related energy taxes



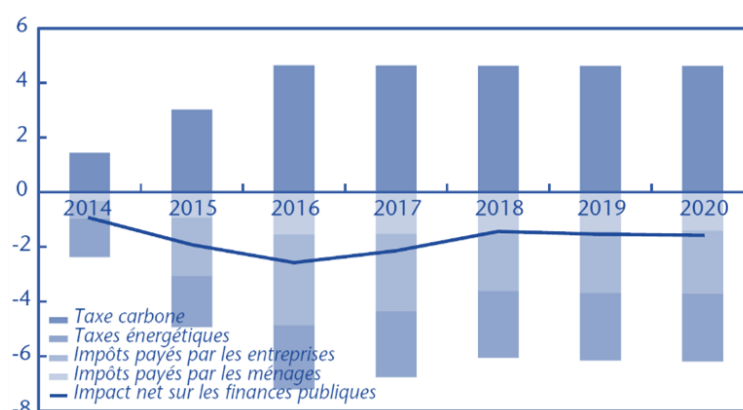
Source: French Electricity Union, 2016

It was estimated that the CCE generated around EUR 340 million of tax revenues in 2014, EUR 3 billion in 2015, EUR 4.5 billion in 2016 and will generate EUR 6 billion in 2017, for a total of EUR 70 billion between 2015 and 2030. For comparison, the tax revenues levied from the TICPE alone amounted to EUR 25.6 billion in 2015 and EUR 47.5 billion for all environmental taxation (see Annex 3 for detailed information on current environmental taxes revenues in France).

However, the evolution of the CCE is likely to constitute a public expense rather than a revenue for the State's budget. In a study using the macroeconomic model ThreeME, Landa, Malliet and Saussay (2016) made estimates regarding the impact of the CCE on total tax revenues, taking into account the decrease in revenue from energy taxes, corporate taxes and VAT (due to the recessive impact of the measure on some economic sectors). As seen in the Figure 10 below, the CCE results in a net cost of around EUR 2 billion for the public budget in 2020.

Figure 10: Impact of the CCE on the composition of tax revenues, in billion euros

(The line represents the net impact of the CCE on public finances)



Source: Landa, Malliet and Saussay, 2016

3.2.3 The Climate-Energy Contribution: a tax mainly paid by households

The failed carbon tax experiences in 2000 and 2009 have proved the importance of a new tax system to respect the principle of tax equality. Regardless of the social and environmental importance of a tax, discrimination between taxpayers must be duly justified and the right balance must be found between tax exemptions and revenue recycling.

It is noteworthy that the tax exemptions of the CCE are roughly the same as those of the carbon contribution invalidated in 2009, the legislator having reiterated its concern to protect economically vulnerable sectors. Those exempted from the CCE are the companies falling under the EU ETS⁶⁴, road haulers, public transport operators, taxi operators, farmers, fluvial transporters of goods, air transport operators for tourism, anglers, navigators and shippers. Preferential rates are also applied for energy products used for specific ends, such as electricity generation (except for some cogeneration installations), and extraction and production of natural gas⁶⁵. Overall, the CCE covers 180MtCO_{2e}, corresponding to 40% of the emissions in France (Canfin, GrandJean and Mestrallet, 2016). However, it can be estimated that “though exemptions remain, the basis of the carbon component is wider than that of the 2009 carbon tax proposal” (El Beze, 2014; p.7).

Although the CCE will likely have a neutral macroeconomic impact, this does not mean that the tax burden will be null for all taxpayers alike. Overall, due to the many exemptions and recycling to economic actors, it is estimated that 67% of the CCE revenues will come from households and 33% from companies.

⁶⁴ The exemption of ETS companies from the CCE was justified by the need to preserve the competitiveness of the sector concerned and to avoid double taxation. With ETS allocations being mostly auctioned since 2013, the legal problem of exonerating companies that receive free allowances did not pose itself this time, contrary to the situation in 2009. The exemption of ETS companies means however that the electricity sector is not covered by the CCE. It was decided so to avoid giving an unfair advantage to the nuclear sector in general and EDF in particular. President Holland announced at the fourth environmental conference in April 2016 a proposal to unilaterally create a carbon price corridor in France from 2017 that would favour the production of gas over coal. However, the proposal was abandoned in October the same year (Les Echos, 20 October 2016).

⁶⁵ Biofuels benefitted originally from preferential rates but are fully taxed since 2016 (Chambre de l'agriculture, 2014).

As shown in Table 10 below, households paid EUR 2.01 billion through the CCE in 2015 and should pay EUR 3.08 billion in 2020, while receiving EUR 0.75 billion as recycling in 2015 and EUR 1.6 billion in 2020. By contrast, companies paid EUR 1 billion in 2015 and should pay EUR 1.52 billion in 2020, while receiving through recycling EUR 2.26 billion in 2015 and EUR 3 billion in 2020. The differential is constant, with households losing, after recycling, EUR 1.26 billion in 2015 and EUR 1.48 billion in 2020, and companies receiving the same amount.

Table 10: Net contribution from households and companies to the CCE, in EUR billion

		2015	2016	2017	2018	2019	2020
Financing	For households	2.01	3.11	3.1	3.07	3.08	3.08
	For companies	1.0	1.53	1.53	1.53	1.52	1.52
Recycling	For households	0.75	1.64	1.63	1.60	1.6	1.6
	For companies	2.26	3.0	3.0	3.0	3.0	3.0
Net balance	For households	-1.26	-1.47	-1.47	-1.47	-1.48	-1.48
	For companies	1.26	1.47	1.47	1.47	1.48	1.48

Source: adapted from Landa, Malliet and Saussay, 2016

For households, this net balance hides differences depending on economic inequalities. The French Ministry of Environment, Energy and the Sea's General Directorate for Sustainable Development (CGDD) estimated that the annual additional cost created by carbon taxation was, on average, EUR 83 per household in 2016⁶⁶ (corresponding to 3% of the total energy bill, based on 2013 energy consumption data), which should rise up to EUR 245 in 2020. By energy type, the average additional cost for households in 2016 was EUR 4.76c/L for petrol and heating oil, EUR 5.34/MWh for gas, and EUR 4.10c/L for diesel (Simon and Khamsing, 2016).

These results vary depending notably on heating type, method of transportation, household type, place of residence and income levels:

- Households using heating oil for heating are the most affected, with an additional cost in 2016 of EUR 87/y, against EUR 69/y for gas and EUR 5/y for electricity and other forms of energy⁶⁷.
- Regarding transportation, households using a diesel-powered car make the greatest contribution with an estimated additional cost of EUR 57/y, against EUR 30/y in case of a petrol-powered car.
- The additional cost is also higher for couples with children (EUR 114/y) than one-parent families (EUR 73/y) or single persons (EUR 50/y).
- Households living in rural areas paid in 2016 on average an additional cost of EUR 92/y against EUR 70/y for those living in metropolitan areas.
- Regarding income levels, as is shown in Figure 11 below, while on average the CCE represents an

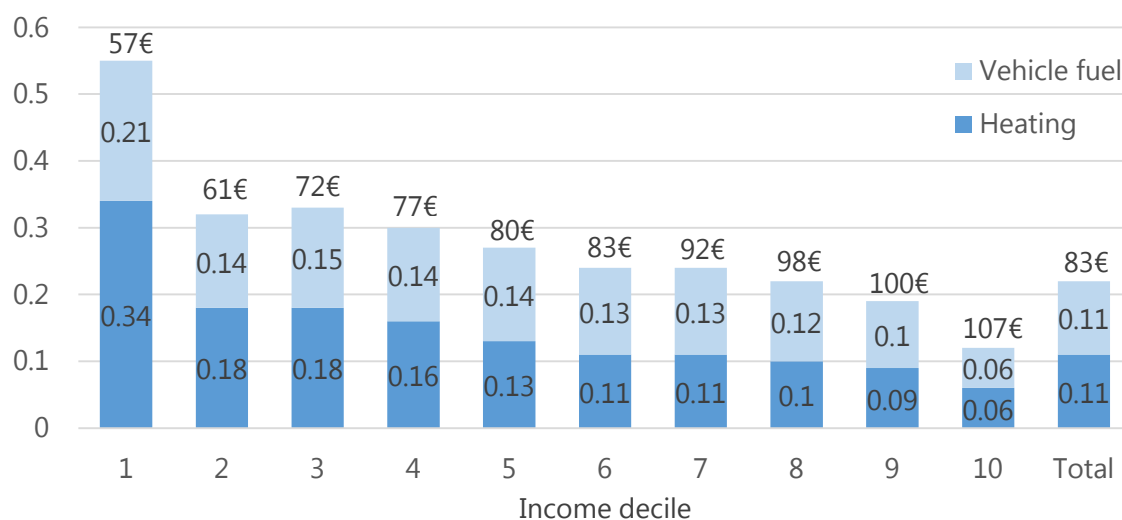
⁶⁶ The report notes, however, that in the same time, between 2014 and 2015, households' fuel expenses decreased by EUR 120 due to the drop in oil prices.

⁶⁷ Electricity itself is not taxed but this small additional cost corresponds to the use of gas or heating oil by households for other purposes than heating, such as cooking or hot water.

additional cost of 0.2% of households' income, it rises up to 0.6% for the poorest households in the first income decile and drops down to 0.1% for the richest households in the tenth income decile.

Figure 11: Average additional cost from the CCE for households in 2016 per income decile

(In percentage of total income)



Source: adapted from Simon and Khamsing, 2016

As can be observed in this figure, the poorest households pay the smallest contribution to the CCE due to a smaller energy consumption, but this contribution represents a larger share of their revenue than that of richer households. It is also noticeable that heating constitutes the biggest expense for the households in the first income decile, while the difference between heating and vehicle fuel expenses is minor in the next deciles.

The calculations of the CGDD do not take into account a change in household behaviour, which is likely to remain the same in the short-term. However, the mid and long-term fossil fuel consumption pattern for both households and companies might evolve towards low-carbon behaviours, depending on the effectiveness of tax recycling mechanisms.

3.2.4 The tax recycling of the CCE: more economic compensation than energy transition

The recycling of an environmental tax is always oscillating from compensation measures, to make the tax burden as light (and socially acceptable) as possible, and reinvestment to environmental-friendly uses. The condition of social acceptability had proved to be so overwhelming with the carbon contribution project in 2009 that the recycling of the CCE was mostly directed towards compensation, until recently opening up financing to energy transition through financial support for energy efficiency and renewable energy development.

Recycling of the CCE revenues to economic neutrality

In 2016, the CCE generated around EUR 4 billion of tax revenues, which were recycled as follows:

- EUR 3 billion were used for redistribution to companies through the tax credit for competitiveness and employment (CICE),
- EUR 700 million were used for the VAT reduction to 5.5% on thermal building renovation and essential goods and services for energy transition,
- EUR 300 million were used as compensation for households through a green check. The redistribution is proportionate to the income levels, spanning from EUR 1,350 for a person earning up to EUR 25,000 per year to EUR 3,000 for the lowest earners.

Overall, the main beneficiaries of the CCE revenue redistribution are households that are the most economically impacted by energy prices fluctuation (poor households and those living in suburban or rural areas concerned by energy precariousness), and small and medium enterprises (SMEs) lacking public support. However, as seen above, three-quarters of the recycling is directed towards redistribution to companies through the CICE.

Created by the Finance Act for 2012 and entered into force in January 2013, the CICE is a fiscal benefit for companies paying social contributions for labour costs. It consists of a tax credit of 7% of paid wages⁶⁸ that the company can claim as a refund (2017 rate). The CICE's purpose is to provide companies with finance to improve their competitiveness through investments, research, innovation, employment, ventures into new markets, ecological and energy transition (Article 244 quarter C of the General Tax Code). The CICE cannot be used to raise distributed profits or to raise executive remuneration⁶⁹.

In total, the CICE yielded EUR 14.2 billion of savings to companies in 2014, and EUR 16 billion in 2015. This corresponds of a rebate of EUR 650 euros per employee and per quarter, for a SME of more than 20 employees. Regarding employment, the CICE is estimated to result in the creation or conservation of 150,000 jobs⁷⁰ and in a 2.6% reduction of companies' labour costs by 2018, according to the OFCE's estimations (Plane, 2012).

The CICE was created before the creation of a carbon tax and thus exists independently from its funding. Along with the "Pact for responsibility and solidarity"⁷¹, it is the government's flagship programme for competitiveness and employment, contributing to a strategy of fiscal devaluation and replacing an impossible monetary devaluation (OFCE, 2015). In spite of the large share of the CCE's revenues being channelled to the CICE, this amount actually corresponds to a minor fraction

⁶⁸ The wages taken into account are those that do not exceed 2.5 times the minimum salary (SMIC). In spite of this condition, the CICE has a wide coverage, as 90% of French companies have 70% of their payroll eligible to the CICE.

⁶⁹ While it has been proven that the CICE has contributed to job creation, it has also been widely criticised for having been used to increase companies' margin. The conditions for use of the CICE are indeed written in the law but there is no mechanism to enforce them and control how exactly the money is used.

⁷⁰ A study from the International Monetary Fund (IMF) estimates the CICE's impact in terms of job creation to 200,000 jobs in the short run and up to 600,000 jobs in the long run (Espinoza & Pérez Ruiz, 2014). A more recent study from the OFCE estimates that the CICE should lead to the creation or conservation of 530,000 jobs by 2018 and an increase of 1.2 points in GDP (Ducoudré et al., 2016).

⁷¹ Announced in December 2013 by President Hollande, the Pact relies on a trade-off between cheaper labour costs for employers and fewer regulatory barriers for companies' activities, in return more employment and more social dialogue.

of the CICE's funding. As can be seen in Table 11 below, most of the financing of the CICE comes from savings in public expenditure (EUR 10 billion) and an increase of the intermediary VAT from 7% to 10% and the regular VAT from 19.6% to 20% (EUR 6 billion for both). The CCE contributes only to the remaining EUR 4 billion⁷².

Table 11: Costs and financing of the CICE and Pact for responsibility, in billion euros

		2014	2015	2016	2017	2018
Measure	Tax credit for competitiveness and employment (CICE)	10.2	17.3	18.5	19.3	19.9
	Pact for responsibility and solidarity	0	4.5	7.8	9	9
	Total cost of measures reducing labour costs (CICE + Pact)	10.2	21.8	26.3	28.3	28.9
Financing	VAT increase	6	6	6	6	6
	Increase of the Climate-Energy Contribution (CCE)	0	2.5	4	4	4
	Structural restructuring of public debt	5	13	16	19	19
	Total financing for the measures	11	21.5	26	29	29

Source: adapted from Ducoudré, Heyer, & Plane, 2016

Therefore, a major part of the tax revenues of the CCE contributes to a minor part of a tax benefit in favour of employment. Aside from this, EUR 300 million are redistributed to vulnerable households through a green check and EUR 700 million directly supports the energy transition through a VAT decrease of energy efficiency in the building sector. Chiroleu-Assouline (2015) notes that the financing of the CICE by the CCE, while originating from social justice considerations, cannot be used to justify the introduction of the CCE, which should be motivated by the broader purpose of greening the entire fiscal system.

Recycling of the CCE revenues to energy transition

The Finance Act for 2017 introduced some new elements to this financial landscape by channelling the revenues issued from the increase of the carbon price from 2016 (EUR 22 /tCO₂) to 2017 (EUR 30.5 /tCO₂) to the Special Appropriation Account (CAS) for Energy Transition. Created by the Amending Finance Act for 2015, the CAS includes the programmes 764 and 765, whose main purpose is to support the development of electricity-related renewable energy. In 2017, the budget of the CAS Energy Transition increased by 60%, going from EUR 4.37 billion to EUR 6.98 billion (French Senate, 2016).

The main reason for this sharp rise is the increase of the carbon price of the CCE. As shown in Table 12 below, 99% of the additional revenue from the CCE for 2017 (EUR 1.73 billion) is to be channelled to CAS Energy Transition. It can be noted that this allocation changed after revision by the National Assembly, although the final amount remains the same. In 2016, the CAS was financed by 100% of the TICFE (the new CSPE, or tax on electricity), 26.64% of the TICGN (tax on natural gas), 9.09% of the TICC (tax on coal) and 7.72% of the TICPE (tax on oil).

From 2017, for the same total amount (EUR 6.98 billion), the CAS will be financed by 9.09% of the TICC (EUR 1 million) and 39.72% of the TICPE (EUR 6.98 billion). With this change of allocation, financial support for the development of renewable energies in France is only coming from taxes on fossil fuels (coal, petrol

⁷² As mentioned above, other sources estimate a result closer to EUR 3 billion.

and diesel), and no longer from taxes on other energies that are not carbon-intensive (electricity and natural gas).

Table 12: Recycling of the additional carbon tax revenues in 2017, in EUR million

	Additional tax revenue from the carbon price increase of the CCE for 2017	Share allocated to the Special Appropriation Account (CAS) for Energy Transition
TICGN (gas)	350	373
TICC (coal)	1	1
TICPE (oil)	1,393	1,357
Total	1,744	1,731

Source: French Senate, 2016

The intersection between environmental object and economic benefits in a carbon tax is the foundation of the double-dividend principle. It is therefore not surprising that the recycling of the CCE overlaps both green investments and compensations to households and companies, even though the share of financial allocation is likely to continue to change. The particularity of the CCE, compared with “pure” carbon taxes, is that its core structure was adopted in a legislation on energy transition. As such, the CCE might be seen as not only a tool for GHG emission reductions but also a driver for change in the whole energy system.

It can be noted that, during the examination of the Finance Act for 2017, various associations of local authorities released a joint communiqué calling the government to adopt an additional climate endowment for regions and inter-communalities⁷³. This special endowment would have aimed to cover the development costs⁷⁴ of climate-air-energy plans by those territories, as requested by the Energy Transition Act (Association of French Mayors, 2016). This proposal, while adopted by the Senate, was rejected by the National Assembly in December 2016, with the State Secretary for Budget Christian Eckert giving a reminder that the additional revenues from the CCE were already allocated to the CAS Energy Transition (Maire Info, 21 December 2016). However, it would not be surprising to see this kind of additional allocation examined again in future Finance Acts.

⁷³ Inter-communalities are regroupings of municipalities in a bigger entity, pooling together competences and resources.

⁷⁴ The communiqué notably notes that the CCE would generate around EUR 4.5 billion in 2017, while the cost of the new obligations for local authorities would not exceed EUR 900 million.

4. LESSONS FROM PAST EXPERIENCES AND REFLECTIONS ON THE PATH TOWARDS TRANSFORMATIVE CARBON TAXATION

4.1 LESSONS ON THE CARBON TAX STRUCTURE AND ADOPTION PROCESS

4.1.1 Recommendations for an optimal carbon tax structure

In public policy as in life, failure is often a better teacher than success. The adoption of the CCE in 2013, as well as the invalidation of the ecotax in 2000 and carbon contribution in 2009 by the Constitutional Council, provide many learning opportunities on how to design the optimal carbon tax structure. While many elements of the discussions pertained to the specific French context, some fundamental principles emerged. They are listed below, following terminology of the FASTER Principles for Successful Carbon Pricing report from the Organisation for Economic Co-operation and Development (OECD) and the World Bank Group (2015):

Transparency

The first recommendation regarding the structure of carbon taxes, after looking into the French case, would be to choose simplicity over complexity. A carbon tax tends to be a complex measure, and its explanation to the public raises further difficulties, as will be seen below. Therefore, it appears safer for policymakers to create a taxation system with simple features. The ecotax in 2000 notably had a complex calculation system with an abatement coefficient and the unique metric of TOE, instead of CO₂, which resulted in a situation of inequality between taxpayers.

Another important recommendation would be to establish a clarity of purpose. Incentive-based taxes are assessed relatively to their purpose, so it is useful to clarify this purpose. To do this, it is crucial to integrate the tax in a broader fiscal or policy reform. The insertion of the long-term increase of the CCE in the Energy Transition Act of 2015 was instrumental to its adoption. Without a broader policy context, a carbon tax might be seen as a simple environmental tax with no other purpose than to reduce CO₂.

Fairness

Fairness has been a major concern for policy makers in designing carbon taxes, as it has a great deal of influence on the social acceptability – and thus the political viability – of the tax. Legally, the fairness of a tax also determines its respect or infringement of the tax equality principle, which has constitutional value. One crucial condition for tax fairness is to ensure the proportionality between CO₂ emissions and the tax rate. For instance, in the ecotax of 2000, the calculation system of the tax abatement coefficient could have resulted in a situation where one company is taxed more than a similar one, even though it emitted

less CO₂. Such system, in addition to being complex as seen above, is also unfair and posed for this reason was judged unconstitutional.

Another major condition for tax fairness is to avoid unjustified inequalities between different groups of taxpayers⁷⁵. Taxpayers are often divided between households and companies. A tax burden on households may impact their purchasing power and access to energy, while a tax burden on companies affect their economic competitiveness. Policymakers are legitimate in attempting to address those two concerns, but should be careful not to tip the balance too much to one side. If the purpose of a carbon tax is to address climate change issue by facilitating decarbonisation of the whole economy, efforts cannot be forced on one group alone. Although it did not pose a constitutional issue, the ecotax in 2000 was only directed towards companies, excluding households. This could lead one to think that it would not have been effective enough to create an incentive to generate the desired emission reductions.

Similarly, ensuring fairness also requires avoiding unjustified inequalities within the same group of taxpayers. A difference in tax treatment between taxpayers in the same group hampers the effectiveness (and fairness) of a carbon tax. In the case of the carbon contribution in 2009, while it was important to protect the competitiveness of vulnerable sectors, too many exemptions prevented the tax from achieving its incentive purpose. The fact that the most carbon-intensive companies (ETS companies) were exempted from the tax notably posed a problem of equality by leaving the tax burden to companies that emit less.

Stability and Predictability

The carbon price itself is as important as its progression in the long-term. Most of the discussion regarding a carbon tax revolves around the price of a ton of CO₂. However, it has been proven that the most important factor is not the price itself, as the price will never be high enough to truly reflect the externalities of CO₂-emitting activities. What matters is the establishment of a long-term trajectory of the carbon price that can incite economic actors to shift away from those activities. The price signal is guaranteed as much by the tax rate than by the steadiness of the price increase. In 2000, as in 2009, one of the main flaws of the tax projects was that it did not comprise a long-term evolution of the carbon price.

One a side note, the analysis of the current CCE is a stark reminder that the price signal of the carbon tax also depends on the level of other energy taxes. Carbon taxes are, in the end, additional energy taxes based on the carbon content of the taxed energy, so the incentive created disappears if regular energy taxes are being reduced. In the CCE, the constant reduction of basic energy taxes greatly offset the

⁷⁵ The two examples below, regarding inequalities between different groups of taxpayers or within the same group, could also be categorised as an environmental integrity issue. They are listed here as a fairness issue because the study of the constitutional rulings in 2000 and 2009 reveal that environmental effectiveness arguments were in fact only accessory to tax equality arguments. The legal basis for invalidating the tax in both cases was the tax equality principle, even though the Council did mention that the proposed tax would have, incidentally, failed to alleviate climate change. Both issues are nonetheless connected: a narrow tax base limits the environmental efficiency of a carbon tax AND creates inequalities (and thus unfairness) between taxpayers.

increase of the carbon price, which blurs the price signal for economic actors.

4.1.2 Recommendations for a sound carbon tax preparation and adoption process

The three experiences of adoption of a carbon tax in France also highlight the importance of a well-planned tax adoption process. The preparation of a tax proposal revealed in each case to be the most critical factor of success or failure of the proposed tax. As with the optimal carbon tax structure, no single element can be said to guarantee the success of a tax. However, three main factors emerged:

The importance of continuous and consistent high-level political support

A tax is never a politically popular topic, even when its economic benefits are well-proven by experts, such as in the case of environmental and, specifically, carbon taxation. Therefore, early support for the tax proposal by the head of State or government paves the way for a strong draft proposal. This high-level political involvement was instrumental in carrying the projects in 2000, 2009 and 2013. The coordination of the proposal by a single influential minister stood out as a determining factor as well. We have seen that inter-ministry (and ministers) rivalries could slow down the preparation process, similar to what happened with the ecotax of 2000, and that conflicts between ministers in the midst of the adoption process could also confuse the message that the government tries to convey, as was the case with the carbon contribution in 2009.

Similarly, the adoption process of the CCE showed that a high turnover of environment ministers resulted in weak leadership for the project. Conversely, the nomination of a prominent politician to spearhead the project can be instrumental, as proved by the role of Ségolène Royal in adopting the Energy Transition Act. Finally, we can also note that an alliance with the Green Party, or the presence of the Green Party in government, such as in 2000 and 2013, can provide some impulse for the adoption of a carbon tax.

The role of stakeholder consultations in facilitating the adoption of a strong tax proposal

We have seen that holding consultations that bring together various stakeholders such as policymakers, private companies, local authorities and NGOs can be a major way to disseminate expert knowledge on carbon tax and to have parties adopt a report that would serve as the basis for a tax proposal all could agree on. In 2009, for instance, the adoption of the Quinet and the Rocard reports constituted a milestone that still serves as major reference today. Expert reports without such an ambitious consultation process such as the ADEME report in 2009 can also support the draft proposal with up-to-date scientific knowledge. Finally, even if not directly related to carbon taxes, national discussions such as the annual environmental conferences from 2012 and the national debate on energy transition in 2012-2013 can serve as a forum to include carbon taxation at the heart of a more inclusive reform programme.

We can also note that, on the contrary, the complete absence of consultation can also be a way to adopt a tax, such as with the CCE which was discretely included in the Finance Act for 2014 without much attention from the media. However, this scenario only postpones the inevitable confrontation with stakeholders, who can only act in conformity with the purpose of the incentive-based tax if they know the

existence of the tax and understand the implications of its long-term trajectory.

A clear communication strategy is vital to convey the right message to the public.

In the end, no matter the political support and preliminary consultations, the success or failure of a carbon tax project seems to hinge upon how well the government sells it. It is first important to leave some time to explain the implications of a carbon tax. The hasty adoption of the carbon contribution in 2009 annihilated the benefits of the careful stakeholder consultations held before that. Later interviews revealed that many Members of Parliament who opposed the tax (and took it before the Constitutional Council) did not actually understand fully its content and potential economic benefits. Besides, even experts admitted having not had enough time to analyse in detail the revised proposal. Similarly, communication with the broader public is what will determine the outcome of the political negotiation process.

The communication fiasco in 2009 sealed the fate of the carbon contribution, in spite of a sound preparation process. The public discussion focused essentially on the share of tax burden allocation between households and companies and on the scope of compensation measures, and not on the economic, social and environmental benefits of the incentive that would have been created by a carbon tax. Having the right discussion is critical to gain social acceptance of the tax and avoid the usual tensions associated with taxes.

4.2 GOING BEYOND ENVIRONMENTAL TAXES TO POSITION CARBON TAXATION AS THE PILLAR OF LOW-CARBON TRANSITION

4.2.1 A carbon tax is more than a tax, it is an instrument redefining the fiscal dynamics of the economic system

As seen above, the three experiences of carbon tax in France analysed in this paper have shown that the most important factor for a successful adoption of such tax is good communication, as this will influence how stakeholders, the media and the public will understand and react to the tax. Yet, public discussion regarding carbon taxation always seems to miss the main point of carbon taxes. Carbon taxation is still merely considered as a tax with an environmental objective, and not as an economic catalyst for low-carbon transition.

A carbon tax differs from most environmental taxes. Traditional environmental taxes are downstream taxes that, following strictly the polluter-pays principle, have a narrow scope and a clearly identifiable polluter. Carbon taxes are upstream taxes with a broad scope and a polluter that is not easily identifiable. A carbon tax is a measure that aims to create an economic incentive for all economic actors to shift away from carbon-intensive behaviours and to redirect them towards low-carbon alternatives. In that sense, a carbon tax is more an economic instrument with a broad environmental goal – the low-carbon transition of the economy – than a fiscal instrument with a delimited environmental scope. In spite of this inherent characteristic, with the ecotax in 2000, the carbon contribution in 2009 and now with the current CCE, the main concern of the government was to nullify the economic impact of the tax in order to preserve

companies' competitiveness and households' purchasing power. The scope of tax exemptions, in each case, revealed a liberal conception that still considers the environment as an economic burden. Due to this inconsistency, the government was unable to follow through the strict logic of the polluter-pays principle and to create a tax that would effectively put a price on GHG emissions (Ambomo, 2010).

Aside from tax exemptions, the mistrust from the government regarding environmental taxation is also illustrated by the tax rates adopted. As mentioned above, in 2000 and 2009, the tax rates did not include a price evolution trajectory, which is a key element to the price signal of a carbon tax; the government simply promised to task a special commission to deal with the matter. The level of the tax rates themselves were not particularly disruptive either: 260 francs per ton of CO₂ for the proposed ecotax in 2000, EUR 17 for the proposed carbon contribution in 2009 and EUR 7 for the CCE in 2014. In relation to this relatively low carbon price, we note today a concomitant drop in energy prices and a slow decrease in basic energy taxes that contribute to compensate for the increase in carbon tax.

Even with a carbon price increasing over time such as with the CCE, the immediate incentive effect on economic actors is blurred by a price that is insignificant in most energy bills (taking into account compensation schemes). As noted by Chiroleu-Assouline (2015), "high tax rates allow a visibility of the price signal and its efficiency on a low-elasticity tax base. (...) The introduction of small tax increases, on the contrary, suggests that it is more about accepting an additional tax than to produce environmental benefits. The environmental argument is hence viewed as the promotional marketing of a revenue-based tax, especially in a context of strained public finances" (Chiroleu-Assouline, 2015; p.159).

Seen as just "another tax" created for the honourable reason of environmental protection, the public debate on carbon taxes revolves mainly on the budgetary repercussions for households and company finances. The discussion concerning the carbon contribution during the summer of 2009, which was the most mediatised of the three carbon tax experiences, focused mainly on the extent of compensation schemes and whether heavy industries (ETS companies) should pay the tax. However, while arguing about how to mitigate the additional costs created by a carbon tax, the debate shifts away from the central question of how the tax can produce long-term economic and social benefits through an environmental tax incentive. In the book "Carbon Taxation and Climate Finance – A Social Contract for our Era" by Hourcade and Combet (2017), the authors notably point out that the argument for a decrease in social security contributions has been absent from the public debate in France over the last 25 years.

Indeed, in the context of high taxation and slow economic growth, a carbon tax would allow a shift in the tax burden from the economic goods (economic production) to the economic bad (CO₂ emissions), which would favour economic growth in general and employment in particular. This argument, which could be popular with employers, labour unions and NGOs, is still ignored. The authors note that this general misunderstanding of the long-term implications of a carbon tax results in polarising the debate around the question of who will pay the tax, between households and companies⁷⁶. In the end, the discussion is

⁷⁶ Hourcade and Combet (2017) also note that this debate is meaningless in the end as households are always the ones paying compulsory levies in the end market. This is because companies usually choose to pass down the additional tax cost to their consumers, and companies that cannot pass down costs to consumers are in general exempted from the tax.

always about the impact of the tax on consumers, on taxpayers, on employees etc., but never about the benefits of a low-carbon society for all citizens and how a carbon tax can facilitate the transition.

4.2.2 A carbon tax is more than a tax for the environment, it is the key to transition to a low-carbon economy

Ignorance on the potential of a carbon tax as a driver for low-carbon transition is caused by the fact that carbon taxation is consistently seen as a pure environmental matter. The confinement of carbon taxation to environmental issues is particularly apparent in the way the tax proposals were handled. The ecotax of 2000 and carbon contribution of 2009 were notably seen as a particular demand from the Green Party. The fact that the government, in both cases, abandoned the projects after their invalidation by the Constitutional Council shows well that it was not a priority item on the policy agenda, whether for parties on the right or the left. Even more noteworthy, the discussions regarding CCE in 2013 (whereby long-term targets were included in the Energy Transition Act) were not connected to the national debate on energy transition or to other discussions on major topics of the Holland presidency such as the Pact for responsibility (Hourcade and Combet, 2017).

Even the Constitutional Council, far from merely verifying the conformity of the law with the Constitution, ventured to make extra-legal analysis in order to assess the environmental effectiveness of the proposed taxes. It stated in 2000 that electricity should not be included in a carbon tax as the electricity sector is relatively low-carbon in France, and declared in 2009 that the exclusion of ETS companies goes against the objective of climate change mitigation. However, the Council never analysed the potential of the carbon tax as an economic vector for low-carbon transition. It did not consider how the tax could facilitate this transition through the incentive effect on economic actors of a price signal and the recycling of the tax revenues towards low-carbon investments. Of course, such analysis goes beyond the traditional scope of the control of constitutionality operated by the Council. However, since the Council already went as far as to assess the environmental effectiveness of the proposed taxes, one could wonder why it did not also assess the potential economic benefits of such taxes. Those constitutional experiences show that the effectiveness of a carbon tax is better assessed by looking at its indirect economic impact than its direct environmental base.

The study of the history of carbon taxes in France also requires stepping back from policy and legal considerations, looking into the relationship of taxpayers with taxes and ecology in general. Reducing a carbon tax to its environmental object tends to create anti-ecological reactions, by which people do not want to pay more, even for a good cause (albeit poorly sold)⁷⁷. It also creates anti-tax reactions and this reflects a deeper tension in acceptance of taxes by the French people. In the fiscal tradition in France, taxes are historically associated with the sovereign power of the State to raise revenues for its maintenance and for covering public services. As Godard (2010) puts it, "in France taxes are mostly created as a means to accompany the technical and administrative control conducted by (national) public authorities on

⁷⁷ The task of convincing that environmental taxes are not regular revenue-raising taxes notably ended up in 2009 by framing the carbon contribution as a tax for the environment and it is still not sure whether taxpayers will see the CCE differently when it is brought under the spotlight of the medias.

companies, local governments and households, and not as an economic instrument aiming to influence the free will of decentralized agents" (Godard, 2010; p.3).

From the public's perspective, taxes are seen as a necessary evil that is better avoided, which is the logical consequence of the non-allocation of taxes to specific budgets. The aim of taxes is lost in the vague midst of public interest. The Ombudsman, in his report for 2010, noted that "the relationship of French people to taxation is symptomatic of the deterioration of citizenship. In the minds of many, taxes are but a compulsory levy. They are not understood anymore as a pillar of the republican pact. (...) This fracture between citizens and public policies results to a feeling of degradation of social justice" (Delevoye, 2010; p.12).

Hourcade (2015) goes further in the analysis, showing that carbon taxation is seen as punitive because it is adopted in the context of an old social contract. This social contract, signed implicitly by the working class, guaranteed workers the improvement of their living standards as long as they contributed to the development of the economy during the "Glorious Thirty". This social contract is characterised by the rise of the welfare State financed by social contributions, an easy access to individual property, and cheap energy prices that facilitated a massive urban sprawl, the development of individual transportation, intensive agriculture and consumerism.

In this context, most people cannot easily change jobs or place of residence, and thus see a carbon tax as a punishment for bad citizen behaviour, justified by the distant reason of "saving the planet". While they thought they were doing the right thing by complying with the old social contract, they are now somehow being punished for doing what was before encouraged. In this situation, climate change is not a convincing enough reason on its own to justify increased taxation levels on energy, especially when cheap energy was consistently described by media as benefitting the working class (Hourcade & Combet, 2017).

Such is the tension surrounding the subject of the environment and taxes (and even more taxes perceived as "for" the environment) that the main strategy of the government to adopt the CCE in 2013 was to do so as discretely as possible, in a process that was more political gamble than well-prepared policy⁷⁸. If such a strategy worked to finally adopt a carbon tax after 25 years of failures, it has yet to prove being able to maintain its trajectory. As mentioned in Chapter 3, a constant political commitment to the CCE will be necessary to ensure the actual increase in the carbon price. Describing the carbon tax as an environmental tax emphasises the environmental object of the tax but overlooks the cross-sectoral implications of the measure.

While a carbon tax works by taxing energy consumption, its ramifications touch upon many other fields such as energy generation, macroeconomic competitiveness, wealth production and social welfare. It thus affects the concrete realities of all economic actors and should be treated as the pillar of change in the 21st century. In this respect, carbon tax reform cannot be marginalised as an environmental side-line of

⁷⁸ Even the president of the Commission on Sustainable Development, Jean-Paul Chanteguet, admitted in the report on the implementation of the Energy Transition Act being surprised of having been able to adopt the CCE in the Act (French National Assembly, 2016, p450).

energy transition policy, but requires a comprehensive fiscal reform that puts low-carbon transition at the heart of the economic system. While this reform is already underway, a major challenge for the new French government will be to keep the momentum, implement the measures contained in the Energy Transition Act, and to give to carbon taxation the central role that it is meant to assume in the low-carbon transition.

It might be possible to avoid having to find a public consensus on the concrete decarbonisation of the economy for now, as long as energy prices remain low and generous compensations make up for the increase of a relatively low carbon price. However, in the future a national dialogue should be held on the active role of carbon taxation in implementing the low-carbon transition and achieving the climate goals of France. A measure that aims to encourage people to transition to low-carbon lifestyles and companies to switch to low-carbon investments is one that cannot operate in the dark.

Annex 1: Comparison table between the three carbon tax projects in France

	ECOTAX Invalidated (2000)	CARBON CONTRIBUTION Invalidated (2009)	CLIMATE-ENERGY CONTRIBUTION 2014 – present
Influential international event	Adoption of the Kyoto Protocol (1997)	Upcoming Copenhagen Conference (2009) EU Climate and Energy Package (2009)	Upcoming COP21 in Paris (2015)
Influential national parameter	Conclusions of the Inter-ministerial Mission on the Greenhouse Effect (MIES)	Grenelle of the Environment (2007) Signature of the Ecological Pact by presidential candidate N. Sarkozy (2006)	Electoral agreement signed between the Socialist Party and the Green Party (2011) Campaign promise of F. Hollande (2012) Second environmental conference (2013) Parliamentary resolution proposal (2013)
Preparation process	White Book compiling results of consultations with industries (1999)	Landau Group (2007) Quinet Commission (2009) Rocard Commission (2009)	Roadmap for Ecological Transition (2012) Committee for Ecological Taxation (2013)
Communication	Described as a way to finance the new 35-hour working week policy	Fast adoption process to focus on simple messages Unsteady position of the government regarding major elements of the tax	Discrete adoption merged with the energy transition reform
Opposition	Protests from road transport workers Opposition from the heavy industry	66% of the French people were opposed to the tax (Sept 2009)	Strong initial opposition by politicians, notably among the Socialists No real opposition since implementation
Legal support	Amending Finance Act for 2000 (2000)	Finance Act for 2010 (2009)	Finance Act for 2014 (2013) Energy Transition for Green Growth Act (2015) Amending Finance Act for 2015 (2015)
Tax structure	Energy component of the general tax on polluting activities (TGAP)	Carbon component of the domestic consumption tax on energy products (TICPE), the domestic consumption tax on natural gas (TICGN) and the domestic consumption tax on coal (TICC)	Carbon component of the domestic consumption tax on energy products (TICPE), the domestic consumption tax on natural gas (TICGN) and the domestic consumption tax on coal (TICC)
Control of constitutionality	Invalidated for breach of equality with regard to public burdens (2000)	Invalidated for breach of equality with regard to public burdens (2009)	Validated (2013 and 2015)
Legal reasons behind the invalidation	The tax calculation system would have created an unfair threshold effect Taxing electricity is deemed counter-productive to reduce GHG emissions	The tax exemptions, by their scale, are contrary to the objective of fight against climate change and create a breach of equality with regard to public burdens	N/A
Tax base	Fossil fuels (petrol, diesel, heating oil, natural gas, coal) and electricity	Fossil fuels (petrol, diesel, heating oil, natural gas, coal)	Fossil fuels (petrol, diesel, heating oil, natural gas, coal)
Emission coverage	N/A	The tax would have covered 48% of GHG total emissions in France.	The tax covers 180MtCO ₂ e, corresponding to 40% of the emissions in France.
Initial carbon price	260 francs per ton of CO ₂ in 2000	EUR 17/tCO ₂ in 2010	EUR 7/tCO ₂ in 2014, EUR 14.5 in 2015, EUR 22 in 2016 and 30.50 in 2017
Carbon price increase	None: announced to be gradually raised to reach 500 francs in 2010	None: question entrusted to a potential follow-up committee	EUR 39/tCO ₂ in 2018, EUR 47.50 in 2019, EUR 56 in 2020 and EUR 100 in 2030.
Main taxpayer	45,000 of the total 2.8 million companies in France (around 70% SMEs and 30% heavy industries)	Households (57%) and companies (43%)	Households (67%) and companies (33%)
Tax exemptions and rebates	Public administrations, taxpayers using the fossil fuel for transport, heating, energy generation... Minimum of 100 TOE per year (de facto exempting households) Abatement coefficient depending on energy consumption	EU ETS companies, agriculture, fisheries, commercial road freight, public transportation, commercial fluvial freight, national maritime freight, lucerne dehydration and biogas	EU ETS companies, road haulers, public transport, taxis, farmers, fluvial transporters, air transport for tourism, anglers, navigators and shippers. Preferential rates for fossil fuels used for electricity generation and extraction and production of natural gas.
Tax revenues	12.5 billion francs in 2001 (EUR 1.9 billion at 2016 rates) (expected)	EUR 4.5 billion in 2010 (expected)	EUR 340 million in 2014, EUR 3 billion in 2015, EUR 4.5 billion in 2016 and EUR 6 billion in 2017. Total of EUR 70 billion between 2015 and 2030 (expected).
Tax recycling	Financing of the 35-hour working week policy	For companies: elimination of part of the professional tax concerning investment For households: green checks depending on household structure and place of residence (from EUR 46 to EUR 152)	Redistribution to companies through the tax credit for competitiveness and employment (CICE), (EUR 3 billion in 2016) VAT reduction to 5.5% on thermal building renovation (EUR 700 million) Green check for households (EUR 300 million) proportionate to income levels (from EUR 1,350 to EUR 3,000 euros)
Energy price increase	N/A	+EUR 0.041/L for petrol (2010), +EUR 0.045/L for diesel (2010), +EUR 0.0046/kWh for heating oil	+EUR 1.42/L (2017) +EUR 1.61/L (2030) for petrol, +EUR 1.26/L (2017) and +EUR 1.47/L for diesel (2030), +EUR 0.78/L (2017) and +EUR 1/L (2030) for heating oil

Annex 2: The ADEME report on a climate-energy contribution

The French Environment and Energy Management Agency (ADEME) released a report in June 2009 to deliver recommendations on the optimal design of a climate-energy contribution in order to reach a double dividend (Callonec, 2009). In line with the Quinet report, it advocates a tax with a price of EUR 32/tCO₂. Considering that a tax on products depending on their carbon content throughout the product lifetime would be impossible to implement, the report states that the tax should target fossil fuel use. Consequently, the climate-energy contribution would have to be a restructuring of the existing domestic tax on oil products (TIPP), gas (TICGN) and coal (TICC).

An important element to note is that the ADEME report recommended that installations under the EU ETS should be exempted from the tax. The report acknowledges that those installations, which include the energy sector and industrial installations with a power capacity exceeding 20MW, represent 93% of emissions from the industrial sector. However, it also notes that under the EU Directive 2003/96, in principle companies included in the EU ETS should be exempted from the new energy taxes. Besides, it considers that, due to recent reforms, the ETS can de facto be considered as a tax, as the majority of allowances are scheduled to be sold by auction. The exemption of ETS installations from the tax would thus avoid harming the competitiveness of those industries and the carbon leakage that would follow. A carbon tax should thus be adopted in parallel to the ETS and in a complementary manner, targeting fugitive emissions that are not included in the ETS. The report also notes that all the European countries that have adopted a carbon tax also exempted ETS companies from it⁷⁹.

The other main message of the ADEME report was that a climate-energy contribution would be economically and socially harmless. Overall, in case of an additional CCE (with one carbon price for all fossil fuels) at a price of EUR 32/tCO₂, the tax would generate EUR 8 billion in tax revenues, and would cost 0.6% of the added value of non-exempted industries, 0.1% of the added value of companies from the tertiary sector, and 0.27% of household income⁸⁰. In case of a differentiated CCE (with a different carbon price for each fossil fuel) at a general price of EUR 32/tCO₂, the tax would generate EUR 5 billion of tax revenues with an annual cost of EUR 15 per household.

On the social side, regarding transportation, the report estimates that in the worst case, the CCE would cost EUR 58 per vehicle and per year (the value of one full tank). Regarding heating costs, as seen in Table 14 below, the impact on household income depends a lot on heating type (which fossil fuel) and accommodation type (public or individual). Noting the difference in energy consumption between the poorest and richest households (EUR 1,200 per year against EUR 3,000) and the fact that the poorest spend up to 15% of their annual income on energy, the report recommends redistributing the tax revenue

⁷⁹ At that time: the United Kingdom, Sweden, Finland, Denmark and Slovenia.

⁸⁰ Those values are calculated before taking into account a switch to energy saving behaviours and technologies and could be reduced by 9% for the industrial sector, 13% for the tertiary sector and 12% for the residential sector (Callonec, 2009).

through tax credits for energy efficiency or a “universal climate allowance”.

Table 14: Impact of a climate-energy contribution at EUR 32/tCO₂ on households

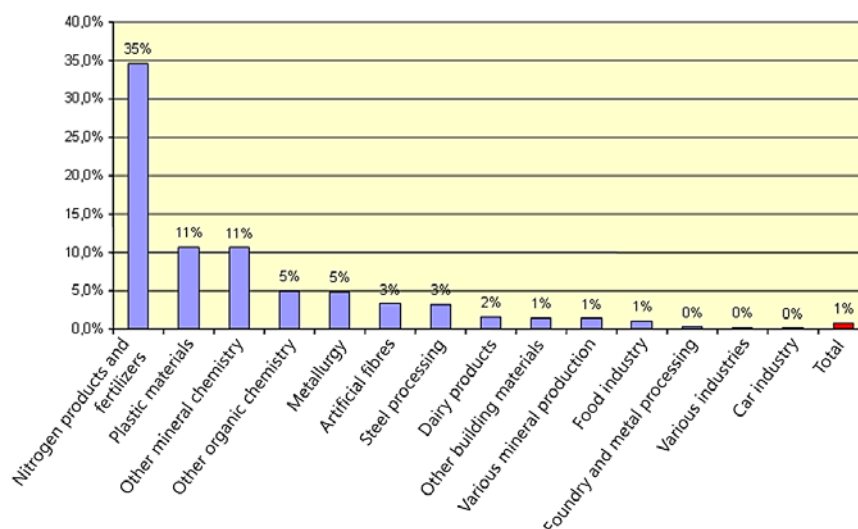
Fossil fuel	Heating type	Number of accommodations (in thousands)	Consumption per accommodation (in kWh)	CO ₂ emissions per accommodation (in tons)	CCE charge per accommodation (32€/tCO ₂)
Domestic gas	Public	5,849	12,811	2.6	84
	Individual	4,618	19,300	4.0	127
Fuel oil	Public	1,022	13,532	3.7	117
	Individual	3,615	19,538	5.3	169
Liquefied natural gas	Public	47.2	8,141	1.9	60
	Individual	723	10,467	2.4	77
Coal	Public	17.9	13,272	4.6	146
	Individual	115.8	12,899	4.4	142

Source: adapted from Callonec, 2009

On the economic side, the report reaches the conclusion that a CCE would generate, at most, an additional cost of 0.08% of the added value of the tertiary sector, 2.1% for agriculture and 2.7% for fisheries. Regarding the industrial sector (excluding electricity), as seen in Figure 12 below, while the report reveals intra-sectoral disparities, overall the total additional cost for all industries together is estimated to not exceed 1% of their added value. Furthermore, no industry exposed to international competition would have to pay a CCE that would be more than 0.5% of its added value. The report thus concludes that a CCE, in those conditions, would preserve the purchasing power of households and the competitiveness of the French industry.

Figure 12: Impact of a potential climate-energy contribution at EUR 32/tCO₂ on industries

(In share of industry's added value)



Source: adapted from Callonec, 2009

Annex 3: List of environmental taxes in France

Table 13: List of environmental taxes in France in 2015

Tax name	Tax revenues in 2015 (in million euros)	Classification by Eurostat
Domestic tax on consumption of energy products (TICPE)	25,615	Energy
Contribution to public service of electricity (CSPE)*	6,663	
Domestic tax on final electricity consumption (TICFE) and TCFE	2,334	
Flat-rate tax on network businesses (IFER)	1,552	
Domestic tax on consumption of natural gas (TICGN)	678	
Other taxes on fuel oil in France's overseas departments	486	
Tax for the professional committee of strategic oil stock	382	
Contribution from low voltage electricity distributors	377	
Other energy taxes	435	
Tax on registration certificates (grey cards)	2,116	Transport
Additional tax on automobile insurance	1,243	
Tax on corporate vehicles	753	
Tax on highways concessionaires	561	
Civil aviation tax	373	
Other taxes on transport	1,082	
Water-pollution charges	1,917	Pollution
General tax on polluting activities (TGAP), not including fuel	525	
Water collection charges	361	Resource
Other resource taxes	25	
TOTAL	47,478	-
Tax and charges for household waste collection (TEOM and REOM)	6,567	Not included by Eurostat

* Since 1 January 2016, the CSPE merged with the TICFE under the name of the CSPE.

Source: adapted from French Ministry of Environment- Energy and the Sea, 2017, based on Eurostat data

References

- Actu-Environnement. (2009). Nicolas Sarkozy devrait annoncer demain les modalités de mise en place de la taxe carbone. Retrieved from http://www.actu-environnement.com/ae/news/nicolas-sarkozy-deplacement_ain_taxe-carbone_impot-revenu_sondage-ifop_8221.php4
- Actu-Environnement. (2012a). " La transition énergétique et écologique de l'économie sera portée au plus haut niveau ." Retrieved from <http://www.actu-environnement.com/ae/news/elections-presidentielles-hollande-ps-environnement-15468.php4>
- Actu-Environnement. (2012b). Périmètres ministériels: l'Ecologie devra composer. Retrieved from <http://www.actu-environnement.com/ae/news/ministeres-arbitrage-bricq-duflot-montbourg-15750.php4>
- Actu-Environnement. (2013a). Conférence environnementale: François Hollande reprend en main la stratégie énergétique. Retrieved from <http://www.actu-environnement.com/ae/news/conference-environnementale-discours-hollande-loi-transition-energetique-fiscalite-ecologique-19502.php4>
- Actu-Environnement. (2013b). La contribution climat-énergie annoncée, une nouvelle taxe carbone? Retrieved from <http://www.actu-environnement.com/ae/news/taxe-carbone-contribution-climat-energie-loi-finances-19278.php4>
- Ambomo, M. (2010). Inconstitutionnalité de la taxe carbone: analyse d'une décision. *Lettre Des Juristes de L'environnement*. Retrieved from http://www.juristes-environnement.com/article_detail.php?id=314#
- Assemblée des Communautés de France. (2015). Loi du 18 août 2015 relative à la transition énergétique pour la croissance verte (TECV). Retrieved from http://www.adcf.org/files/THEME-Environnement/NoteAdCF_LoiTECV_sept2015.pdf
- Association of French Mayors. (2016). Donner aux collectivités les moyens de mettre en oeuvre la transition énergétique. Retrieved from http://www.maire-info.com/upload/files/CP_asso_dotation_climat.pdf
- Barilari, A. (2010). La contribution carbone et le Conseil Constitutionnel: une censure annoncée? *La Semaine Juridique*.
- Boissieux, C. de. (2006). Division par quatre des émissions de gaz à effet de serre de la France à l'horizon 2050. Retrieved from <http://www.ladocumentationfrancaise.fr/var/storage/rapports-publics/064000757.pdf>
- Boiteux Commission. (2001). Transports: choix des investissements et coût des nuisances. Retrieved from <http://www.ladocumentationfrancaise.fr/var/storage/rapports-publics/014000434.pdf>
- Bricq, N. (1999). La fiscalité écologique dans le budget de l'Etat. *Droit de L'environnement*, (n° 66).
- Bricq, N. (2011). Rapport d'information fait au nom de la commission des finances sur les prélèvements obligatoires et leur évolution. Retrieved from <http://www.senat.fr/rap/r11-064/r11-0641.pdf>
- Bureau, D. (2012). The Political Economy Of The 2009 French Carbon Tax Project. Retrieved from [https://www.oecd.org/env/tools-evaluation/The Political Economy of the 2009 French Carbon Tax project.pdf](https://www.oecd.org/env/tools-evaluation/The%20Political%20Economy%20of%20the%202009%20French%20Carbon%20Tax%20project.pdf)
- Callonec, G. (2009). La Contribution Climat Énergie Un « double dividende » écologique et économique. Retrieved from <http://www.ademe-et-vous.ademe.fr/sites/default/files/strategie-etudes/19/ademe-strategie-et-etudesn19.pdf>
- Canfin, P, GrandJean, A., & Mestrallet, G. (2016). Rapport de la Mission, Propositions pour des prix du carbone alignés avec l'Accord de Paris. Retrieved from <http://www.engie.com/wp-content/uploads/2016/07/rapport-mission.pdf>
- Capital. (2009). Deux Tiers Des Français Contre La Taxe Carbone. Retrieved from <http://www.capital.fr/a-la-une/actualites/deux-tiers-des-francais-contre-la-taxe-carbone-432153>
- Carrez, G. (2009). Rapport Assemblée Nationale n°1967 du 14 octobre 2009. Retrieved from

<http://www.assemblee-nationale.fr/13/pdf/rapports/r1967-tl.pdf>

- Caruana, N. (2015). La Fiscalité Environnementale, Entre impératifs fiscaux et objectifs environnementaux, une approche conceptuelle de la fiscalité environnementale. Retrieved from <http://www.rechercheisidore.fr/search/resource/?uri=10670/1.11zvK5>
- Caudal, S. (2001). Un nouvel obstacle pour l'écotaxe sur l'énergie. Retrieved from http://www.persee.fr/docAsPDF/rjenv_0397-0299_2001_num_26_2_3898.pdf
- CBP. (2009). La contribution carbone sur les rails. Retrieved from <http://www.channelbp.com/content/la-contribution-carbone-sur-les-rails>
- Chambre de l'agriculture. (2014). La taxe carbone en trois questions. Retrieved from http://www.chambres-agriculture.fr/fileadmin/user_upload/Revue/Article/Revue_1029/Revue_1029_Taxe_Carbone.pdf
- Charpin, J.-M. (2010). Tables rondes de la commission des finances du 17 février 2010.
- Chiroleu-Assouline, M. (2015). La Fiscalité environnementale en France peut-elle devenir réellement écologique ? Retrieved from <http://www.cairn.info/revue-de-l-ofce-2015-3-page-129.htm>
- Combet, E. (2015). Fiscalité carbone et progrès social. Application au cas français. Retrieved from <https://tel.archives-ouvertes.fr/tel-00813550/document>
- Combet, E., Gherzi, F., Hourcade, J.-C., & Thubin, C. (2010). La fiscalité carbone au risque des enjeux d'équité. *Revue Française D'économie*, (25), 59–91.
- Cottin, S., & Ribes, D. (2000). Fiscalité incitative et égalité devant l'impôt: l'écotaxe devant le conseil constitutionnel. Retrieved from <http://stephane.cottin.pagesperso-orange.fr/ribes/ribes.html>
- Criqui, P. (2009). La Contribution Climat Energie: enfin un prix pour le carbone! Retrieved from <https://halshs.archives-ouvertes.fr/halshs-00440253/document>
- De Carvassal, F. P. (2011). Retour sur la décision n° 2009-599 DC « Loi de Finances pour 2010 » Deux censures pour deux « Idées de Justice ». Retrieved from <http://www.droitconstitutionnel.org/congresNancy/comN7/perezTD7.pdf>
- Delevoye, J.-P. (2010). Rapport annuel 2010 du Médiateur de la République. Retrieved from <http://www.ladocumentationfrancaise.fr/var/storage/rapports-publics/114000149.pdf>
- Ducoudré, B., Heyer, E., & Plane, M. (2016). CICE et pacte de responsabilité: une évaluation selon la position dans le cycle, Simulations ex ante à partir d'un modèle macroéconomique. *Revue de l'OFCE*, N° 146, 5–42. Retrieved from <http://www.cairn.info/revue-de-l-ofce-2016-2-page-5.htm>
- Eckert, C. (2013). Rapport général fait au nom de la commission des finances, de l'économie générale et du contrôle budgétaire sur le projet de loi de finances pour 2014. *Assemblée Nationale, Rapport n°1428*. Retrieved from <http://www.conseil-constitutionnel.fr/conseil-constitutionnel/francais/les-decisions/acces-par-date/decisions-depuis-1959/2000/2000-441-dc/decision-n-2000-441-dc-du-28-decembre-2000.460.html>
- Ekins, P. (1997). On the Dividends from Environmental Taxation. *Ecotaxation*, T. O'Riord.
- El Beze, J. (2014). The reform of energy taxation: an extension of carbon pricing in France. Retrieved from <http://www.chaireeconomieduclimat.org/wp-content/uploads/2015/10/14-12-Policy-Brief-2014-06-Elbeze-EN.pdf>
- Electricity Industry Observatory. (2017). Transition énergétique: quelles conséquences sur les prix de l'énergie pour les ménages ? Retrieved from http://observatoire-electricite.fr/IMG/pdf/ndc_-_fevrierte_et_prix.pdf
- Espinoza, R., & Pérez Ruiz, E. (2014). Labor Tax Cuts and Employment: A General Equilibrium Approach for France. *IMF WP 14/114*. Retrieved from <https://www.imf.org/external/pubs/ft/wp/2014/wp14114.pdf>
- EU Directive 2009/29/EC (2009). Retrieved from <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0063:0087:en:PDF>
- Europe Ecologie Les Verts. (2011). 2012-2017: socialistes et écologistes, ensemble pour combattre la

crise et bâtir un autre modèle de vivre ensemble. Retrieved from http://eelv.fr/wp-content/uploads/2011/11/texte_complet_daccord_EELV-PS1.pdf

European Commission. (1992). Proposal for a Council Directive introducing a tax on carbon dioxide emissions and energy. COM (92) 226 final, 30 June 1992. Retrieved from <http://aei.pitt.edu/4830/1/4830.pdf>

European Commission. (1995). Amended proposal for a Council Directive introducing a tax on carbon dioxide emissions and energy. COM (95) 172 final, 10 May 1995. Retrieved from <http://aei.pitt.edu/10052/1/10052.pdf>

European Commission. (2014). Study on Environmental Fiscal Reform Potential in 12 EU Member States, Final Report to DG Environment of the European Commission, No 07.0307. Retrieved from http://ec.europa.eu/environment/integration/green_semester/pdf/EFR-Final Report.pdf

European Council. (2009). EU climate-energy legislative package. Retrieved from <http://register.consilium.europa.eu/doc/srv?l=EN&f=ST 3736 2008 INIT>

Fondation Nicolas Hulot. (2006). Document de présentation du Pacte écologique.

French Charter for the environment (2005). Retrieved from <http://www.conseil-constitutionnel.fr/conseil-constitutionnel/english/constitution/charter-for-the-environment.103658.html>

French Constitutional Council. (1999). Decision 99-442 DC of 21 December 1999. Retrieved from <http://www.conseil-constitutionnel.fr/conseil-constitutionnel/francais/les-decisions/acces-par-date/decisions-depuis-1959/1999/99-422-dc/decision-n-99-422-dc-du-21-decembre-1999.11853.html>

French Constitutional Council. (2000). Decision 2000-441 DC of 28 December 2000. Retrieved from <http://www.conseil-constitutionnel.fr/conseil-constitutionnel/francais/les-decisions/acces-par-date/decisions-depuis-1959/2000/2000-441-dc/decision-n-2000-441-dc-du-28-decembre-2000.460.html>

French Constitutional Council. (2009). Decision 2009-599 DC of 29 December 2009. Retrieved from <http://www.conseil-constitutionnel.fr/conseil-constitutionnel/francais/les-decisions/acces-par-date/decisions-depuis-1959/2009/2009-599-dc/decision-n-2009-599-dc-du-29-decembre-2009.46804.html>

French Constitutional Council. (2010). Commentary of the Decision 2009-599 DC of 29 December 2009 of the French Constitutional Council. *Les Cahiers Du Conseil Constitutionnel*, Cahier no28. Retrieved from http://www.conseil-constitutionnel.fr/conseil-constitutionnel/root/bank/download/2009599DCccc_599dc.pdf

French Constitutional Council. (2013). Décision n° 2013-685 DC du 29 décembre 2013. Retrieved from <http://www.conseil-constitutionnel.fr/decision/2013/2013-685-dc/decision-n-2013-685-dc-du-29-decembre-2013.139024.html>

French Constitutional Council. (2015). Décision n° 2015-718 DC du 13 août 2015. Retrieved from <http://www.conseil-constitutionnel.fr/conseil-constitutionnel/francais/les-decisions/acces-par-date/decisions-depuis-1959/2015/2015-718-dc/decision-n-2015-718-dc-du-13-aout-2015.144275.html>

French Electricity Union. (2016). Transition Énergétique Les clés pour financer l'évolution de la demande en France. Retrieved from http://ufe-electricite.fr/IMG/pdf/synthese_etude_te_.pdf

French Electricity Union. (2017). Avec l'ELECTRICITE, Une NOUVELLE AMBITION pour la FRANCE, Les recommandations du secteur électrique. Retrieved from http://ufe-electricite.fr/IMG/pdf/projet_livre_blanc_version_ca.pdf

French Ministry of Economy and Finance. (2014). Circulaire du 12 mars 2014: Présentation des dispositions législatives adoptées dans le cadre des lois de finances pour 2014 et de finances rectificative pour 2013 concernant la fiscalité énergétique et environnementale. Retrieved from http://circulaire.legifrance.gouv.fr/pdf/2014/03/cir_38051.pdf

French Ministry of Environment. (2012). Feuille de route pour la transition écologique. Retrieved from

http://www.strategie.gouv.fr/sites/strategie.gouv.fr/files/archives/12-09-21-Feuille_de_Route_pour_la_Transition_Ecologique.pdf

- French Ministry of Environment- Energy and the Sea. (2017). Fiscalité environnementale - Un état des lieux. Retrieved from <http://www.developpement-durable.gouv.fr/sites/default/files/Th%25C3%25A9ma - Fiscalit%25C3%25A9 environnementale - Un %25C3%25A9tat des lieux.pdf>
- French National Assembly. (2000). Legislative bill proposal for the reform of the TGAP, after consensus by the Senate and National Assembly. Retrieved from <http://www.assemblee-nationale.fr/ta/ta0607.asp>
- French National Assembly. (2013a). Proposition de loi visant à créer une contribution climat-énergie. Retrieved from <http://www.assemblee-nationale.fr/14/propositions/pion1317.asp>
- French National Assembly. (2013b). Proposition de résolution pour une fiscalité écologique au cœur d'un développement soutenable. Retrieved from <http://www.assemblee-nationale.fr/14/pdf/propositions/pion0908.pdf>
- French National Assembly. (2015). Loi relative à la transition énergétique pour la croissance verte (Texte définitif). Retrieved from <http://www.assemblee-nationale.fr/14/ta/ta0575.asp>
- French National Assembly. (2016). Rapport d'information déposé en application de l'article 145 du Règlement par la Mission d'Information Commune sur l'application de la loi n.2015-992 du 17 août 2015 relative a la transition énergétique pour la croissance verte. Retrieved from <http://www.assemblee-nationale.fr/14/pdf/rap-info/i4157.pdf>
- French Senate. (2009a). Final Financial Law Proposal for 2010. Retrieved from <http://www.senat.fr/leg/tas09-034.pdf>
- French Senate. (2009b). Rapport général sur le projet de loi de finances pour 2010, *volume 1*(tome II, fascicule 1).
- French Senate. (2016). Projet de loi de finances pour 2017: Écologie, développement et mobilité durables. Retrieved from <http://www.senat.fr/rap/l16-140-310-1/l16-140-310-15.html>
- Geo. (2009a). Les Français favorables à la taxe carbone. Retrieved from <http://www.geo.fr/environnement/actualite-durable/energie-taxe-carbone-42606>
- Geo. (2009b). Taxe carbone: les décisions de Sarkozy. Retrieved from <http://www.geo.fr/environnement/actualite-durable/taxe-carbone-sarkozy-impot-ecologique-50336>
- Geo. (2009c). Taxe carbone: les propositions de la commission Rocard. Retrieved from <http://www.geo.fr/environnement/actualite-durable/environnement-taxe-carbone-rocard-44975>
- Glachant, M., & Leveque, F. (2010). L'économie du carbone incomprise du Palais Royal. *La Tribune*.
- Godard, O. (2010). Genèse et avortement de la contribution carbone en France (2009-2010). Retrieved from <https://gargantua.polytechnique.fr/siatel-web/linkto/?objectId=DOCF002100000008000000000000D6300000000>
- Gollier, C., & Tirole, J. (2010). Taxe carbone, de Charybde en Scylla. *Les Échos*. Retrieved from http://idei.fr/sites/default/files/medias/doc/by/gollier/lesechos_2010-01.pdf
- Goulder, L. H. (1995). Environmental Taxation and the "Double Dividend": A Reader's Guide. *International Tax and Public Finance*, (2), 157–183.
- Hertzog, R. (2011). Le droit fiscal de l'environnement: en croissance sur des fondements incertains. *RFFP*, (n° 114).
- Hourcade, J.-C. (2015). La taxe carbone: une idée toujours d'avenir si... *Revue de l'OFCE*. Retrieved from <http://www.cairn.info/revue-de-l-ofce-2015-3-page-167.html>
- Hourcade, J.-C., & Combet, E. (2017). *Fiscalité carbone et finance climat - Un contrat social pour notre temps*. Retrieved from <http://www.lespetitsmatins.fr/collections/fiscalite-carbone-et-finance-climat-un-contrat-social-pour-notre-temps/>

- Keller, F. (2009). En attendant la taxe carbone... Enjeux et outils de la réduction des émissions de CO₂. Retrieved from https://www.senat.fr/rap/r08-543/r08-543_mono.html
- Keller, F. (2010). Taxe carbone: un état des lieux. Retrieved from <https://www.senat.fr/rap/r09-300/r09-3001.pdf>
- L'Obs. (2006). Nicolas Sarkozy signe le pacte d'Hulot. Retrieved from <http://tempsreel.nouvelobs.com/politique/elections-2007/20061222.OBS4196/nicolas-sarkozy-signe-le-pacte-d-hulot.html>
- L'Obs. (2009). Rocard: la taxe carbone, c'est mon combat depuis 20 ans. Retrieved from <http://planete.blogs.nouvelobs.com/archive/2009/06/10/rocard-la-taxe-carbone-c-est-mon-combat-depuis-20-ans.html>
- Landa, G., Malliet, P., & Saussay, A. (2016). Contribution climat-énergie: quels enjeux pour l'économie française? *L'économie Française 2016*. Retrieved from https://www.cairn.info/l-economie-francaise-2016--9782707186775-page-104.htm#page_header
- Landau, J.-P. (2007). Rapport du groupe sur les instruments économiques du développement durable, *Paris, MIN*.
- Le Monde. (2009). Michel Rocard préconise une taxe carbone de 32 euros par tonne de CO₂. Retrieved from http://www.lemonde.fr/planete/article/2009/07/22/michel-rocard-preconise-une-taxe-carbone-de-32-euros-par-tonne-de-co2_1221392_3244.html
- Le Monde. (2010). François Fillon enterre la taxe carbone. Retrieved from http://www.lemonde.fr/politique/article/2010/03/23/francois-fillon-enterre-la-taxe-carbone_1323228_823448.html
- Le Monde. (2012). Comment le pétrole de la Guyane a eu raison de la ministre de l'écologie. Retrieved from http://www.lemonde.fr/planete/article/2012/06/22/comment-le-petrole-de-la-guyane-a-eu-raison-de-la-ministre-de-l-ecologie_1723112_3244.html
- Le Monde. (2013). La taxe carbone s'invite à l'université d'été du PS. Retrieved from http://www.lemonde.fr/politique/article/2013/08/23/la-taxe-carbone-s-invite-a-l-universite-d-ete-du-ps_3465759_823448.html
- Legifrance. (2005). Loi n° 2005-781 du 13 juillet 2005 de programme fixant les orientations de la politique énergétique. Retrieved from <https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000813253>
- Legifrance. (2013). LOI n° 2013-1278 du 29 décembre 2013 de finances pour 2014. Retrieved from <https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000028399511&categorieLien=id>
- Legifrance. (2015). LOI n° 2015-1786 du 29 décembre 2015 de finances rectificative pour 2015. Retrieved from <https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000031733082&categorieLien=id>
- Les Echos. (2009). Taxe carbone: Rocard veut un signal fort dès 2010. Retrieved from http://www.lesechos.fr/22/07/2009/LesEchos/20470-016-ECH_taxe-carbone---rocard-veut-un-signal-fort-des-2010.htm
- Les Echos. (2016). L'instauration d'une « taxe charbon » abandonnée. Retrieved from https://www.lesechos.fr/20/10/2016/lechos.fr/0211416092554_l-instauration-d-une---taxe-charbon---abandonnee.htm
- Liberation. (2013). Hollande met fin aux fonctions de Delphine Batho. Retrieved from http://www.liberation.fr/france/2013/07/02/hollande-met-fin-aux-fonctions-de-delphine-batho_915374
- Libération. (2000). L'écotaxe, impôt de chagrin. Retrieved from http://www.liberation.fr/futurs/2000/10/04/l-ecotaxe-impot-de-chagrin_339499
- Magnon, X. (2010). De la possibilité d'une contribution carbone: entre censure constitutionnelle, contraintes communautaires et concurrence internationale. Retrieved from

http://publications.ut-capitole.fr/13696/1/De_la_possibilite%25C3%25A9_d'une_contribution_carbone__entre_censure_constitutionnelle,_contraintes_communautaires_et_concurrence_internationale.pdf

- Maire Info. (2016). Les députés rejettent définitivement la dotation climat pour les collectivités territoriales. Retrieved from <http://www.maire-info.com/environnement-developpement-durable/environnement/les-deputes-rejettent-definitivement-la-dotation-climat-pour-les-collectivites-territoriales-article-20259>
- Marini, P. (2000). Rapport fait au nom de la commission des Finances, du contrôle budgétaire et des comptes économiques de la Nation sur le projet de loi de finances rectificative pour 2000. Retrieved from <https://www.senat.fr/rap/l00-149/l00-1491.pdf>
- Mastor, W. (2009). La contribution carbone à la lumière de la décision du Conseil Constitutionnel du 29 décembre 2009: chronique d'une mort - et d'une renaissance? - annoncées.
- O'Connor, M. (1997). The internalization of environmental costs: implementing the Polluter Pays principle in the European Union. *International Journal of Environment and Pollution*, 7 (4), 450–482.
- OECD, & World Bank Group. (2015). The FASTER Principles for Successful Carbon Pricing: An approach based on initial experience. Retrieved from <http://documents.worldbank.org/curated/en/901041467995665361/pdf/99570-WP-PUBLIC-DISCLOSE-SUNDAY-SEPT-20-4PM-CarbonPricingPrinciples-1518724-Web.pdf>
- OFCE. (2015). Compte rendu de la conférence de consensus sur la fiscalité des ménages et des entreprises du 20 mai 2014. Retrieved from <http://www.cairn.info/revue-de-l-ofce-2015-3-page-13.htm>
- Official Journal of the French Senate. (2001). Answer from the Territory Planning Ministry to Mr. Gerard Deriot. Retrieved from <https://www.senat.fr/questions/base/2000/qSEQ000424416.html>
- Orsoni, G. (1995). Fiscal interventionism.
- Padilla, E., & Roca, J. (2004). The proposals for a European tax on CO₂ and their implications for intercountry distribution. *Environmental and Resource Economics*. Retrieved from <http://dep-economia-aplicada.uab.cat/repec/doc/wp0201.pdf>
- Parry, I. W. H. (1995). Pollution Taxes and Revenue Recycling. *Journal of Environmental Economics and Management*, (29(3)), S64–S77.
- Partnership for Market Readiness (PMR). (2017). Carbon Tax Guide: A Handbook for Policy Makers. Retrieved from <https://openknowledge.worldbank.org/bitstream/handle/10986/26300/CarbonTaxGuide-MainReportwebFINAL.pdf?sequence=1&isAllowed=y>
- Pearce, D. W. (1991). The Role of Carbon Taxes in Adjusting To Global Warming. *The Economic Journal*, (101), 938–948.
- Pellet, R. (2001). Commentaire des Decisions du Conseil Constitutionnel. Retrieved from <http://www.remipellet.com/Resources/artRemiPelletRDPn32001Loisdefinances.pdf>
- Perthuis, C. de. (2010). Prix du quota de CO₂ et taxe carbone: les choix économiques après la censure du Conseil Constitutionnel.
- Perthuis, C. de. (2013). Rapport du Comité pour la fiscalité écologique, sous la présidence de Christian de Perthuis, Tome 1: Rapport du président. Retrieved from <http://www.ladocumentationfrancaise.fr/var/storage/rapports-publics/134000547.pdf>
- Plane, M. (2012). Évaluation de l'impact économique du crédit d'impôt pour la compétitivité et l'emploi (CICE). *Revue de l'OFCE*, n° 126, 141–153. Retrieved from <http://www.ofce.sciences-po.fr/pdf/revue/6-126.pdf>
- Poterba, J. M. (1993). Global Warming Policy: A Public Finance Perspective. *Journal of Economic Perspectives*, (7(4)), 47–63.
- Quinet, A. (2009). La valeur tutélaire du carbone, Rapport de la commission présidée par Alain Quinet. Retrieved from <http://www.ladocumentationfrancaise.fr/var/storage/rapports->

publics/094000195.pdf

- Rocard Commission. (2009). Rapport de la conférence des experts et de la table ronde sur la contribution Climat et Énergie. Retrieved from <http://www.developpement-durable.gouv.fr/IMG/pdf/01-18.pdf>
- RTL. (2013). Pierre Gattaz: "Non à toute fiscalité écologique." Retrieved from <http://www.rtl.fr/actu/conso/pierre-gattaz-non-a-toute-fiscalite-ecologique-7762950592>
- Schoettl, J.-E. (2001). La deuxième loi de finances rectificative pour 2001 devant le Conseil constitutionnel.
- Sénit, C.-A. (2011). Pourquoi la taxe carbone n'a pas réussi à s'imposer comme un outil légitime d'amélioration des performances économiques, sociales et environnementales de notre société? Retrieved from <http://www.slate.fr/tribune/47803/taxe-carbone-echec>
- Simon, O., & Thao Khamsing, W. (2016). L'impact, pour les ménages, d'une composante carbone dans le prix des énergies fossiles. *Le Point Sur n°225, Commissariat Général Au Développement Durable, Ministère de l'Environnement, de l'Energie et de La Mer*. Retrieved from http://temis.documentation.developpement-durable.gouv.fr/docs/Temis/0083/Temis-0083864/Point_225.pdf
- The Guardian. (2009). G8 agrees to climate targets despite differences with developing nations. Retrieved from <https://www.theguardian.com/world/2009/jul/08/g8-climate-carbon-emission-targets>
- UN News Center. (2007). Nicolas Sarkozy appelle à la fondation d'un nouvel ordre mondial pour le XXIème siècle. Retrieved from <http://www.un.org/apps/newsFr/storyF.asp?NewsID=14865#.WFeDQVN96M9>
- Vie Publique. (2007). Déclaration de M. Nicolas Sarkozy, Président de la République, lors de la restitution des conclusions du Grenelle de l'environnement, sur les engagements de la France pour le développement durable, Paris le 25 octobre 2007. Retrieved from <http://discours.vie-publique.fr/notices/077003284.html>
- Worldwatch Institute. (2010). An Analysis of France's Climate Bill: Green Deal or Great Disillusion?

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