

A first 360-degree climate assessment of France's State budget

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A D E M E



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The Institute for Climate Economics is an association of experts in economics and finance whose mission is to advance action against climate change. Through its applied research, the Institute contributes to the debate on climate-related policies. It also publishes analyses to support the thinking of financial institutions, companies and territories and help them integrate climate issues into their activities. I4CE is a not-for-profit association of general interest founded by Caisse des Dépôts and the Agence Française de Développement.

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Executive Summary

The Budget Law vote: an important moment for the climate

The vote on the state budget, currently under discussion in the National Assembly, is a key moment in the fight against climate change. Every year in France, the State raises several hundred billion euros in various taxes – about a quarter of the national GDP – and channels an equal or even slightly higher amount toward public expenditures. Bringing the budget and taxation in line with the national objective of carbon neutrality is therefore a huge step forward in the national fight against climate change.

Yet, the task is vast. Improving support measures for households in the low-carbon transition, reforming fuel tax exemptions, greening taxation... We can no longer limit ourselves to the few flagship measures on which the political debate tends to focus, such as the carbon tax, or tax exemptions for aircraft kerosene. We must be aware of, and recognize, all the budgetary measures that have an influence on France's greenhouse gas emissions. This study therefore aims to analyse the entire French budget in terms of its impact on the climate.

The Institute for Climate Economics (I4CE) proposes here a 360-degree climate assessment of the state budget, excluding social security (which is voted separately). More than 250 budget measures have been identified; expenditures, tax exemptions, taxes, all of which have a significant influence, upward or downward, on national greenhouse gas emissions. Some of them are the direct result of the State's efforts to reduce emissions, and were created for this purpose; however, for the most part, these measures initially aimed at another main objective, making it all the more necessary to identify their effect on the climate.

I4CE has also identified measures for which, due to lack of data, it is difficult to assess the impact on climate. This is the case, for example, for the Competitiveness and Employment Tax Credit (*Crédit Impôt et Compétitivité* – CICE) or the Research Tax Credit (*Crédit Impôt Recherche* – CIR), which alone represent €25 billion in foregone revenues. The figure of 250 measurements is therefore a low range.

More than 250 measures to keep on policymakers' radar

All the measures we have identified deserve to be on the radar of politicians, the administration, or NGOs, even if some represent billions of euros and others, only millions. This document lists the majority of them, which are all available on our website.

This document also provides answers to several questions that have emerged with the 'yellow vest' movement: how much does the government spend to help households and businesses reduce their greenhouse gas emissions? How much does the state collect in the name of climate? And who is exempt from this tax effort?

Is the State budget aligned with the Paris Agreement?

As for whether the State's current budget is sufficient to achieve carbon neutrality, this question cannot be answered with a single figure or indicator. On the other hand, this study shows that climate-damaging measures cover €17 billion, mostly made up of tax exemptions on petroleum products. These tax breaks will have to be gradually reformed. Climate friendly spending and tax exemptions, on the other hand, amount to €20 billion. This effort will most likely have to increase in the future. Finally, it can be seen that 7% of the taxes analysed are beneficial to climate action: a significant share, but one that should grow in the medium term, with or without a carbon tax, with or without increasing the overall tax level in France.

€20 billion to finance the low-carbon transition

Through its budget, the State spends €17 billion to finance the low-carbon transition, to which are added 3 billion in the form of tax exemptions. Most of this spending supports energy renovation in buildings, renewable energy or sustainable mobility projects, or R&D on climate change mitigation.

Is €20 billion enough? Probably not, according to the 2019 edition of I4CE's Landscape of Climate Finance: if we stick to the current financing model for low-carbon investments, public spending as a whole should increase by €7-9 billion annually by the end of the five-year period to stay on track with France's National Low-Carbon Strategy requirements – for investments only, not taking into account operational expenditures and direct support measures. The State may therefore devote more resources to the fight against climate change in the future. Moreover, beyond financial amounts alone, the effectiveness of the various public incentive schemes must be constantly questioned and reassessed in the light of national climate objectives.

€17 billion in climate-damaging spending

Many sectors benefit from reduced rates on fossil fuel taxes, which are not always explained or assessed. The total amount of climate-damaging tax exemptions is estimated at €16 billion. The main four breaks alone imply that 25% of French emissions are little or not taxed: the exemption on aircraft kerosene, reduced rates for heavy goods vehicles, for off-road diesel, and for on-road diesel compared to petrol.

These exemptions should be gradually reformed in order to reduce greenhouse gas emissions and answer the calls for fair energy taxes in France. A question then arises: how to help vulnerable sectors and households, other than through fossil fuel tax exemptions?

Apart from exemptions, some State expenses (€1 billion) directly increase greenhouse gas emissions. These are primarily operational expenses, due to public fuel consumption. Just like households and businesses, France's Ministries need to undergo their own low-carbon transition. This will take time, as e.g. military aircrafts will not find alternatives to their kerosene overnight. However, the State's transition is not optional if we truly mean our carbon neutrality objective; it is also a matter of leading by example. Some of these expenditures are presented here, but they are most likely underestimated due to data limitations.

€10 billion taxes in the name of climate change mitigation

Revenues from the "carbon tax" – actually the "carbon component" of fossil fuel taxes – make up about €8 billion per year. Other taxes whose rates are indexed, totally or partially, on carbon emissions generate an additional €2 billion in public revenues. In total, taxes levied in the name of climate change generate around €10 billion in revenue.

However, a comprehensive picture of the fiscal tools encouraging emission reductions also encompasses many other taxes: created with other intentions than climate change mitigation, they are nevertheless an incentive to reduce emissions. This is for example the case with 'generic' fuel taxation, whose primary purpose was to increase public revenues and support investment in the national road infrastructure. These taxes also have positive impacts on national emissions, and their revenues are estimated at €33 billion. In total, taxes encouraging emission reductions amount to €43 billion in revenue – that is, 7% of all French taxes, excluding social security contributions. Half of this amount feeds the general state budget, the rest goes to local

authorities, separate transition budgets or state operators that support the low-carbon transition.

Let us note here a specificity of France's taxes on road transport. Less than 10% of the tax burden is on the purchase of the vehicle, the rest on its use, mainly through fuel taxation. The State therefore discourages only slightly the act of purchasing fuel-guzzling cars and then taxes their use. A rebalancing seems necessary to avoid creating "energy prisoners" in the transport sector.

Many initiatives for "green budgeting"

France's public administration discloses an impressive amount of budget and climate data, but these are scattered across many budget documents. This year 2019 saw the first attempt at a unified budget Annex regarding the State's efforts on environment and financing the ecological transition, completed by a first methodological document on Green Budgeting by Inspection Générale des Finances and the Conseil Général de l'Environnement et du Développement Durable.

This variety of new reports is good news: collecting so much data and trying to rank it according to its link to climate is a great challenge. It is fortunate that several teams – both public and independent – are working on this task and are gradually converging. This will enable France to remain at the forefront of "green budgeting", a dynamic it has instilled by launching the *"Paris collaborative on Green Budgeting"* with the OECD and Mexico at the One Planet Summit late 2017. This dynamic was maintained by Prime Minister Edouard Philippe during the first Ecological Defence Council in May 2019, and by the parliamentarians who recently called for more transparency on the climate impact of France's budget in the latest energy-climate law.

Favourable or climate-damaging: choices that are necessarily questionable

Our classification of budgetary measures as climate-friendly or climate-damaging is questionable. As far as possible, it was France's National Low-Carbon Strategy (SNBC) that served as our marker and reference. But some of these choices will certainly be discussed. Among the least consensual points, if not the most important from a budgetary point of view, let us mention nuclear power, classified as climate-friendly. We only consider its effects on greenhouse gas emissions and leave aside other equally legitimate considerations. Let us also mention the taxes on electricity, considered neither favourable nor climate-damaging, but ambiguous, because taxing electricity encourages energy efficiency and sobriety but discourages the electrification of uses. Finally, public spending on roads is considered climate-neutral because it is mainly in the form of investments in road safety.

We assume that we are not able to propose a classification that suits everyone; therefore, we chose to be as transparent as possible. The most questionable measures and associated amounts have been singled out and explained as much as possible in the report, so that everyone can make their own calculations.

Comments welcome

The climate assessment work carried out by I4CE certainly has some omissions or errors. In particular, some taxes, some expenses, some tax exemptions may have escaped our analysis. Do not hesitate to give us your feedback: budgetclimat@i4ce.org

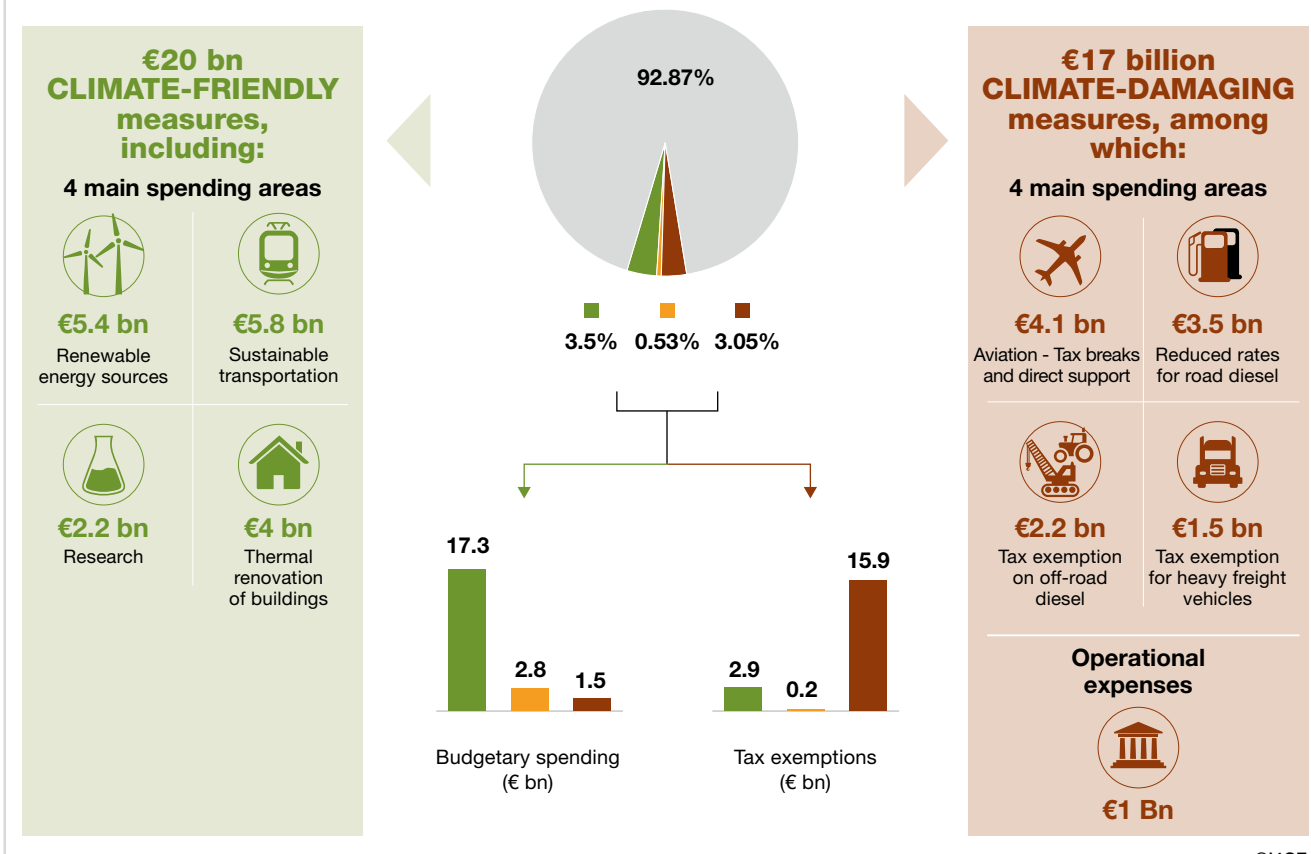
- Climate-neutral
- Climate-friendly
- Ambiguous
- Climate-damaging

More than
250
BUDGETARY
MEASURES

Impact France's greenhouse gas emissions



STATE EXPENDITURES



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TAXES



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Data source: France's Budget Law for 2019

1. Methodology

Scope of the analyzed budget

As the draft finance bill for 2020 is not yet public, the data published in this report relates to the 2019 budget. We base ourselves on the draft finance bill and the initial finance bill for 2019 and various reports from the Court of Auditors, the Ministry of Ecological and Solidarity Transition (MTES) and the Inspection Générale des Finances. Our data do not take into account the reforms announced for 2020, such as the modification of the Crédit d'Impôt Transition Énergétique (CITE) or certain energy tax exemptions. While this work therefore requires updating, the fact remains that the overwhelming majority of the budgetary measures inventoried here will be extended next year and that their cost should not change radically. When possible, we mention the reforms planned for 2020. In this exercise, we have chosen to remain as close as possible to the scope of the State budget as voted in Parliament under the Finance Law. This does not include the Social Security Financing Act.

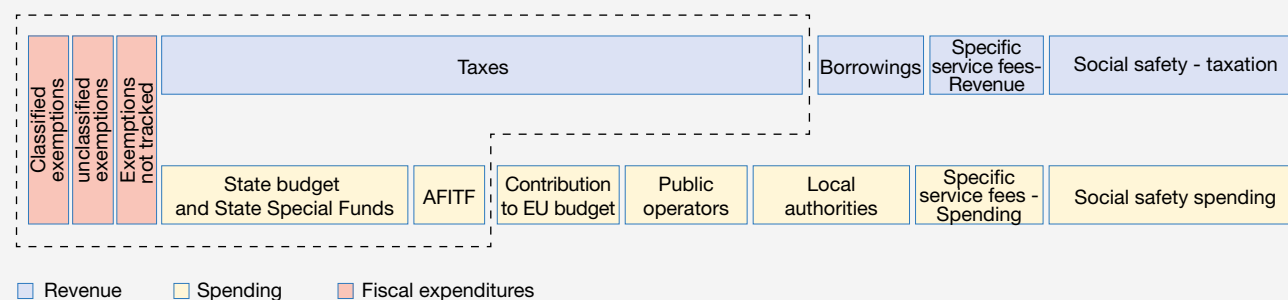
Taxes. All taxes have been included in the analysis, whether they finance the general State budget, special purpose accounts, local authorities, the European Union or State operators such as the Environment and Energy Management Agency (ADEME), the French Transport Infrastructure Financing Agency (AFITF), the National Centre for Scientific Research (CNRS) or the Commissariat à l'énergie atomique et aux énergies alternatives (CEA). Social contributions are not examined here, nor are loans used to finance the budget deficit. We have chosen to include taxes but exclude specific fees and charges (and their associated expenses). The terms tax, charge and fee cover different legal concepts. Taxes such as income tax or corporation tax are not linked to any direct counterpart. Conversely, fees and charges are directly linked to a counterpart for the fee-payer. This is the case, for example, of fees and charges that airlines have to pay to use airports: in this case, the revenues are fully earmarked for providing them with specific services such as airport security personnel, runway maintenance, etc.

Expenses. All expenditures from the general budget have been included in this analysis, as well as those from the special accounts (Comptes d'Affectation Spéciale, CAS). In doing so, only the expenditure of State operators corresponding to financing approved under the Finance Act is taken into account: expenditures associated with these operators' other sources of income (e.g. direct earmarking of specific taxes) is not considered. The only exception is the public Transport Infrastructure Agency (AFITF), whose full expenses have been included. 'Mechanical' expenditures linked to tax mechanisms (advances of funds, refunds of surpluses), payment of debt charges, transfers to local authorities or the

European Union are not taken into account, nor is the activity of the State as a shareholder in various companies. Expenses related to tax refunds are treated as fiscal expenditures.

Fiscal Expenditures. In order to encourage certain investment behaviours or choices, or to support specific economic sectors, the State grants tax exonerations to given taxpayers (companies, individuals, associations, etc.). These tax breaks induce a deviation from a "reference" tax rate, which is referred to as a tax standard. They also generate a loss of income, known as a "fiscal expenditure", for the State. This study analyses all the so-called "classified" fiscal expenditures, i.e. those included in the evaluation of the finance bill. It also includes so-called "delisted" fiscal expenditures, i.e. those that were previously considered fiscal expenditures but are now considered the norm. Indeed, the tax standard changes with time: for example, the oil tax exemption enjoyed by air transport was classified as a fiscal expenditure until 2009, then it was delisted by the administration as the absence of tax became the new tax standard. Other measures are not identified by the administration as fiscal expenditures, whether classified or delisted, even though they offer a tax advantage to the recipient. This is the case, for example, of reduced VAT rates on airline tickets. Little data is available on these measures and their cost. They could therefore not be analysed here, with the exception of the tax differential between diesel and petrol. As this study is limited to the budgetary analysis of finance laws, it does not include energy saving certificates (EEC), which represent 1.8 billion.

SCOPE OF THIS REPORT



Beware: the bar length is not correlated with effective financial amounts

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What is a climate-related budget measure?

In this work, we identify taxes, expenditures and fiscal expenditures that have a significant influence on greenhouse gas emissions, either upward or downward. For readability's sake, such measures will be labeled as “*climate-related*” revenue or expenditure in this report, even though we do not deal with adaptation issues here. With this approach, it is not the intent of the tax or expense that counts, but its effect. For example, we consider that all fuel taxes are climate-related since they create an incentive to reduce emissions, instead of taking only into account the carbon component of these taxes (e.g. the part that was effectively created, added or designed primarily for environmental reasons). Inventorying all climate-related revenues and expenditures, without prejudging their intent, provides a more comprehensive view of all the channels through which the government budget influences emissions. This study focuses only on climate change mitigation, leaving aside adaptation as well as other environmental (water, land use, etc.), health (air pollution) or social (justice and redistribution) issues. We can therefore qualify certain actions or technologies as climate-friendly, even if they have significant effects on other environmental criteria. Similarly, measures to assist households or businesses can be labeled as climate-damaging even if they have positive impacts on the economy or on social inequalities.

How to define if a budgetary measure has a positive or negative impact for the climate?

A budgetary measure – tax, expenditure or fiscal expenditure – is considered climate-friendly if it provides an incentive to reduce greenhouse gas emissions, considering existing alternatives and substitution effects. The idea of an alternative is important: an electric vehicle placed on the market today emits greenhouse gases during its production and through its electricity consumption, but these emissions are much lower than an equivalent thermal car. Symmetrically, a budgetary measure is considered climate-damaging if it encourages an increase in GHG emissions, considering existing alternatives and substitution effects.





Note that not all climate-friendly measures are ambitious enough to satisfy France's National Low-Carbon Strategy (SNBC). For example, diesel-fueled public transportation (buses, trains) reduces emissions, yet they have a long lifespan and in the end, they are not compatible with France's ‘zero net emission’ goal in 2050. Such measures represent €484 million budgetary expenditures and €319 million fiscal expenditures. However, while this distinction between “climate-friendly” and “compatible with a 2°C strategy” is relevant, it complicates the reading; it was thus left aside in this report. The full data set with its complete disaggregation is available on our website.

Some measures may also have opposing effects on greenhouse gas emissions, with the final impact unclear. For other measures, climate-friendliness, could be conditional to the existence of complementary measures/evolutions. This is the case, for example, for gas-powered vehicles, which will only significantly reduce emissions if the gas they consume is renewable (methanisation, Power-to-Gas). All these measures are described as “ambiguous”.

A majority of budgetary measures do not have a significant climate impact. This is the case e.g. for the salary of most teachers, pension payments, etc. Such measures will be referred to as 'neutral'.

Finally, in many cases the available data was insufficient to qualify the climate impact of a measure, while it is clear that there is some impact (see e.g. the Research Tax Credit or dividends from State-owned companies). We have classified them as neutral for the moment, until we have more information.

CLIMATE PALETTE FOR BUDGET CHARACTERIZATION

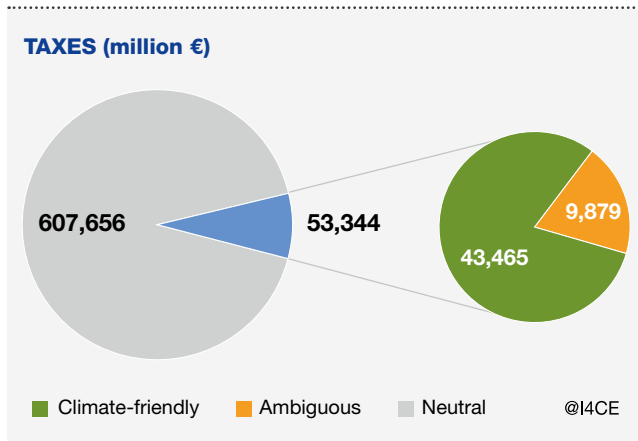
	Criteria	Examples
 Climate-friendly	<ul style="list-style-type: none"> Incentives to reduce emissions 	<ul style="list-style-type: none"> Supporting efficient building renovation Supporting investment in electric cars
 Ambiguous	<ul style="list-style-type: none"> Measures whose effects are equivocal or will depend on other strategic orientations or technological advances 	<ul style="list-style-type: none"> Incentives for electricity consumption Support for gas-powered vehicles, whose climate impact depends on bio-methane development
 Climate-damaging	<ul style="list-style-type: none"> Measures that increase emissions 	<ul style="list-style-type: none"> Tax exemptions for fossil fuels Public expenditures in fossil heating fuels
 Neutral	<ul style="list-style-type: none"> Measures that do not have a direct climate impact or whose impact cannot be assessed due to data limitations 	<ul style="list-style-type: none"> Pre grad education Tax credit for R&D activities State-paid pensions

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2. Taxes

25 climate-related taxes totaling €53 billion

We identify 25 climate-related taxes having a significant influence on France's greenhouse gas emissions. They generate €53 billion in revenues, or 8% of the taxes voted in the finance bill. Note that taking into account the VAT added to these taxes¹, the total amount of revenue would be an estimated €64 billion. The majority (81%) of these taxes are climate-friendly. No taxes have been identified as climate-damaging. The remaining 19% consists of taxes with an ambiguous effect on emissions.



€43 billion climate-friendly taxes, but only €10 billion in the name of climate

Climate-friendly taxes generate €43 billion in revenues. Most of these are taxes on fossil fuels and vehicles. For fossil fuels, the main tax is the Domestic Consumption Tax on Energy Products, or TICPE, which applies to all petroleum products used as fuels, heating fuels and agrofuels. TICPE alone generates €33 billion in revenues, or 62% of climate-related taxes. Then comes the domestic consumption tax on natural gas, or TICGN (€2.8 billion), the tax on the provision of petroleum products for strategic storage (€377 million) and the special fuel tax which replaces TICPE in the overseas departments (€333 million). Cars, more specifically, are targeted by many climate-friendly taxes, starting with the car registration tax, and its €2.3 billion in revenue allocated to the regions. Other examples, in order of importance, are

the tax on car insurance agreements, which levies 18% of the sums collected by insurers (€1 billion); the tax on company vehicles (€662 million); the fee introduced in 2008 on the sale of polluting new cars, which finances supports rebates for low-emission cars and a scrapping premium (€610 million); and the tax on motorway concessionaires based on the number of kilometres travelled by users (€528 million).

The €43 billion climate-friendly taxes should not be mixed with revenues collected in the name of climate. Most of these taxes were not created to reduce greenhouse gas emissions, and they are not indexed to carbon emissions. Only two taxes are indexed solely on carbon emissions, with the explicit objective of reducing emissions: the polluting new car fee, and the annual tax on polluting vehicles, which imposes an annual levy of €160 per vehicle on vehicles with high carbon emissions. However, several other existing taxes have been partially indexed to carbon. On the fossil energy side, domestic consumption taxes (TICPE, TICGN and TICC) have included a carbon component since 2014, which is now 44.6 €/tCO₂ or about 10 c€/L for gasoline; revenues from this carbon component alone reach about €8 billion in 2018. For cars, the registration tax rate depends, among others, on carbon emissions for new company cars or powerful cars. These partially indexed taxes now account for the majority of carbon revenues, estimated at about €10 billion. This amount is an estimate based on our own calculations: the revenues generated by the various carbon indexations of taxes not exclusively related to climate do not appear separately in the budget documents. Even the amount of the carbon component in TICPE, TICGN and TICC is not indicated. This is the other side of the strategy of partially indexing existing taxes on carbon rather than creating new ones: a loss of clarity and transparency on revenues generated in the name of climate. Several improvements could be made to increase this readability: create separate accounting for each sub-objective of a tax, or separate it into several taxes.

¹ As VAT is added to all taxes (with few exceptions), any new tax generates additional VAT revenue. For example, increasing fuel taxes by €1c/L means increasing total fuel levies by €1.2c/L: €1c/L for fuel tax and €0.2c/L for additional VAT. To study all the incentives generated by taxation (i.e. relative price distortions), this additional VAT must be included in the analysis.

REVENUE DERIVED FROM TAXES INDEXED ON CARBON (PARTIALLY OR TOTALLY)

	Total revenue (million €)	Carbon-indexed revenue (million €)
TICPE, TICGN, TICC (domestic taxes on fuel consumption)	33,352	8,000 (e)
Patent tax	2,377	800 (e)
Vehicle Fleet Tax (Taxe sur les véhicules de société - TVS)	662	500 (e)
Investment fee on polluting cars	610	610
Special patent tax on powerful cars	15	15
Annual fee on heavily polluting vehicles	13	13
TOTAL	37,029	9,938

(e) : I4CE estimate

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LIST OF FRANCE'S CLIMATE-FRIENDLY TAXES

TAX	Revenue - 2019 Budget Law (million €)
Domestic tax on the consumption of energy products	33,352
Domestic tax on the consumption of natural gas	2,838
Patent tax	2,377
Tax on car insurances	1,059
Vehicle Fleet Tax (Taxe sur les véhicules de société - TVS)	662
Investment fee on polluting cars	610
Tax on highways	528
EU Emissions Trading Scheme auction proceeds	526
Tax on the strategic storage of oil products	377
Special fuel tax for overseas departments	333
Solidarity tax on airplane tickets	218
Special road tax on heavy vehicles ("axle tax")	185
General tax on polluting activities (fuel component of the tax)	176
Special patent tax for professional training	62
Annual fee for the francisation and navigation of ships	42
Special tax for companies of air and maritime public transportation	37
Auction proceeds for Guarantes of Origin (for renewable electricity)	32
Domestic consumption tax on coal, lignit and coking coal	15
Special patent tax for powerful cars	15
Annual fee on heavily polluting vehicles	13
Tax for companies of air and maritime public transportation, levied per embarked passenger	7
TOTAL EXCLUDING VAT	43,465
VAT related to these taxes (+20%)	8,693
TOTAL INCLUDING VAT	52,158

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LIST OF FRANCE'S **AMBIGUOUS** TAXES

TAX	Revenue - 2019 Budget Law (million €)
Domestic tax on electricity consumption (TICFE)	7,884
Local tax on electricity consumption (TCCFE)	964
Departmental tax on electricity consumption (TDCFE)	756
Tax on electrical towers	275
TOTAL EXCLUDING VAT	9,879
VAT related to these taxes (+20%)	1,976
TOTAL INCLUDING VAT	11,855

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Taxes with an ambiguous effect

Some taxes have an ambiguous effect on greenhouse gas emissions. This is true of electricity taxes: domestic tax on final electricity consumption (TICFE, €7.9 billion), municipal and departmental taxes on final electricity consumption (€964 and €756 million respectively) and taxation on pylons (€275 million). Taxing electricity encourages a reduction in energy consumption, yet it creates a disincentive to electrify energy uses. If electricity were to become completely carbon-free, an electricity tax would be counterproductive from a climate point of view. Electricity taxes therefore have a net effect on emissions that is difficult to determine.

In addition, the flat-rate tax on network companies (IFER) could not be categorised due to the lack of disaggregated data. Indeed, the amount indicated in the budget documents for IFER (€1.5 billion) actually aggregates eight different taxes, with different bases: wind turbines, nuclear and thermal power plants, gas installations, railways, phone infrastructure....

45% of the revenue is allocated to the general State budget

While the tax administration generally prefers to allocate taxes to the general state budget, it is interesting to note that only 45% of climate-related tax revenues actually contribute to this budget. 33% are directed towards local authorities, and 15% go to special allocation accounts (CASs) such as the Energy Transition CAS, which funds public energy services, among them public support to renewable energies; or the Clean Vehicles CAS, which finances clean-car rebates and the scrapping premium through the polluting-car fee. Finally, 6% of revenues are allocated to legal entities other than the State, such as the Transport Infrastructure Financing Agency (AFITF) or the mobility authorities (AOM).

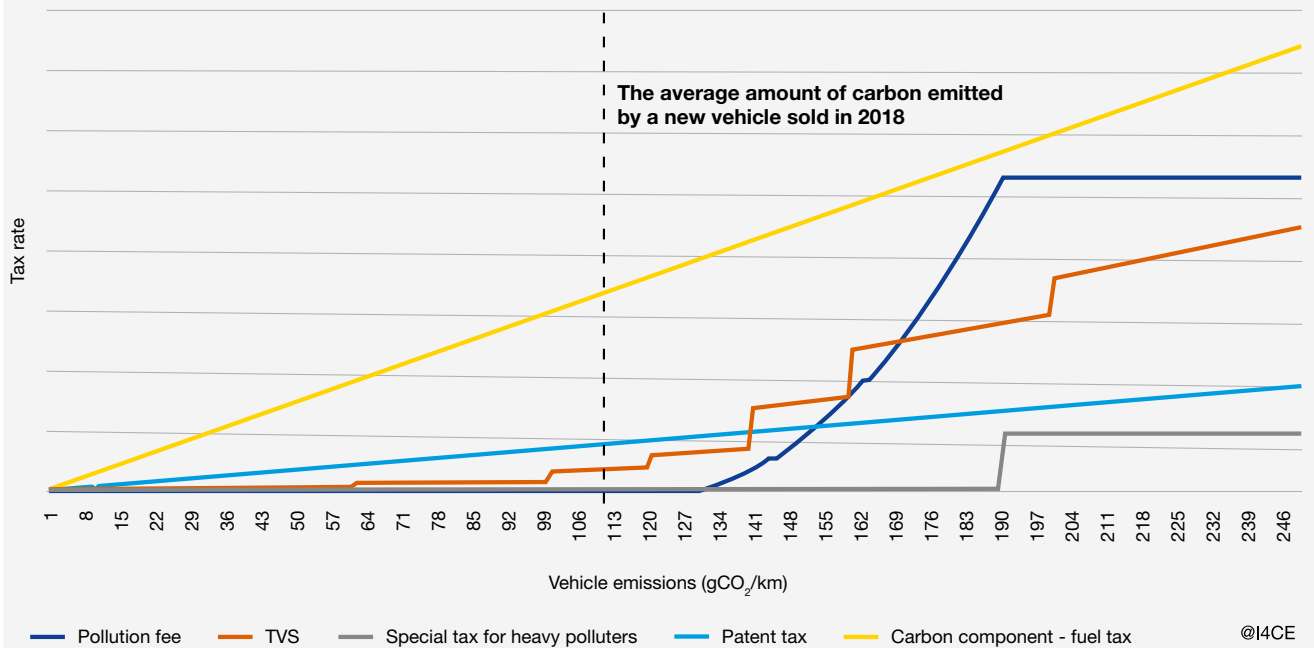
It should be noted in particular that a significant share of TICPE revenues are directed towards local authorities (departments and regions) and towards the CAS Transition énergétique.

Very different tax rates and tax bases, more consistency needed

As mentioned, few taxes have been created specifically for climate, but several existing taxes include a carbon component. However, this carbon indexation was introduced without considering its overall consistency: each carbon-indexed tax seems to have its own rate and rules. The polluting-car fee applies to vehicles with emissions above 117 gCO₂/km, increasing with emissions until 190 gCO₂/km. It is then extended by the penalty for polluting vehicles, which introduces an annual penalty of €160 for vehicles emitting more than 190gCO₂/km. On the other hand, the tax on registration certificates and the carbon component of TICPE do not have any threshold – all CO₂ emissions are taxed. The tax on company cars increases in successive stages. This wide dispersion of rates and their progressiveness is also reinforced by the many exemptions that further increase the number of effective rates (see the section on fiscal expenditures).

Observation of current rates suggests some options to strengthen their “climate” effectiveness. The stepped rates of the company car tax and the polluting vehicle tax generate border effects that could easily be avoided by smoothing these scales.

CARBON INDEXATION ON VEHICLE CLIMATE-RELATED TAXES



Note : this graph aggregates annual taxes, onetime taxes and taxes linked to the number of kilometers traveled. Its use is to understand the different logics behind the vehicle tax package, not compare the rates, hence the absence of any ordinate axis.

The cap on the car penalty and the tax on polluting vehicles amounts to making additional CO₂ emissions above 190 gCO₂/km free of charge – this could easily be avoided. In addition, the polluting-car fee seems to be less ambitious than French and European targets: it only applies to vehicles emitting more than 120 gCO₂/km, whereas a European regulation has set the target of 95 gCO₂/km by 2021 for average emissions from new passenger cars.

Further improvements may come from a redeployment of the tax base. In particular, it is questionable to base certain taxes on the fiscal power of the vehicle, as is the case for the tax on registration certificates and for the tax on powerful cars. Fiscal power is nowadays defined partly by the power of the engine and partly by the vehicle's CO₂ emissions². However, engine power seems to be a distant proxy for taxing CO₂ emissions; neither is it adapted to paying for road wear related to vehicle weight. Targeting carbon only could improve the incentive to reduce emissions without increasing the overall fiscal pressure of the tax.

Vehicle and fuel taxation: creating energy prisoners?

Over the entire lifetime of a vehicle, taxes can be classified into three categories: those that operate at the time of the decision to invest in a particular vehicle (e.g. the feebate), those that relate to variable costs (e.g. fuel taxes) and those that entail fixed annual costs unrelated to the fuel consumed (e.g. insurance tax, annual tax on polluting vehicles or tax on company cars). These taxes are listed in the table below. From the revenue standpoint, most vehicle taxes are linked to vehicle use: €27 billion (83 per cent of total revenue) fall into this category. In comparison, taxes on investment represent only 9% of overall tax revenue for individual cars. Taxation therefore does not discourage consumers from buying polluting vehicles, but taxes them throughout the life of the equipment³. It prepares the energy prisoners of tomorrow.

2 The fiscal power of a vehicle is given by the formula : $Pf = \frac{CO_2}{45} + (\frac{P}{40})^{1,6}$, where CO₂ represents CO₂ emissions in grams per kilometre, and P represents engine power in kilowatts.
 3 Taxation of fuel prices also provides an incentive at the time of purchase, since the household can anticipate fuel prices; but this is generally considered weaker than taxation at the time of purchase, due to the strong preference of individuals for the present.

REVENUE DERIVED FROM CLIMATE-RELATED TAXES ON PRIVATE CARS

TAX	Revenue 2019 (million €)
Variable costs (83%)	27,328
TICPE*	26,800
Tax on highway use	528
Annual fixed costs (7%)	2,434
TVS	662
Axle tax	185
Tax on car insurers	1,059
Tax on highway concessions	528
Investment (9%)	3,049
Patent tax	2,377
Special patent tax for professional training	62
Investment fee on polluting cars	610
TOTAL (100%)	32,811

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* This amount of TICPE includes only revenues related to fuel consumption in road transport, it excludes other uses (heating, industry, aviation...). This estimate was obtained by multiplying the volumes of fuel consumed in 2017 by the associated TICPE rates to estimate the share of TICPE from diesel fuel and motor gasoline.

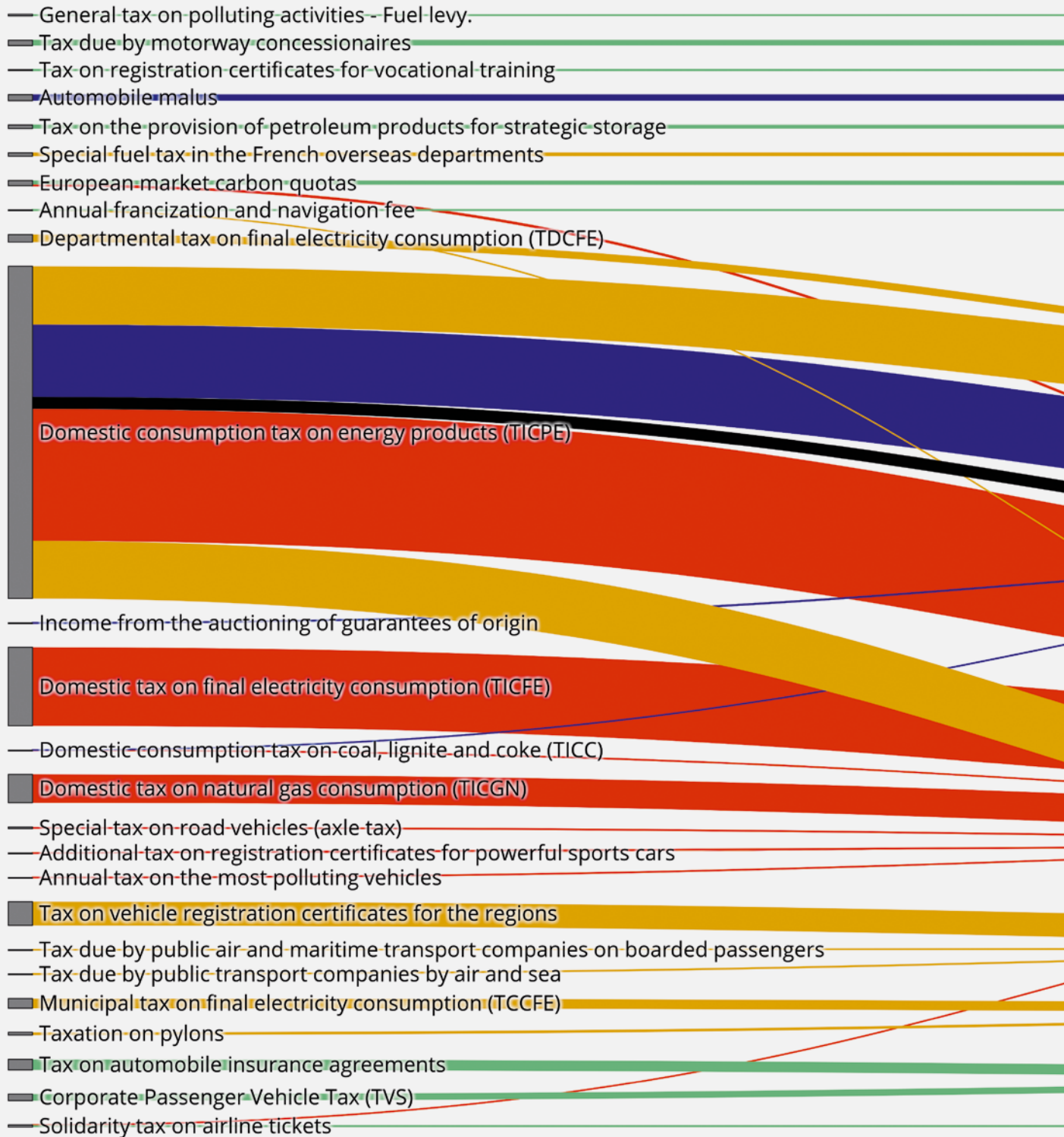
Let us take a concrete example, by considering the taxes on the best-selling SUV in 2018, the Peugeot Nouvelle 3008. In its average version, emitting 121 gCO₂/km, climate-related purchase taxes total €376 in 2019 (€53 for the pollution fee, €323 for the car registration tax). Total fuel taxes, on the other hand, represent more than €4,200 over a lifetime of 9 years and for an average annual mileage.

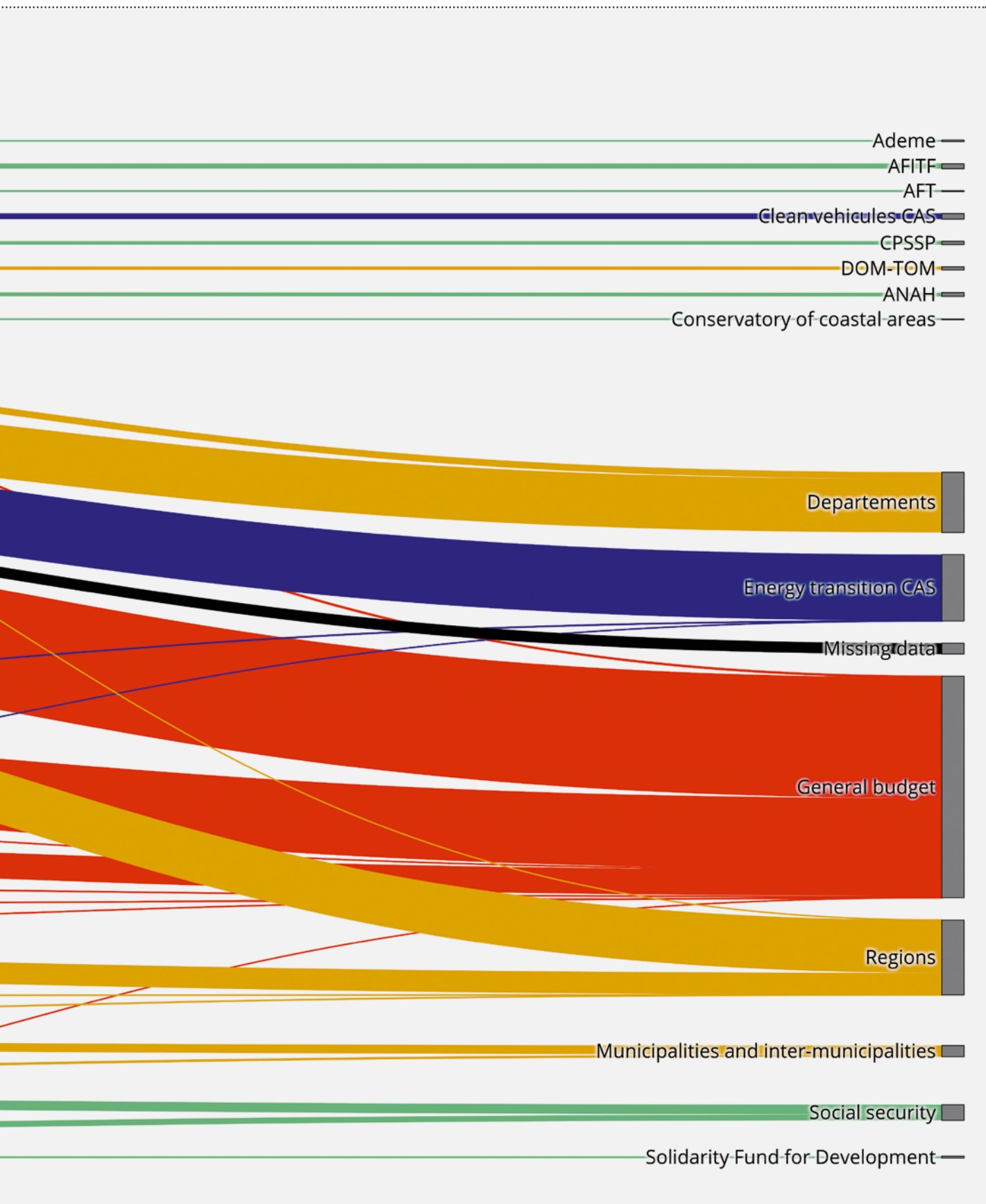
Increasing purchase taxes is an interesting option to limit these shortcomings and strengthen France's climate ambition. The idea is not to abandon taxes on variable costs, which have a beneficial impact on the existing fleet by encouraging a reduction in travel and an increase in the vehicle load factor. Fully shifting taxes on purchases would also create a barrier to access to credit that would become prohibitive. The objective is therefore to seek to rebalance the tax system between purchase taxes and use taxes.

The feebate is an interesting tool for rebalancing. Not only is it about investment, sending a clear and immediate message to the buyer; it is also well accepted. Its revenues are used exclusively to fund the clean vehicle rebate and scrapping premium, which contributes to the transparency and high acceptability of the scheme. Strengthening the scheme could be part of the revision under way to answer the *dieselgate*. Particular attention should be paid to the attribution conditions of the rebate, to avoid that it benefits only the wealthiest households.

FLOWS FOR THE ALLOCATION OF CLIMATE-RELATED TAXES, EXCLUDING VAT

The colours reflect the destination of the revenue: **red** for the general budget, **yellow** for local and regional authorities, **blue** for special allocation accounts (CASs) and **green** for other legal entities. The thickness of the lines reflects the monetary volumes.





3. Budgetary expenditures

153 climate-related expenditures, totaling €22.8 billion

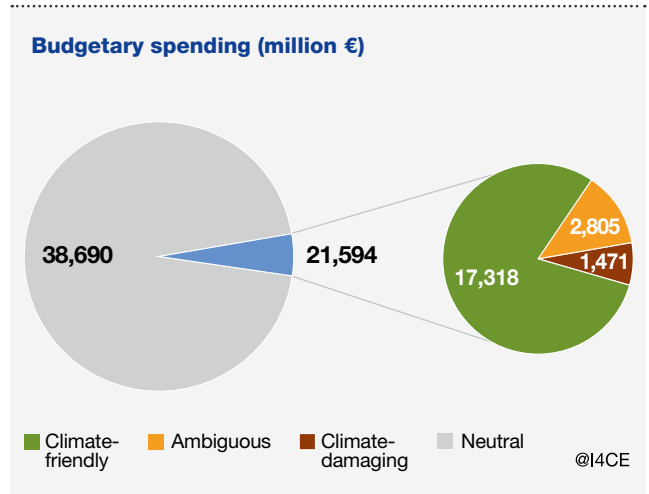
Of the €385 billion expenditures⁴ that we were able to categorize, 6% have a significant influence on greenhouse gas emissions. These climate-related expenditures amount to €24.5 billion, and are divided into 153 “actions” in the budget law.

Climate-friendly measures make up the bulk of this, with €17.3 billion, or 76% of climate-related spending. Climate-damaging spending amount to €1.5 billion, or 7% of total climate-related spending.

Some government expenditures are considered as “ambiguous” from a climate viewpoint. This is the case of the subsidizations ensuring a single price for electricity in all France’s the territory, which cost the State budget €1.6 billion. This is also the case for the bulk of expenses related to the energy cheque (see below). Overall, ambiguous expenses total €2.8 billion in this edition.

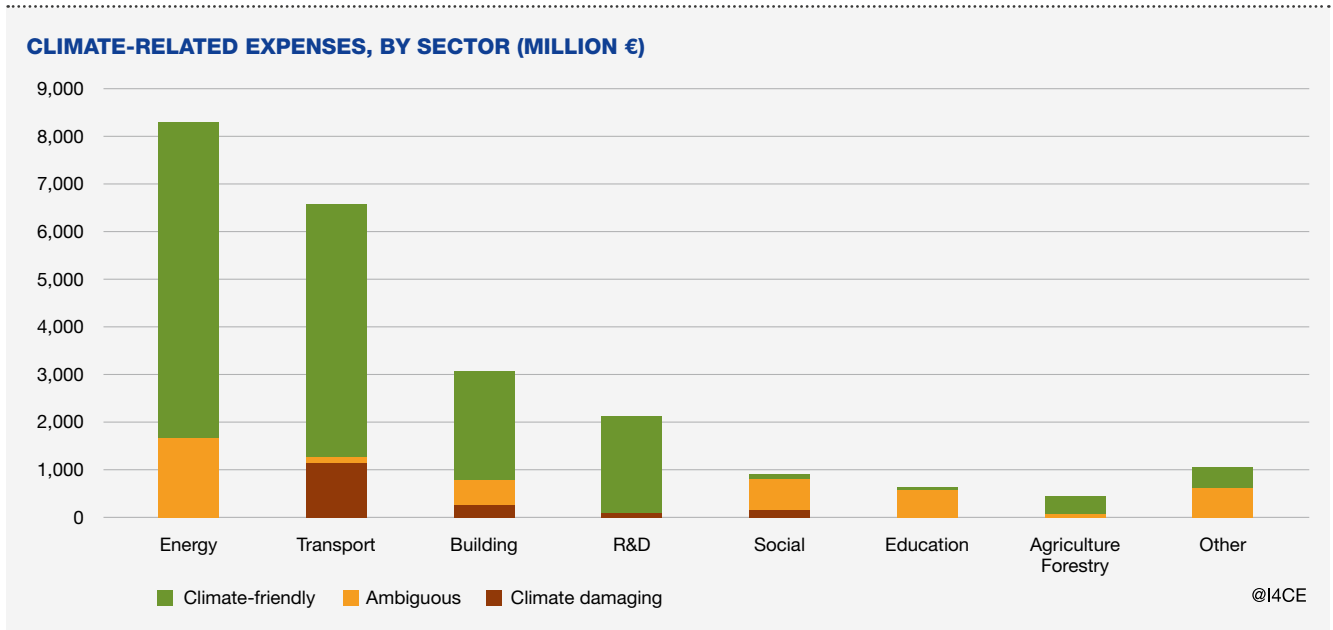
Climate-related expenditures are mainly concentrated in two sectors:

- energy: support for renewable energies, subsidized electricity tariffs;



- transport: maintenance of the rail network, train subsidies, subsidies for the purchase of clean vehicles, government fuel expenditure & travel costs.

Other important sectors for climate spending include research, and building renovation (renovation of public buildings and construction of high-performance buildings). Let us also mention the “social” climate-related expenses, which mainly concern the energy cheque, as well as ANAH subsidies (€110 million for the part coming from the general budget) and heating allowances for former miners.



⁴ In 2019, budgetary expenditures are divided into 45 budget missions and special accounts “Comptes d’Affectation Spéciale”: school education, pensions, defence, research and higher education, ecology, etc. These 45 missions are themselves divided into 124 programmes and 575 actions. For each action, amounts favourable or unfavourable to the climate have been identified. The same action can feature climate-friendly measures, climate-damaging ones, and a neutral part.

MAIN CLIMATE-FRIENDLY SPENDING LINES

The expenditures listed here are grouped by budget mission or special account. The amounts reported here relate to the fraction of each line that has been assessed as climate-friendly, not the full expenditure.

PGM nb.	Action Nb.	Budget line	Climate-friendly spending (million €)
ECOLOGY, DEVELOPMENT, SUSTAINABLE TRANSPORT			
203	41	Rail – Network	3,045
345	3	Support to combined heat/power production	726
181	12	Agence de l'environnement et de la maîtrise de l'énergie (ADEME)	365
203	44	Public transportation – Participation to maintenance expenses of rolling stock	285
203	42	Waterways – Infrastructure upgrade	253
RESEARCH AND HIGHER EDUCATION			
150	17	Research – Support to the ANCRE and ALLENI Research groups	610
190	15	Long-term nuclear expenses of CEA's sites	518
190	16	Support to CEA research on nuclear energy and nuclear waste management	303
150	14	Building – New buildings and building renovation in the research sector	294
172	17	Research in the energy sector – Grants to ITER and CERN	223
190	11	Research in risks (IRSN, INERIS)	125
190	17	Research in new energy technologies (IFPEN, CEA)	124
DEFENCE			
212	4	New housing and building renovation	1,174
178	5	Energy expenses	221
212	11	Logistics – Vehicle maintenance, SNCF compensation)	179
AGRICULTURE, FOOD, FOREST AND RURAL ISSUES			
149	26	Sustainable forest management	255
149	24	Agro-ecology and mountain agriculture (MAEC – <i>Mesures Agro-Environnementales et Climatiques</i> , ICHN – <i>Indemnité Compensatoire de Handicaps naturels</i>)	160
INVESTING IN THE FUTURE			
422	3	Demonstration projects (including €170 million for new nuclear)	330
SPECIAL ACCOUNT – ENERGY TRANSITION			
764	1	Support to renewable electricity sources	5,262
764	3	Support to bio-methane production	132
SPECIAL ACCOUNT – CLEAN VEHICLES FEEBATE PROGRAMME			
791	1	Supporting investment in clean vehicles (low-carbon vehicle premium, electrical vehicle rebate)	264
792	1	Scrapping premium	230
CAS – CONTRÔLE DE LA CIRCULATION ET DU STATIONNEMENT ROUTIERS			
754	1	Contribution to improving public transport and the safety and fluidity of road traffic	478
SPECIAL ACCOUNT – ROAD TRANSIT AND PARKING			
785	1	Support to regional trains 'Intercités'	197
SPECIAL ACCOUNT – STATE PROPERTY ASSETS			
723	11	Structuring operations and cessions	145
Other			1,329
TOTAL			17,318

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3. BUDGETARY EXPENDITURES

MAIN **AMBIGUOUS** SPENDING LINES

The expenditures listed here are grouped by budget mission or special account. The amounts reported here relate to the fraction of each line that has been assessed as ambiguous, not the full expenditure.

PGM nb.	Action Nb.	Budget line	Ambiguous spending (million €)
ECOLOGY, DEVELOPMENT, SUSTAINABLE TRANSPORT			
345	1	Controlled electricity prices in overseas departments	1,595
345	2	Energy check (electricity share)	452
345	5	Reimbursement to French electricity company EDF	63
174	4	Solidarity with former miners – electric heating allocations	29
217	27	Energy Regulator (CRE – Commission de Régulation de l'Energie)	21
205	1	Safety and control of the fishing and maritime transportation sector	19
DEFENCE			
212	4	New infrastructure to support new equipment	431
178	5	Electricity consumption in buildings	38
SPECIAL ACCOUNT – CLEAN VEHICLES FEEBATE PROGRAMME			
792	1	Scrapping premium (paying for not ambitious enough vehicles)	77
AGRICULTURE, FOOD, FOREST AND RURAL ISSUES			
149	23	Support for the modernization and renewal of farms	57
Other			25
TOTAL			2,805

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MAIN CLIMATE-DAMAGING SPENDING LINES

The expenditures listed here are grouped by budget mission or special account. The amounts reported here relate to the fraction of each line that has been assessed as climate-damaging, not the full expenditure.

PGM nb.	Action Nb.	Budget line	Climate-damaging spending (million €)
DEFENCE			
178	4	Air Force – Operational fuels, jet fuel, miscellaneous displacements	302
178	3	Navy – Operational fuels, jet fuel, miscellaneous displacements	140
178	5	General logistics – Energy spending	82
178	2	Land Force – Operational fuels, jet fuel, miscellaneous displacements	61
178	2	Land force – Other climate-damaging expenditures	48.7
178	1	General – Travels	35
212	11	Management, support, and communication	15
144	3	Intelligence – Energy expenses	9.9
ECOLOGY, DEVELOPMENT, SUSTAINABLE TRANSPORT			
345	2	Solidarity Fund for Housing – Energy check (fossil share)	280
203	52	Air transport – Investment in airports, support to minor air links, subsidy to Strasbourg international airport service	35
174	4	National agency for former miners' rights – allocations directed to fossil heating	29
203	43	Subsidies do major maritime ports	5.4
217	3	Energy spending by the Environment Ministry	5.0
205	4	Operational expenses (incl. fuel and maintenance) for the maritime control fleet	2.5
217	24	State-employed airport workers	2.1
217	26	Agency for Airport-linked nuisances	2.0
203	50	Road transport – General support	2.0
205	3	Maritime freight – Support to development	1.8
205	5	Coastguards – General expenses	0.8
RESEARCH AND HIGHER EDUCATION			
190	14	Research and development for civil air transport	92.7
SCHOOL EDUCATION			
214	6	Support for the travels and change of residence of overseas teachers	18.3
214	8	General travel expenses	8.5
214	2	Travel expenses – Central management	1.4
JUSTICE			
107	2	Energy consumption in building (detention centers)	107.9
182	1	Energy consumption – other buildings	3.0
SECURITY			
176	6	Maintenance of the vehicle fleet, fuel expenses, energy in buildings	181.9
Other			0.5
TOTAL			1,471

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€17.3 billion in climate-friendly spending

The €17.3 billion in climate-friendly spending is spread over 85 budget actions. Three major blocks alone account for almost half of this envelope: support for renewable energies (5.3 billion), investment in rail infrastructure (3 billion) and support for research (2.4 billion).

Support for renewable energy amounts to €5.3 billion; it is funded by a portion of TICPE revenues, channeled through the “Energy Transition” Account. In addition to subsidies for bio-methane injection (€125 million), the State spends annually €5.2 billion to support renewable electricity sources, especially photovoltaics and wind power. This expenditure is largely a legacy of the feed-in tariffs introduced in the early 2000s to help these sectors take off, and will continue for another ten years or so. Since 2016, support for renewable energies has been provided through tenders and price premiums, aiming notably to better control the costs of public support for these energy sources. Nevertheless, public expenditure to support renewable electricity will continue to increase in the coming years, due to the increase in renewable capacities provided for in the law. The Court of Auditors estimated in 2018⁵ that this expenditure could reach €7.5 billion per year by 2023.

The State invests €3 billion in rail infrastructure, mainly in the form of contributions to SNCF Réseau for the maintenance and modernisation of the network⁶ (€2.4 billion). In addition, extension investments represent €600 million, which primarily concern the decongestion of high priority hubs (Lyon, Marseille, Ile de France) and which are also funded by AFITF and SNCF. Studies and reports on the state of rail transportation in France published over the past 15 years converge to point out that the French rail network is now ageing, following decades of under-investment in the maintenance of existing lines for the benefit of major projects, mainly high-speed lines. The resumption of regeneration investments in July 2013 stopped this ageing, but the Spinetta report noted in 2018 that “at least 10 years of investment, of at least 3 billion/year on average, are still needed to regenerate the network”. The 2018 New Rail Pact Act and the 2019 Mobility Guidelines Act acknowledge this message by committing the State to contribute €3.6 billion per year to investments in network regeneration and modernisation.

5 Court of Auditors, March 2018, report on the Cost of Support for Renewable Energy.

6 These expenses are mainly related to the use of the network by TERs (€1.7 billion) and Intercity trains (€540 million), freight trains being only marginally represented (€200 million).

7 Report of the Court of Auditors on the Anah's Better Living Programme, February 2018.

The State spends €2.4 billion to support climate-friendly research (excluding ADEME). This support breaks down into €1.5 billion for nuclear energy research, €360 million for non-nuclear energy research, €32 million for transport and construction research and €6 million for agricultural research; €560 million are affected to climate-friendly research without the possibility to be more specific, due to data limitations. These spendings mainly go through the CEA and the ANCRE, and to a lesser extent the CNRS, CERN or ITER.

Government spending on improving the housing stock is estimated at about €2 billion. This regards mainly public buildings, whether it be the renovation or construction of high-performance buildings. Concerning the improvement of the private building stock, the State intervenes primarily through tax exemptions (see next section). The only expenditure listed here is the financing of the National Housing Agency (ANAH), which supports energy renovation work for vulnerable consumers (and whose efficiency is commended by the Court of Auditors⁷). The ANAH received for the first time in 2019 €110 million in direct State funding to help the Agency meet the objectives of the new National Energy Renovation Plan, as a continuation of a terminated fund (the FART). This funding is to be renewed throughout the five-year period. On the other hand, the budget of this agency is not limited to direct financing by the State: it is also supplemented by the revenues from the sale of allowances from the European carbon market. In total, the ANAH's budget for 2019 amounts to €874 million.

Year	Anah Budget (million €)
2014	716.8
2015	675.5
2016	701
2017	823
2018	799
2019	874.1

Finally, the State spends nearly €500 million to support the acquisition of clean vehicles through two programmes financed by the polluting-car penalty: clean car rebates and a scrapping premium (€230 million). The rebates cost €264 million, and the scrapping premium costs about €300 million, of which only €230 million are considered climate-friendly. The rest of the premium supports the acquisition of vehicles that emit too much CO₂ to be considered as clean.

€1.5 billion in climate-damaging spending

We have identified €1.5 billion in climate-damaging spending in 2019, spread over 36 budget actions⁸.

With €973 million, the State's operating costs alone account for three-quarters of this volume: they are detailed below. Due to their diffuse nature, these damaging operating expenses are underestimated.

The State also spends €128 million to support the aviation sector, in the form of aid to certain lines, investments in state-operated overseas airports or aeronautical research that does not reduce emissions from the sector. As a reminder, we did not include in the analysis expenses that are counterpart to specific charges, such as airport charges paid by airline, whose revenues are used in full to provide specific services to said airlines.

Another significant item of climate-damaging expenditure is the aid for the purchase of fossil fuels (fuel oil, gas) by consumers in precarious situations (€280 million). This is a fraction of the energy cheque.

Energy cheque: a necessary social measure... which must be transitional

The energy cheque was introduced by the Energy Transition Act of 2015 and has been effective since 2018. Its amount varies from €48 to €277 (€150 on average), it reaches 3.7 million metropolitan households and its total cost is €710 million. Beneficiaries can use it to pay their energy bills regardless of the type of energy used, or to pay for energy efficiency works. In practice, it is mainly used to pay electricity bills.

The energy cheque is considered climate-damaging when it encourages the consumption of fossil fuels, ambiguous when it is used to buy electricity, and climate-friendly when it helps to insulate a building or purchase renewable energy.

Use of the energy check, by energy type	Use of the check (%)
Electricity	61.5
Natural gas	29
Fuel	6.4
Other energy (wood, LPG, etc.)	2.6
Other (Renovation)	0.5

From a climate point of view, its impact is nuanced, as €280 million are used to finance fossil fuel consumption, and only 0.5% of the cheque is classified as "green". However, its social impact is undeniable: it reaches more beneficiaries than the social tariffs it replaces, financial assistance is greater, and the feedback from professionals and beneficiaries is good. Opinions and feedback converge to indicate that the introduction of conditions on the type of energy would mark a social step backwards for this device. The challenge of reducing the incentive to consume fossil fuels therefore seems to focus on alternatives to cheques, and in particular on subsidies for the thermal renovation of buildings, a long-term solution embodied mainly in ANAH subsidies; given the time scales involved, it is necessary to aim for the eventual disappearance of the energy cheque, but with the awareness that this evolution will take time, and that the cheque is essential in the meantime.

Government operating expenses should be better monitored and managed

Renovation and construction of public buildings, energy consumption of these buildings, purchase of vehicle fleets and fuels, travel expenses... The State's operating costs include many expenses that are climate-friendly, or climate-damaging. It is in these operating costs, for example, that we find the largest share of climate-damaging government spending.

The Ministry of Defense is a perfect example of this. Its climate-related operating expenses total €2.9 billion, with highly variable climate impacts. Two main items are identified: building expenses and transport expenses. Real estate expenditure amounts to €2.1 billion (the Ministry of Defense is the largest occupier of built areas in the State) and, under the Military Programming Act, the Ministry committed €780 million in 2019 to renovate its ageing real estate stock.

⁸ As a reminder, this figure does not take into account the €2.1 billion refunds due to tax exemptions, which are discussed in the following section. It also excludes expenditure from the related budget for air traffic control and operations (€2.1 billion, of which €500 million unfavourable)

Transport expenditure amounts to €800 million, of which €448 million is for fuel consumption –most of all, aircraft fuel. The Ministry of Defense also spends €170 million on rail mobility, through the “SNCF compensator” which subsidizes reduced travel tickets (-75%) for active soldiers.

Defence		Climate spending (million €)
BUILDING		
New buildings (mostly housing)		1,006
Building renovation (500 million in housing)		780
Energy consumption in buildings		275
TRAVEL		
Travel expenses, fuel expenses (excluding operational fuel)		166
Operational fuel, aircraft fuel		458
Train compensation to SNCF		170
Investment in the vehicle fleet		17
TOTAL		2,872

The Ministry of Defense, like other Ministries, therefore spends a lot of money on climate-related items. However, this issue seems to be little or not discussed: for example, France’s National Low Carbon Strategy does not mention Defense once and, although the Ministry of Defense carried out a carbon assessment in 2012 and drew up a Sustainable Development Strategy, this initiative has not been renewed. In this Ministry and beyond, efforts should be made to green the State’s operating expenses even if, obviously, some climate-damaging expenses such as the purchase of fuel for military aircraft cannot be extinguished overnight.

In the short term, the government could try to fill a data gap that makes it difficult to analyse the climate impacts of its operating expenses. For example, with regard to building expenditure, neither the information provided by the Transversal Policy Document “State Building Policy” nor the Transversal Policy Document “Fight against Climate Change” (DPT-Climat) make it possible to qualify from a climate point of view the expenditure on public buildings. In terms of transport, to our knowledge, there is no document summarizing the State’s costs: capital expenditure and maintenance of the vehicle fleet, fuel costs, travel costs. However, the public sector represents 25% of all private vehicles owned by legal entities in France⁹.

Missing data for government spending

In addition to operating expenses, several sectors of government action can be mentioned that would benefit from a dedicated climate assessment, complementing the information already provided by the Climate Transversal Policy Document. Let us mention two of these blind spots here.

One is research. Assessing public research spending from a climate prospect is very difficult, not only because of the fundamental and multidisciplinary nature of many research projects, but also because public spending on this subject is diffuse, channelled by large organizations such as the CEA or the CNRS, and because a classification of this spending by major themes is not available. While the budget documents are a good starting point, a document dedicated to the climate assessment of research funding is missing.

The climate analysis of the State’s financial holdings is also made difficult by the lack of data. The Special Account of State Financial Participations represents €10 billion and the companies concerned have a total turnover of €510 billion, which is more than the State budget. Given the complexity of the State’s portfolio and its associated transactions, it is impossible to reconstruct relevant indicators on the climate impact of the State shareholder’s choices and expenditures. In this respect, the commitment made by Agence des Participations de l’Etat (APE) to provide climate performance indicators for its portfolio from 2020 on is welcome, and much awaited.

9 “The vehicle fleets of legal entities”, CGDD, 2019

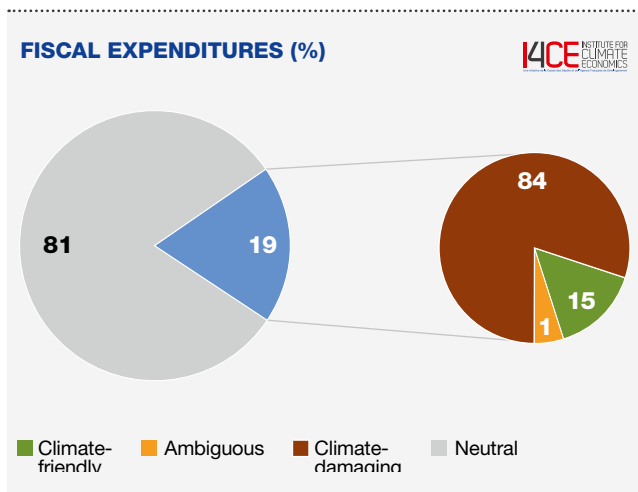
4. Fiscal expenditures

77 climate-related tax expenditures, totaling €19 billion

We identify 77 tax exemptions that have an influence on greenhouse gas emissions. These climate-related tax exemptions represent €19 billion of fiscal expenditure – about 12% of the fiscal expenditure analysed for this study.

The associated VAT losses could be added to this sum: since VAT applies to post-tax prices, a reduced tax rate (for example, a reduced fuel tax rate) necessarily leads to a loss of VAT. As a first approximation, this VAT loss can be estimated at 20% of the amount of tax exemptions for TICPE and TICFE, or €3.3 billion, mainly relating to TICPE and TICFE. Including these VAT losses, climate-related fiscal expenditures would climb above €22 billion.

The tax exemptions identified are mainly climate-damaging. Of the €19 billion, €15.9 billion are climate-damaging fiscal expenditures, while climate-friendly tax exemptions amount to €2.9 billion.



€2.9 billion climate-friendly fiscal expenditures

The €2.9 billion climate-friendly fiscal expenditures are spread over 41 tax exemptions.

Three quarters of these fiscal expenditures are related to the energy renovation of buildings. The two main ones are the reduced VAT rate of 5.5% for energy renovation works for individuals (€1.1 billion¹⁰) and the Tax Credit for the Energy Transition (CITE, €879 million). In addition, a reduced

VAT rate of 5.5% is applied to works in social housing buildings (only part of which, estimated at €104 million, corresponds to energy renovation), property tax is reduced when renovating social housing (€52 million) and the reimbursement of interests on the zero-interest eco-loan (eco-PTZ) take the form of a tax exemption (€43 million).

Regarding the CITE, the eligibility criteria were tightened in 2018, to re-focus the scheme only on the most efficient equipment and renovation works. This led to a halving of CITE's envelope, and the government announced that the scheme will continue to evolve in 2020. The new scales should take finer account of the energy performance of the equipment: the more energy-efficient the equipment, the higher the CITE. In addition, the government wishes to facilitate access to this scheme for low-income households by converting it into a premium. The beneficiaries will no longer have to pay the full cost then wait to be reimbursed the following year. The wealthiest households (20%) could be excluded from the scheme. Such a development makes sense in terms of social equity; however, it could seriously slow down the pace of CITE-triggered renovations, as the top 20% households represent almost half of CITE-supported works today.

In addition to the energy renovation of buildings, climate-friendly tax exemptions exist in favour of public transport. Public road transport such as buses or coaches benefit from a partial refund of TICPE on diesel fuel (€220 million), and public electric transport such as metro or tramway benefit from a reduced rate on electricity (€199 million). Several tax exemptions also support forest investments (€80 million) and two tax exemptions support renewable energies (€58 million).

Finally, we find 6 tax exemptions whose climate impact is ambiguous. One of them concerns the tax on fuel used in inland waterway transport (€50 million). Waterway freight transport provides an alternative to highly emitting road transport, yet it is far from carbon free and long-lived fossil-powered equipment, while beneficial today, may prove an issue in the middle term. Another example is the reduced TICPE rate for gas-powered heavy freight vehicles (€150 million); in this case, biogas could be a game changer but it was not considered as a certain future here.

¹⁰ A part of the 5.5% VAT, representing 48 million, is considered to be climate-friendly because it benefits the purchase of boilers operating in the fuel oil.

4. FISCAL EXPENDITURES

MAIN CLIMATE-FRIENDLY FISCAL EXPENDITURES

The amounts reported here relate to the fraction of each line that has been assessed as climate-friendly, not the full expenditure.

Fiscal expenditure	Climate-friendly amount (million €)
Reduced VAT rate (5.5%) on energy renovation works in buildings belonging to private individuals (n°730223)	1,092
CITE: Tax exemption for the energy transition (n°110222)	879
Partial TICPE refund on the fuel used in mass public transportation (n°800404)	220
Reduced TICFE rate on the electricity used in mass public transportation (n°820204)	199
Reduced VAT rate (5.5%) for the energy renovation of social housing buildings (n°730210)	104
Reduced TICPE rate on the fuel used in rail transportation (n°800201)	93
Partial exemption on the transfer tax for woodland and forest areas (n°520109)	72
Reduced VAT rate (5.5%) for renewable energy sources (n°730218)	57
Property tax reduction for energy renovation works in social housing (n°050204)	52
Zero-rate loan on energy renovation works (n°2103221)	43
Partial tax exemption for commuting allowances (n°120113)	34
Exceptional depreciation of facilities for the storage of livestock effluents (n°200217)	10
Exemption for the transfer tax on nature areas (Natura 2000, national parks...) (n°520118)	7
Reduced tax for forest-related investments (n°110226)	4
Tax credit on forest works (n°110262)	4
Other climate-friendly fiscal expenditures	11
TOTAL EXCLUDING VAT	2,881
Foregone VAT related to TICPE/TICFE exemptions (+20%)	102
TOTAL INCLUDING VAT	2,984

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MAIN AMBIGUOUS EXEMPTIONS

These 6 tax exemptions represent the totality of ambiguous fiscal expenditures. It is important to increase efforts in these tax exemptions since they could become either favourable or unfavourable to the climate, depending on future political and technological orientations (for example, the development of biogas for vehicles running on NGV (natural gas for vehicles) and river transport).

Fiscal expenditure	Ambiguous amount (million €)
Reduced TICGN rate on natural gas used as a vehicle fuel (n° 800207)	150
TICPE exemption for waterway transport (n°800117)	50
TICPE exemption on natural gas used as vehicle fuel (n°800213)	9
Tax exemption on the capital gain on sales for waterway freight boats (n°230510)	< €500,000
Absence of carbon component-led TICPE raise on natural gas used in cars (n°800217)	Unquantifiable
Special exemption for the acquisition of vehicles heavier than 3.5t, running on gaz or biofuel only (n°210205)	Unquantifiable
TOTAL EXCLUDING VAT	209
Foregone VAT related to TICPE/TICFE exemptions (+20%)	42
TOTAL INCLUDING VAT	251

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MAIN CLIMATE-DAMAGING FISCAL EXPENDITURES

The amounts indicated refer to the share of the tax exemption that is climate-damaging, and not necessarily the entire tax exemption. Four climate-damaging fiscal expenditures are considered unquantifiable by the administration and therefore do not appear here: the tax exemptions on the biofuels, fuel gases, electricity produced on board ships and gas used in passenger cars.

Fiscal expenditure	Climate-damaging amount (million €)
TICPE exemption for air transport (n°800109)	3,636
Different TICPE rates between diesel and gasoline (not listed)	3,547
Reduced TICPE rate on off-road diesel (GNR) (n°800201)	1,930
Partial TICPE refund for heavy freight trucks (n°800403)	1,543
Exclusion of overseas departments from the TICPE scope (n°800401)	1,272
Reduced TICPE rate on electricity for electro-intensive industrials not exposed to international competition (n° 820203)	1,014
TICPE exemption on maritime transport (n°800101)	658
Reduced TICPE rate for industrials covered by the European carbon market (n°800210)	620
Reduced TICPE rate for energy producers (n°800102)	303
Partial TICPE refund for off-road diesel, under specific use restrictions for agricultural usage (n°800405)	240
Reduced electricity tariffs for ships (n°820201)	198
VAT exemption for oil products in Martinique, Réunion, Guadeloupe (n°710102)	154
Reduced rate for off-road LPG (Liquefied Petroleum Gas) (n°800203)	104
Reduced electricity tariff for electro-intensive industrials covered by the European carbon market (n°820202)	104
Partial tax exemption for commuting allowances (n°120113)	101
Reduced rate on E10 fuel (n°800212)	79
Reduced rate for LPG fuel (n°800208)	68
Reduced rate on E85 fuel (n°800216)	67
Partial refund for the diesel used by taxis (n°800103)	54
Reduced VAT rate (5.5%) for efficient fuel-powered boilers (n°730223)	48
Tax exemption for the fuel used in developing new plane and boat engines (n°800119)	31
Exemption on coal for industrials producing biomass energy (n°800114)	29
Reduced VAT rate on the oil products used in Corsica (n°730306)	25
Reduced rate for the natural gas used in trucks (n°800207)	21
Reduced tariff for energy-intensive industrials prone to carbon leakage risks (n°800211)	14
Tax exemption for oil products used in gas extraction (n°800115)	12
VAT exemption for the fares of plane/boat tickets to/from Corsica and overseas departments, for individuals and goods (n°720201)	6
Other climate-damaging fiscal expenditures	3
TOTAL EXCLUDING VAT	15,880
Foregone VAT related to TICPE/TICFE exemptions (+20%)	3,109
TOTAL INCLUDING VAT	18,988

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€15.9 billion climate-damaging fiscal expenditures

The €15.9 billion in climate-damaging fiscal expenditures comes from 40 tax exemptions.

The vast majority of these stem from exemptions or reduced rates of TICPE: they represent a cost of €14.2 billion. These TICPE exemptions concern primarily the transport sector, with a full exoneration for airplanes (€3.6 billion), two different tax rates for gasoline and diesel (€3.5 billion), partial refunds to heavy goods vehicles on the carbon component of TICPE (€1.5 billion) and the fuel tax exemption for maritime transport (€658 million). In addition to transport, there are two TICPE exemptions for off-road diesel: a reduced rate that benefits the construction and public works sector and agriculture (€980 million and €950 million respectively, for a total cost of €1.9 billion)¹¹, and a partial refund for farmers (€240 million). It should also be noted that high emitting industries, such as the steel or cement industries, subject to the European market for CO₂ allowances benefit from a tax exemption on TICPE (€620 million), as well as energy producers such as refineries (€303 million).

The consumption of electricity also benefits from several tax (TICFE) exemptions, for a total cost of €1.3 billion. The largest exemption benefits electro-intensive industries not exposed to international competition (€1 billion). Electro-

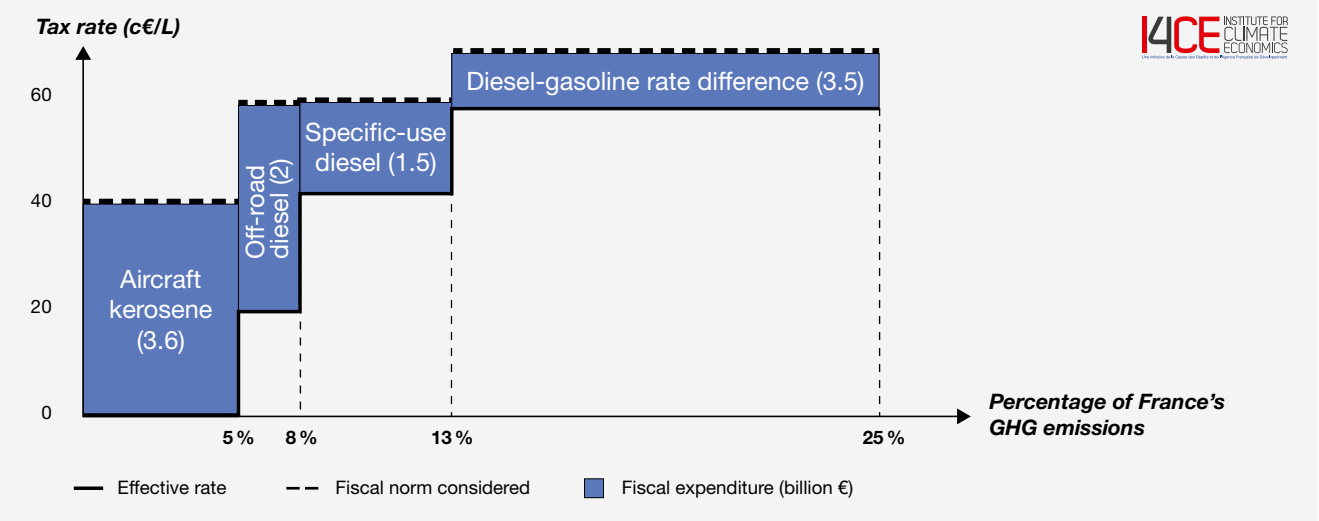
intensive industries exposed to international competition and those covered by the European carbon market are eligible for their own specific TICFE exemption, entailing rates that are even more advantageous. For instance, the tax exemptions benefiting the chemical and paper industry amount to €198 and €104 million respectively. This is also the case for data centres and aerodromes¹². While electricity taxes have ambiguous effects on climate, the TICFE tax exemptions are here counted as climate-damaging, because they relate to consumption intensity: the more energy the company consumes per unit of added value, the greater the rate reduction.

Two thirds of unfavourable fiscal expenditures concentrated in 4 tax exemptions

Adverse fiscal expenditures are highly concentrated: the four main tax exemptions detailed below alone account for €10.7 billion of the €16 billion identified in this exercise. Because of these four tax exemptions, 25% of French greenhouse gas emissions benefit from a reduced rate or exemption: 12% for the diesel-gasoline differential, 5% for aviation (domestic and international flights), 5% for heavy goods vehicles and 3% for off-road diesel fuel uses (Estimates are from I4CE; see the graph below).

RATES AND CO₂ EMISSIONS RELATED TO THE FOUR MAIN TAX EXEMPTIONS

GHG emissions are presented as a share of total French emissions, including overseas and air transport.



¹¹ This tax exemption also benefits the rail sector, with €93 million. This amount is considered to be climate-friendly.

¹² The amounts of these two fiscal expenditures are not known: they were voted in the 2019 budget but did not appear in the finance bill that details the cost of the measures.

The tax exemption on aviation kerosene

While the existence of this tax exemption is often justified by the Chicago Convention¹³, it is in fact derived from the 2003 European Directive on the taxation of energy products and electricity, which goes further than the Convention. This directive stipulates that EU Member States exempt aviation fuel for international flights (excluding recreational aviation) from taxation, but that it is also possible to suspend this exemption in the event of a bilateral agreement with another Member State.

The fiscal expenditure associated with this tax exemption on aviation kerosene is €3.6 billion. To calculate this expenditure, the administration considers that the standard tax rate (see section “scope”) is the TICPE rate for recreational aviation (39.79 c€/L¹⁴). If the standard was the TICPE rate applied to gasoline in road transport (68.29 c€/L), then the amount of the tax exemption would almost double, to more than €6.2 billion.

On 9 July 2019, the government introduced an eco-contribution on air tickets departing from France from 2020 onwards. This contribution will range from €1.5 for intra-European flights in economy class to €18 for non-EU flights in business class¹⁵. It will not apply to routes considered important for spatial planning (e.g. Limoges-Lyon or Agen-Orly), nor to flights to or from Corsica or the French overseas departments. The eco-contribution is expected to generate revenues of €180 million per year, one twentieth of the current fiscal expenditure on kerosene. This amount will be allocated to AFITF.

It should be noted that aviation benefits from other tax advantages that are not listed in the budget documents, such as reduced VAT rates on air tickets (0% for international flights and 10% for domestic flights) or reduced solidarity tax rates (known as the “Chirac” tax) for intra-European flights, where less carbon-intensive alternatives such as trains exist. The amount of fiscal expenditures associated with these tax exemptions is not known.

The tax advantage of diesel fuel over petrol

The reduced tax rate on diesel fuel compared to petrol represents a fiscal expenditure of €3.5 billion¹⁶. However, this gasoline-fuel differential is not listed as a fiscal expenditure in the budget documents. Its cost to the budget is therefore

not as explicit as fiscal expenditures identified as such in the finance bill, which does not facilitate parliamentary debates on this issue. In the 2019 budget, diesel fuel taxes were expected to gradually catch up with gasoline taxes, and converge in 2022. This catch-up was interrupted in December 2018 following the “yellow vest” movement.

The tax exemption on off-road diesel fuel

As a result of the European Fuel Quality Regulation of 2011, domestic heating oil, due to its excessive sulphur content, has been replaced by off-road diesel fuel (GNR, Gazole non routier). Although the GNR has the same physical characteristics as diesel fuel, its taxation is much lower: the reduced rate of TICPE associated with the GNR generates a fiscal expenditure of about €2 billion. This tax exemption mainly concerns agricultural uses (tractors, agricultural machinery, etc.) and the construction sector.

The 2019 Finance Act initially provided for the abolition of the reduced rate granted to the GNR for the construction sector (preserving the reduced rate for agriculture). Following the yellow vest movement, this measure was suspended. However, the government recently mentioned its intention to phase out the construction exemption over 3 years, maintaining the contours initially planned for 2019, while granting an extra depreciation rate to help the sector refurbish polluting equipment.

It should be recalled here that in addition to the reduced rate of TICPE on the GNR they buy, farmers subsequently benefit from an almost complete refund of TICPE on the same GNR. This second tax exemption has a cost of around €240 million. The GNR tax exemptions, when including this refund, generate a fiscal expenditure of €2.3 billion.

Fuel taxation advantageous for heavy goods vehicles

Heavy goods vehicles over 7.5 tonnes benefit from a partial refund of TICPE on so-called commercial diesel fuel, in order not to penalise them in the face of international competition. In 2015, to compensate for the abandonment of the heavy goods vehicle ecotax project following social unrest, this refund was reduced by increasing the taxation of commercial diesel fuel to bring it into line with the introduction of the carbon component of the newly created TICPE. However, while the carbon component has since increased steadily, taxes on commercial diesel remained stable. As a result, only

¹³ The Chicago Convention, entered into force in 1947, does not prohibit taxation at the time of refuelling the aircraft, only the taxation of the fuel already present in the aircraft on landing (cf. Article 24), whether for domestic or international flights.

¹⁴ This rate corresponds to the “kerosene jet fuel used as aircraft engine fuel” of index 17 bis or the “aircraft engine fuel” of index 13 bis in table B of 1 of art. 265 of the Customs Code.

¹⁵ This tax on airline tickets is similar to the “Air Passenger Duty” introduced in the United Kingdom, paid by airlines for any flight departing from the United Kingdom excluding international transit, and ranging from £13 for short flights in economy class to £468 for long flights in private jets.

¹⁶ I4CE calculations by comparing the rates in Art. 265 of the Customs Code: 68.29 c€/L for E5 petrol, 59.40 c€/L for diesel, and updating 2018 fuel consumption (based on Customs data).

the initial amount of the carbon component is now passed on to the fuel tax on heavy goods vehicles, which have been exempt from successive increases in this component since 2015. In 2019, this tax exemption represents a fiscal expenditure of more than €1.5 billion.

The government has recently decided to increase taxation on commercial diesel by reducing the refund granted to heavy goods vehicles by €2 c/L from 2020, which should generate additional revenue of €70 million in 2020 and €140 million per year in subsequent years. These additional revenues will support the AFITF rather than the general State budget.

The challenge of reforming climate-damaging tax exemptions

Most tax exemptions mentioned above have been introduced to support economically vulnerable sectors, account for strong international competition, or reduce the risk of carbon leakage. However, they reduce or even cancel incentives to decarbonise, insofar as they reduce taxes on fossil fuel consumption.

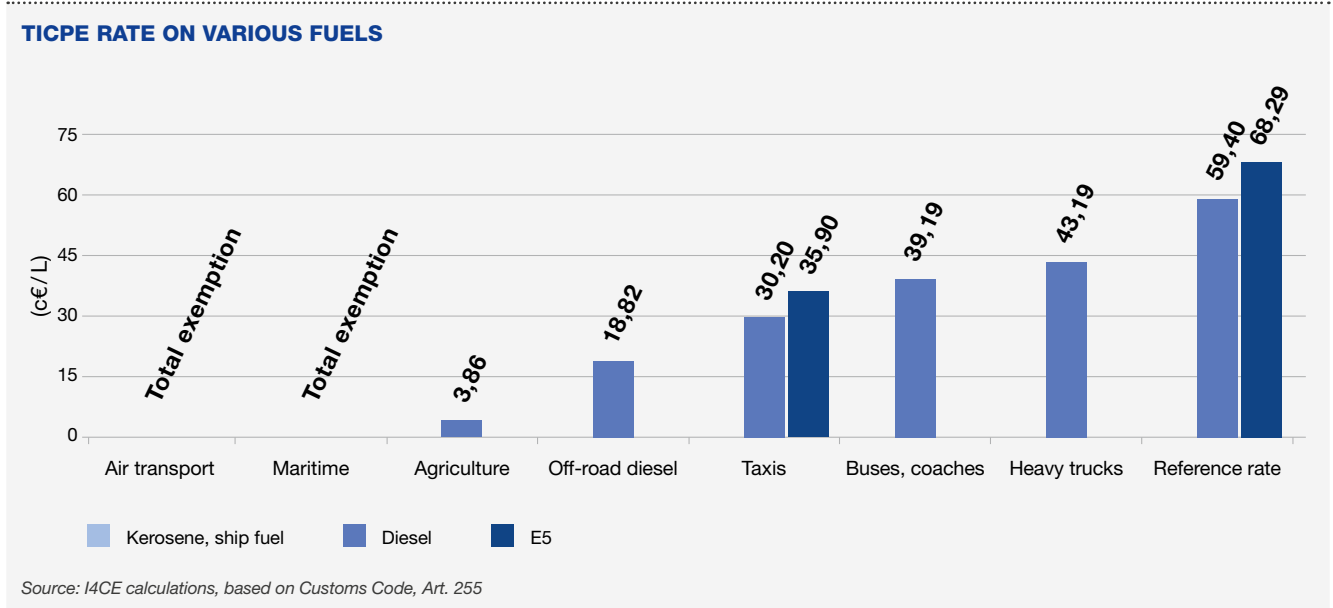
The challenge is therefore to gradually transform the State’s intervention to support both the sectors that need it, and the low-carbon transition. To achieve this goal, the additional revenues generated by the removal of climate-damaging tax exemptions could be used to help the sectors concerned make their transition.

In this perspective, it seems important to set a time horizon for the extinction of unfavourable tax exemptions (e.g. 5 years), and to establish adaptation strategies in consultation with the sectors concerned.

Other tax exemptions would certainly also deserve to be reformed. In particular, many exemptions affect entire sectors of the economy with an unclear impact on climate. The Research Tax Credit (CIR, *Crédit Impôt Recherche* – €6.2 billion), for example, is one of them. These tax exemptions are considered climate-neutral in this study due to data limitations, but they could include climate eligibility criteria; in the case of the above-mentioned CIR, for example, the tax credit could be granted on the condition that the subsidised project has no adverse impact on climate.

A questionable multiplicity of tax rates

The TICPE does not have a single rate: it varies according to the type of petroleum products, the use made of them and even the region where they are consumed. When adding the exemptions, reduced rates and other refunds linked with the various exemptions, we find at least 54 different rates for TICPE alone. Other climate-related taxes display the same heterogeneity, to a lesser extent: for example, the TICFE (electricity tax) has about ten different rates depending on usage and electrical intensity: reduced rates for electro-intensive industries, aerodromes and data centres...



This multiplicity of rates is striking. It can be partially explained by the fact that some sectors are more vulnerable, subject to international competition, or because of different externalities: the GNR, for example, does not cause road wear and tear, unlike diesel fuel. But in practice, information on the reasons behind a reduced rate is not always available – nor is it aggregated anywhere. These rates are not based on any recent economic research and their impact is not or rarely assessed.

Given the amounts involved – the tax exemptions on TICPE and TICFE alone represent €16.3 billion – it seems necessary to better justify the differences in rates and to evaluate their effectiveness. This would also avoid creating a sense of unfairness for consumers or more taxed sectors.

A lack of transparency on fiscal expenditures

The reference document for fiscal expenditures is the *Ways and Means, Volume II (Voies et Moyens – Volume 2)*, appended to the finance bill. While it provides many data on effective tax rates, the cost of tax exemptions and the reference rates used to calculate them, some necessary information is missing.

Thus, even for the so-called “classified” fiscal expenditures, i.e. those assessed under the finance bill, the rates used are not always clear and the volumes (the tax base) are never given. For example, a special fuel tax applies in the French overseas departments instead of the TICPE; the associated rates are not provided.

Monitoring unclassified fiscal expenditures, those that were once considered fiscal expenditures but are now considered the norm, is even more complex. Once they have been voted as delisted, they are no longer subject to the annual vote of Parliament and their cost is no longer detailed in official documents. In 2019, however, the delisted tax exemptions represent €60 billion – a total reconstituted from 2018 and 2017 data – against almost €100 billion of so-called classified fiscal expenditures. Transparency on unclassified fiscal expenditures is all the more important because the justifications behind these downgrades are sometimes unclear.

In addition to these classified and unclassified fiscal expenditures, some tax benefits are not even listed in official documents, without it being possible to know the reason. Thus, while, according to the Customs Code, several uses of electricity are not subject to TICFE, they are not monitored anywhere. Similarly, considered as the tax standard, most reduced VAT rates are not included in the tax inventory.

The need to improve fiscal expenditure data arises again when comparing the total amount of classified tax exemptions given in the draft finance bill (€98 billion), and the sum of the actual detailed tax exemptions for 2019 (€91 billion). While these €7 billion differences are due to estimates from previous years, they highlight the lack of strict monitoring of some fiscal expenditures.



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