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# FEDERAL INVENTORY OF FOSSIL FUEL SUBSIDIES

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Health
Food Chain Safety
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## SUMMARY


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https://finance.belgium.be/en/figures_and_analysis/analysis/inventory-fossil-fuels-subsidies

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Federal Inventory of Fossil Fuel Subsidies
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# 1 Background

This document is an update of the first two editions of the federal Inventory of Fossil Fuel Subsidies.

In 2021, a first inventory on the identification of federal support measures for fossil fuels was carried out as part of the commitment made in the National Energy and Climate Plan (NECP) to draw up such an inventory and to adopt a plan for the progressive phasing out of these fossil fuel subsidies. A second inventory was published in 2023. It was in particular in the context of the new reporting obligations with the implementation of the European Regulation on the Governance of the Energy Union and Climate Action.[1]

While these subsidies have generally been put in place to meet social or competitiveness objectives, in their current form they work against efforts to decarbonise the society and improve air quality. They keep economies locked into carbon-intensive technologies, undermine efforts to enhance the competitiveness of sectors contributing to decarbonisation, and can be socially inequitable.

Recent developments, however, indicate a willingness to move towards a gradual phasing out of support for fossil fuels, both at the European level (proposal to revise the Energy Taxation Directive) and at the Belgian level (publication of a study on environmental taxation in particular). Furthermore, on the occasion of COP28, Belgium signed the Joint Statement on Fossil Fuel Subsidies. This initiative, launched by the Netherlands, aims to increase transparency, assess existing international agreements that constitute obstacles to reform and develop national strategies for phasing out fossil fuel subsidies. This commitment will require the implementation of concrete actions by the signatory countries.

It is therefore particularly important to regularly update such an inventory of federal support measures for fossil fuels, given the evolution of the data from one year to the next on the one hand, given the abandonment or adoption of certain measures on the other hand. This is the purpose of this publication, which includes a systematic evaluation of fossil fuel subsidies until 2021[2].

# 2 The conceptual framework

The choice made in this Inventory is that of an approach combining the OECD bottom-up approach and the WTO approach. Another possible approach was the 'price-gap' approach, developed by the IMF in particular. This approach has not been adopted here as it does not directly identify subsidies and its results are too dependent on the assumptions made about production costs and external costs.

We have systematically screened the different forms of subsidies, both those granted in the form of budgetary expenditures and those granted through taxation. The latter appears to be the main mechanism through which Belgium supports fossil fuels. For these, the benchmark tax system must be defined in advance. A subsidy through taxation (tax expenditure) is indeed defined as a derogation from the benchmark tax system. Regarding income tax and VAT, we use the benchmark tax systems as defined in the federal tax expenditure Inventory. For excise duties, we have opted for a single benchmark, i.e. the excise duty rate on unleaded petrol, and not for "one rate per product"[3]. We consider that there is no reason for taxing one energy carrier less than the other. This choice requires that the rates applied to the different energy carriers be expressed in a common unit. In concrete terms, they are expressed in tons of oil equivalent (toe).

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1 *Regulation on the Governance of the Energy Union and Climate Action (2018/1999/EU).*

2 See also the complementary publication, *The landscape of carbon and energy pricing and taxation in Belgium*, 2023, available on landscape-carbon-energy-pricing-taxation.pdf (climat.be).

3 The Federal tax expenditure Inventory chooses a product-specific rate on the basis that excise duties are specific taxes.

A distinction is also made between direct subsidies, which apply to the consumption of fossil fuels, and indirect subsidies, which apply to the production of services that rely heavily on fossil fuels.

The criterion for identifying subsidies is therefore the use of fossil fuels. Some subsidies have specific objectives. This is obvious in the case of social tariffs on energy consumption and similar social interventions. The company car tax system also aims to reduce the tax burden on labour, especially in terms of marginal tax rates. This does not preclude subsidising– directly or indirectly – the use of fossil fuels. The existence of other objectives do not have to be taken into account at the identification stage, but do so at the reform stage, by looking for a better way to achieve the specific objective while not having a negative effect on the environment.

Furthermore, in this third edition, we have expanded the inventory exercise compared to previous editions. This Inventory now includes, on the one hand, the examination of subsidies for non-energy uses or *feedstocks*. On the other hand, we also add, as a borderline case, the fossil fuel activities of the federal government's financing instruments.

# 3 Main results

This report aims to be as exhaustive as possible for direct subsidies. For indirect subsidies, we have not been able to be exhaustive and the choice of cases covered should not be interpreted as an order of priority. It has mostly been driven by data availability and by the complexity of the different cases, especially for transport.

For tax-based subsidies, the federal tax expenditure Inventory provides a starting point. However, it had to be supplemented due to the lack of estimates of revenue losses for some important items, such as company cars, fuel cards, excise duty exemptions on intermediate consumption or the excise duty exemption of kerosene. Another important change concerns the inclusion of differences in excise rates between different energy products among the subsidies.

Table 1 lists the subsidies identified in this report with the exception of borderline cases. Direct subsidies amount to €12,096 million in 2021, or 2.4 points of GDP. They were estimated at 2.8% of GDP in 2017, a drop of almost 15% over 5 years. This drop as a percentage of GDP is, however, not a drop in absolute amounts because the amount of subsidies started to rise again in 2021, contrasting with the trend observed in the previous four years. The tables and graphs below give details by instrument (excise duties, VAT, income taxes and transfers) and by product.

Subsidies for international air and maritime transport amount to 894 million euros in 2021, or 0.2% of GDP. For the aviation sector, the amount of the kerosene exemption is estimated at EUR 594 million in 2021, an increase compared to 2020 but still lower than the 2019 level due to the impact of the Covid crisis on the aviation sector. The exemption for maritime transport is estimated at 242 million euros for heavy fuel oil and 58 million euros for diesel in 2021. These amounts are higher than in 2020. However, the subsidy level in 2021 remains lower than the 2019 level. An international benchmark is used here. For the aviation sector, this is the minimum rate set in the European energy tax directive applicable to kerosene (€330/1000l). For the maritime sector, in the absence of an applicable reference rate, we have opted for the minimum rate proposed in the proposal to reform this directive published in July 2021 (€0.9/GJ).

Indirect subsidies amount to 0.5 % of GDP and the main item is the tax regime for company cars, the number of which has seen continuous growth over the period considered.

New in this edition, exemptions granted to fossil products for non-energy use (feedstocks) are also included. The subsidy, assessed using the same benchmark as that for energy products is estimated at 1.2% of GDP in 2021 compared to 1.3% in 2017. These amounts are far from being negligible since they represent the equivalent of half of direct subsidies.

Table 1 List of fossil fuel subsidies (in million €)

| | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|
| **Direct subsidies** | | | | | |
| **Transfers - permanent measures** | **152.1** | **156.7** | **178.2** | **165.6** | **173.1** |
| Social tariff - Natural gas | 70.0 | 74.0 | 89.0 | 79.0 | 95.3 |
| Social tariff - Electricity (*) | 32.8 | 33.8 | 36.7 | 35.2 | 28.0 |
| PWC (**) Energy Access Support Fund - natural gas | 22.0 | 22.0 | 25.0 | 25.1 | 25.2 |
| PWC (**) Energy Access Support Fund - electricity (*) | 10.0 | 10.0 | 10.9 | 11.7 | 10.8 |
| Fuel Oil Fund | 17.3 | 16.9 | 16.6 | 14.6 | 13.8 |
| **Transfers - temporary measures** | **0.0** | **0.0** | **0.0** | **0.0** | **215.8** |
| Extended social tariff - natural gas (BIM) | 0.0 | 0.0 | 0.0 | 0.0 | 154.8 |
| Extended social tariff - electricity (BIM) (*) | 0.0 | 0.0 | 0.0 | 0.0 | 38.3 |
| One-off bonus of €80 (*) | 0.0 | 0.0 | 0.0 | 0.0 | 22.7 |
| **Income tax** | **411.4** | **520.8** | **534.5** | **553.2** | **667.1** |
| Fuel cards | 411.4 | 520.8 | 534.5 | 553.2 | 667.1 |
| **VAT** | 3.7 | 3.6 | 2.9 | 2.4 | 2.4 |
| Reduced rate on coal | 3.7 | 3.6 | 2.9 | 2.4 | 2.4 |
| **Excise duties** | **11,812.8** | **10,995.1** | **10,759.3** | **10,657.6** | **11,037.8** |
| ***Rate differential across products*** | | | | | |
| Diesel | 1,049.95 | 696.03 | 410.37 | 257.39 | 382.94 |
| Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Heavy fuel oil | 27.35 | 25.96 | 20.07 | 52.84 | 16.95 |
| LPG | 9.35 | 6.69 | 5.41 | 6.05 | 9.75 |
| Natural gas | 4,884.95 | 4,848.12 | 4,741.53 | 4,538.04 | 5,124.32 |
| Coal and coke | 0.29 | 10.61 | 57.38 | 0.30 | 0.20 |
| ***Subtotal*** | ***5,971.87*** | ***5,587.42*** | ***5,234.76*** | ***4,854.61*** | ***5,534.17*** |
| ***Specific rates for the same product*** | | | | | |
| Heating oil | 2,534.60 | 2,266.03 | 2,129.81 | 2,263.28 | 2,096.48 |
| Gas oil - industrial and commercial uses | 428.63 | 386.33 | 415.58 | 383.73 | 375.02 |
| Reimbursement for professional use of diesel | 702.86 | 668.20 | 958.81 | 1,215.86 | 891.51 |
| Kerosene used as fuel | 36.95 | 36.99 | 34.93 | 32.46 | 41.46 |
| Kerosene used as engine fuel | 5.67 | 4.56 | 3.36 | 2.28 | 2.41 |
| LPG used as fuel | 118.99 | 120.28 | 108.59 | 138.81 | 140.01 |
| Natural gas at reduced rate | 1,270.73 | 1,250.17 | 1,091.02 | 1,031.12 | 1,190.60 |
| ***Subtotal*** | ***5,098.43*** | ***4,732.57*** | ***4,742.10*** | ***5,067.55*** | ***4,737.50*** |
| ***Subsidies on intermediate consumption*** | | | | | |
| Manufacturing, development, testing and maintenance of aircraft and ships | 33.44 | 28.84 | 36.85 | 22.59 | 22.74 |
| Rail transport | 18.00 | 22.99 | 17.67 | 15.60 | 15.95 |
| Inland navigation | 94.62 | 93.09 | 86.57 | 84.34 | 86.13 |
| Dredging activities | 78.92 | 70.31 | 74.98 | 53.95 | 59.09 |
| Agricultural and horticultural work, fish farming and forestry | 517.56 | 459.93 | 566.33 | 559.00 | 582.17 |
| ***Subtotal*** | 742.54 | 675.15 | 782.40 | 735.49 | 766.09 |
| ***Total direct subsidies*** | ***12,380.10*** | ***11,676.20*** | ***11,474.91*** | ***11,378.79*** | ***12,096.17*** |
| ***In % GDP*** | ***2.8%*** | ***2.5%*** | ***2.4%*** | ***2.5%*** | ***2.4%*** |

(*) Social tariff- electricity, extended social tariff- electricity (BIM), PWC energy support fund - electricity and one-off bonus of 80 euros: taking into account the production mix. (**) Public Welfare Centre (CPAS-OCMW)

| | | | | | |
|---|---|---|---|---|---|
| **International air and maritime transport** | | | | | |
| Aviation kerosene exemption | 627.86 | 672.95 | 676.99 | 471.80 | 594.17 |
| Excise duty exemption for heavy fuel oil - international maritime transport | 245.39 | 304.30 | 268.07 | 188.09 | 241.92 |
| Excise duty exemption for diesel - international maritime transport | 40.46 | 49.79 | 44.57 | 52.08 | 57.57 |
| ***Total international air and maritime transport*** | ***913.71*** | ***1,027.04*** | ***989.63*** | ***711.97*** | ***893.66*** |
| ***In % GDP*** | ***0.2%*** | ***0.2%*** | ***0.2%*** | ***0.2%*** | ***0.2%*** |
| **Indirect subsidies** | | | | | |
| Company cars | 1,963.48 | 2,084.80 | 2,248.31 | 2,404.17 | 2,522.52 |
| VAT - Exemption for airplane tickets | 213.84 | 222.16 | 228.26 | 61.87 | 86.83 |
| ***Total indirect subsidies*** | ***2,051.74*** | ***2,185.64*** | ***2,476.57*** | ***2,466.04*** | ***2,609.35*** |
| ***In % GDP*** | ***0.5%*** | ***0.5%*** | ***0.5%*** | ***0.5%*** | ***0.5%*** |
| **Subsidies for non-energy use products (feedstocks)** | | | | | |
| Coal tar | 198.6 | 210.0 | 203.7 | 192.1 | 168.9 |
| LPG | 1,091.5 | 1,641.9 | 1,705.1 | 1,577.8 | 1,645.8 |
| Nafta | 2,478.2 | 2,427.1 | 1,999.5 | 2,037.5 | 2,310.8 |
| Heavy fuel oil | 11.9 | 13.9 | 14.3 | 14.2 | 14.2 |
| White spirit and cooking gasoline | 9.5 | 6.3 | 3.5 | 5.2 | 3.3 |
| Lubricants | 68.4 | 64.5 | 60.9 | 42.5 | 46.4 |
| Bitumen | 234.0 | 238.9 | 219.4 | 194.9 | 227.4 |
| Petroleum coking | 13.6 | 14.6 | 14.8 | 17.9 | 18.1 |
| Paraffin waxes | 13.5 | 12.5 | 12.9 | 12.7 | 12.9 |
| Other oil products | 1,019.4 | 780.7 | 685.3 | 606.9 | 685.6 |
| Natural gas | 868.6 | 839.0 | 803.6 | 902.4 | 807.7 |
| ***Total non-energy use*** | ***6,007.19*** | ***6,249.38*** | ***5,722.98*** | ***5,604.23*** | ***5,941.23*** |
| ***In % GDP*** | ***1.3%*** | ***1.4%*** | ***1.2%*** | ***1.2%*** | ***1.2%*** |

Table 1 and Figure 1 detail the ***direct subsidies*** according to the instrument used.

Subsidies in the form of transfers amount -permanent measures- to €173 million in 2021[4]. As for transfers granted temporarily, their total amount is around 216 million euros in 2021. These are transfers to individuals and have social objectives. Fuel cards are the only direct subsidy identified that is granted through income taxes. The estimated amount is €667 million in 2021 and is constantly increasing over the period under review (2017-2021) due to the increasing number of company cars. In 2021 and 2022, this estimated amount is significantly higher due to the continued increase in the number of company cars but especially the very significant increase in fuel prices. For VAT, the only direct subsidy identified is the reduced rate applied to the final consumption of coal and the amount is derisory, due to the very low use of this energy carrier.

Excise duties are clearly the major instrument used to grant subsidies to fossil fuels. Exemptions and reduced rates of excise duties are estimated at €11,038 million in 2021 and are increasing compared to 2020 due to higher volumes consumed.

As for all tax expenditures, the estimated amount depends on the benchmark used. As indicated above, we considered that there were no arguments justifying differences in tax rates between energy products. We therefore used the tax rate on unleaded petrol as the benchmark and compared the rates by expressing them in energy units.

Figure 1 Direct subsidies to fossil fuels per instrument
(2017-2021, in million €)


[4] Taking into account, for subsidies related to electricity, the proportion of fossil fuels in the energy mix.

Figure 2 Fossil fuel subsidies, excise duties, per type of subsidy
(2017-2021, in million €)

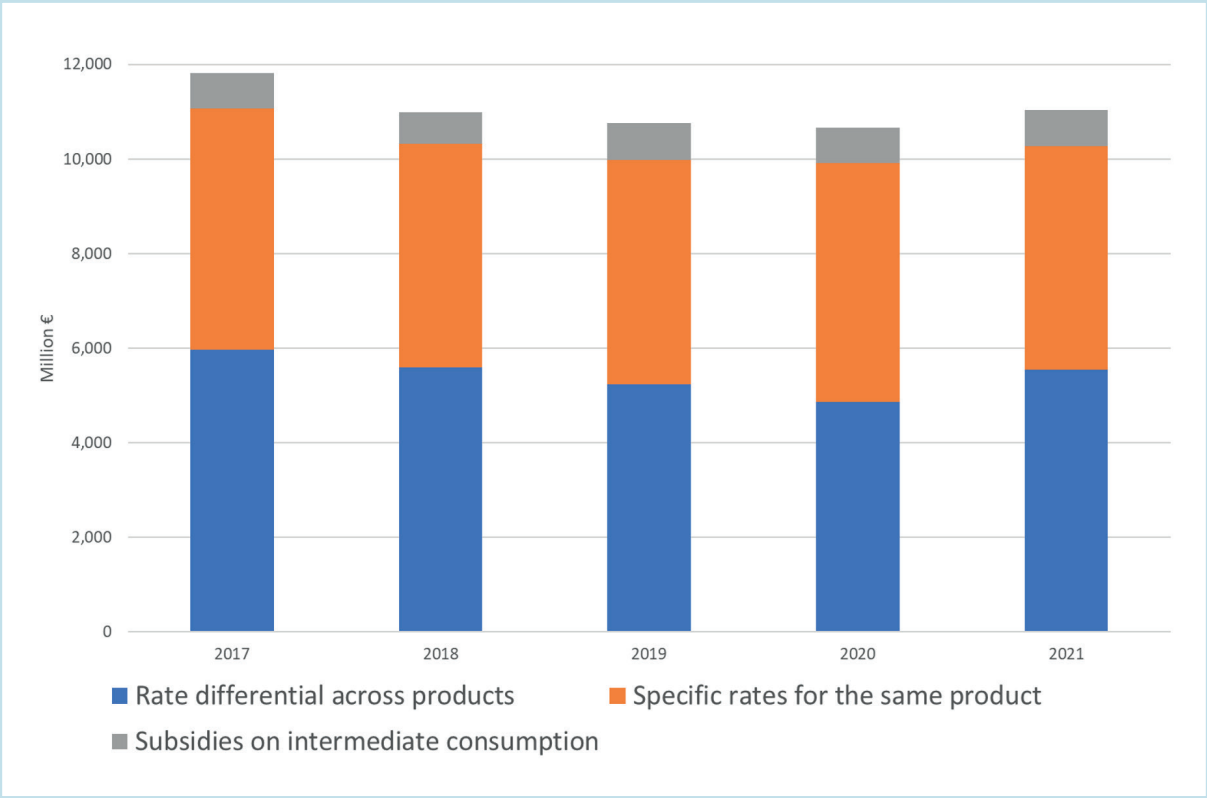


Figure 2 breaks down the ***'excise' subsidies*** into several sub-categories. The first category highlights rate differentials across products. The corresponding amount is €5,534 million in 2021[5], an increase compared to 2020. The decrease observed until 2019 is explained by the increase of excise duties applied to diesel that converged towards those applied to unleaded petrol, which constitutes the reference point here[6]. However, the largest share of subsidies resulting from the rate differential across products comes from the low taxation of natural gas. Since 2020, the amount of the subsidy has been mainly influenced by the quantities consumed, whether for natural gas or diesel. These are down sharply in 2020 and up sharply in 2021 following the Covid crisis and the recovery that followed it.

Special rates for the same product are covered in the second category. These subsidies are listed in the Federal Tax Expenditure Inventory, even though the amount of the subsidy is not the same as in this report due to different reference points [7]. The amount of this category of subsidies is estimated at €4,738 million in 2021 and is down compared to 2020 and 2019. The three main items are the exemption from excise duty on heating oil, the reduced rate for natural gas for industrial use and the reimbursements for professional use of diesel.

A third category includes subsidies on intermediate consumption. Our estimates rely on various sources including the input-output tables and the data collected for the Greenhouse Gas Inventory. The amount of these subsidies is estimated at €766 million in 2021 . Agriculture (and other activities) is the main item, followed by inland navigation.

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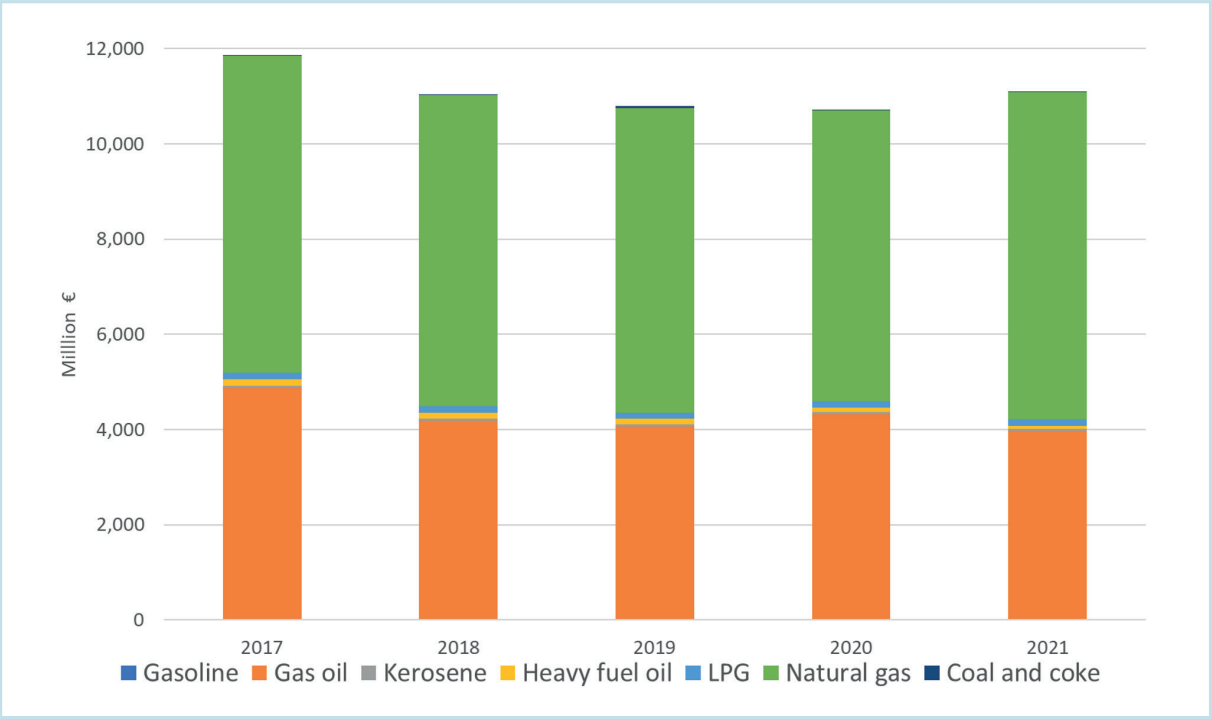
5 The amount of the subsidy is calculated on the basis of the volumes subject to the reference rate of excise duty for a given product. Where there is a special scheme, the volumes concerned are included under the second category. There is therefore no double counting

6 It should be noted, however, that this equalisation is not carried out in terms of energy units (toe) but in terms of volume, which leaves a residual amount of subsidy for diesel at the end of the period.

7 The Federal Tax Expenditure Inventory quantifies these subsidies using the standard rate for each product as a reference. In this report, the subsidies are quantified here in relation to the single reference rate expressed in toe.

Figure 3 Fossil fuel subsidies, excise duties by product
(2017-2021, in million €)

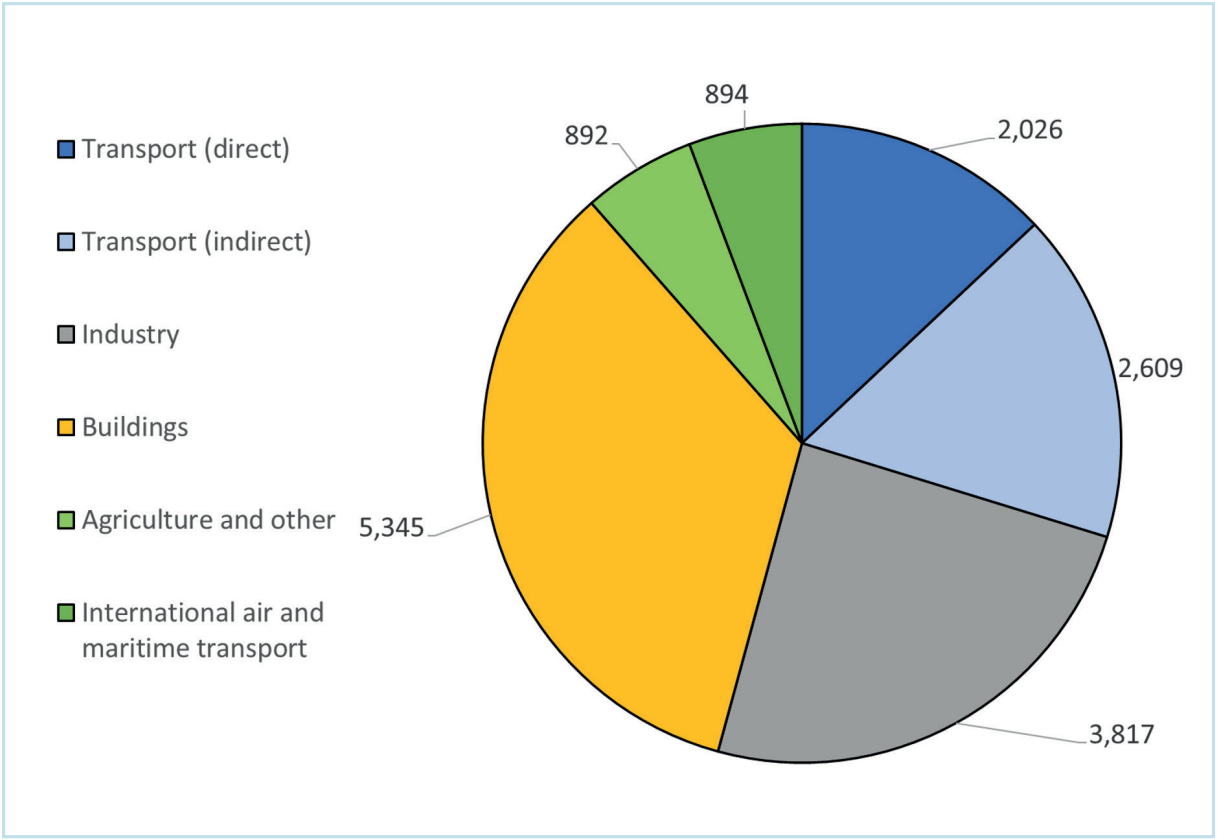



'Excise' subsidies can also be categorised by product, as indicated in Figure 3.

Most of the subsidies are for diesel and natural gas.

In the case of diesel, subsidies are partly the result of the remaining tax differential (in energy units) with unleaded petrol. However, most of the subsidies for diesel stem from the special schemes for heating oil, professional use of diesel and the agriculture and forestry sector. For natural gas, the subsidy comes from the general under-taxation, compared to the reference point for unleaded petrol, and from the reduced rate applied to this energy carrier within the framework of sectoral energy agreements.

Figure 4 Breakdown of subsidies by sector (except feedstocks), 2021
(in million €)




Total subsidies can be broken down into the main sectors of transport, industry, buildings, and agriculture and other activities. Figure 4 shows the result of this breakdown for 2021. It includes both direct and indirect subsidies.

The transport sector received €2,026 million in direct subsidies in 2021, representing 16.8 % of total direct subsidies. Subsidies for international air and maritime transport amount to 894 million euros. Indirect subsidies to this sector amounted to €2,609 million. The other sectors received direct subsidies only: industry €3,817 million (31.6 % of total direct subsidies), buildings €5,345 million (44.3%) and agricultural and other activities €892 million (7.4 %). These amounts and ratios must be seen in relation to the relative importance of the different sectors or activities concerned. It should be noted for instance that in 2021, agriculture represented only 0.64 % of the value added produced by the economy as a whole.

Table 2 gives details about the ***main items*** for each of these sectors for the year 2021.

In the transport sector, the largest item of direct subsidies is the reimbursement for professional use of diesel, which accounts for 44 % of the total direct subsidies received by this sector. This is followed by fuel cards and the exemption from excise duties of kerosene for aviation. Sectoral exemptions form only a small part of total subsidies but can be relatively large in relation to the activity of these sectors. The impact of rate differentials between products is relatively limited here given the small tax differential between petrol and diesel, which are the two main fuels concerned.

In the industry, more than half (56 %) of the direct subsidies come from rate differentials between products and more particularly from the low taxation of natural gas. The reduced rate applied to natural gas for certain companies is the second most important item. It should be noted that subsidies for non-energy use (feedstocks), which are not included in the table above, represent a significantly higher amount than all other subsidies granted to industry.

In the buildings sector, the two main items are subsidies from product differentials and the heating oil exemption. The former mainly concerns natural gas.

Finally, two items should be mentioned for agricultural and other activities. The under-taxation of natural gas (rate differential across products) represents 35 % of the total and the exemptions on intermediate consumption 65 %.

Table 2 Details of main subsidies by sector, 2021

| | millions of euros | % of subtotal |
|---|---|---|
| ***Transport*** | | |
| Fuel cards | 667 | 32.9% |
| Base rate differential across products | 304 | 15.0% |
| Reimbursement of professional diesel | 892 | 44.0% |
| Exemption for inland navigation | 86 | 4.3% |
| Exemption for dredging activities | 59 | 2.9% |
| Other | 18 | 0.9% |
| ***Subtotal - direct subsidies*** | ***2,026*** | ***100.0%*** |
| Excise duty exemption for aviation kerosene | 594 | 66.5% |
| Excise duty exemption for martime navigation | 299 | 33.5% |
| ***Subtotal - subsidies to international air and maritime transport*** | 894 | 100.0% |
| Company cars | 2,523 | 96.7% |
| VAT exemption for airplane tickets | 87 | 3.3% |
| ***Subtotal - indirect subsidies*** | ***2,609*** | ***100.0%*** |
| ***Total Transport*** | ***5,529*** | |
| ***Industry*** | | |
| Base rate differential across products | 2,125 | 55.7% |
| Reduced diesel rate | 375 | 9.8% |
| Reduced natural gas rate | 1,191 | 31.2% |
| Other | 126 | 3.3% |
| ***Total Industry*** | ***3,817*** | ***100.0%*** |
| ***Buildings*** | | |
| Transfers to individuals (social tariffs etc.) | 173 | 3.2% |
| Base rate differential across products | 2,778 | 52.0% |
| Heating oil exemption | 2,096 | 39.2% |
| Other | 297 | 5.5% |
| ***Total Buildings*** | ***5,345*** | ***100.0%*** |
| ***Agriculture and other activities*** | | |
| Base rate differential across products | 310 | 34.7% |
| Exemptions on intermediate consumption | 582 | 65.3% |
| ***Total Agriculture and other activities*** | ***892*** | ***100.0%*** |
| ***Total direct subsidies*** | ***12,079*** | |

* 0.13% of direct subsidies could not be allocated to a specific sector, so there is a difference between the total of the table by sector and the total of direct subsidies.

# Final thoughts

The identification criterion for the inventory of subsidies in this report is whether the scheme directly or indirectly subsidises the use of fossil fuels.

Some of the observations made in the previous editions of the federal Inventory of fossil fuel subsidies remain relevant. One of these is the problem of transparency. Most of the subsidies are granted through the tax system. However, "tax expenditures" are not directly identifiable, unlike budgetary expenditures, because tax revenues are expressed net of revenue losses from tax expenditures. In addition, a substantial part of the subsidies granted through the tax system is not quantified in the federal Inventory of tax expenditures.

The update of the National Energy and Climate Plan, which is to be carried out in the course of 2024 and of which a preliminary version has been communicated to the European authorities in 2023, is an opportunity to reiterate the necessity and urgency of phasing out these fossil fuel subsidies, in a form of a clear trajectory for the gradual elimination of these subsidies.

When discussing the phasing out of these subsidies, the specific objectives of some subsidies, in particular social objectives, will have to be taken into account. Their reform must reconcile the removal of environmentally harmful effects with the achievement of the specific objectives identified by other, non-environmentally harmful means. Just transition aspects are indeed inseparable from the discussions on reform proposals.