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ANNEX

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to the

Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - 2021 report on the State of the Energy Union - Contribution to the European Green Deal and the Union's recovery

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{SWD(2021) 308 final}

Annex to the State of the Energy Union Report on energy subsidies in the EU

1. Introduction

In 2020, the European Commission published its first annual report on monitoring ‘Member States’ progress towards phasing out energy and more specifically, fossil fuel subsidies in the EU¹, as required by the Regulation on the Governance of the Energy Union and Climate Action².

The report relied on (1) direct data collections from Member State sources and (2) the information included in National Energy and Climate Plans (NECPs), and revealed important data reporting gaps in the NECPs submitted by Member States. This shows the need for improvement of the reporting practices of the Member States.

The recently adopted European Climate Law³ cements Europe’s goal to become climate-neutral by 2050, in line with the objectives of the Paris agreement. Continued efforts are necessary to ensure a socially fair phasing out of environmentally harmful energy subsidies, in particular for fossil fuels, which are incompatible with that objective. Moreover, G7 leaders, including the EU, pledged⁴ to phase out new direct government support for international carbon-intensive fossil fuel energy as soon as possible, and reaffirmed existing commitments to eliminating inefficient fossil fuel subsidies.

The climate law amends⁵ Article 17 of the Governance Regulation, specifying that ‘the Commission shall adopt implementing acts⁶ to set out the structure, format, technical details and methodology for the reporting, including on the phasing out of energy subsidies, in particular for fossil fuels’. This should lead to more uniform reporting practices across Member States, eliminating most existing data gaps.

The proposal for the revision of the Energy Taxation Directive⁷ supports the phasing out of outdated exemptions and incentives for the use of fossil fuels, and will promote cleaner fuels, supporting the delivery of the EU’s ambitious targets on the reduction of greenhouse gas emissions.

The ongoing efforts on the EU Taxonomy Regulation⁸ and green bonds initiatives should help investors in the medium term in identifying green economic activities and channelling more funds into them. The Commission applies the principle of ‘do no significant harm’ to various EU funds. EU funding (e.g. from the Recovery and Resilience Facility, under the cohesion policy) shall be made available only for measures that do not cause significant harm to the environment.

For Member States, the EU taxonomy might have a potential impact in the future on subsidies, providing them tools to identify sustainable activities, and thus facilitating for

¹ Article 35, point n of the Regulation on the Governance of the Energy Union (2018/1999/EU) Hereinafter: the Governance Regulation

² <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1602743359876&uri=COM%3A2020%3A950%3AFIN#document3>

Hereinafter: the 2020 Commission report on subsidies

³ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R1119&from=EN> Recital 29

⁴ <https://www.g7uk.org/wp-content/uploads/2021/06/Carbis-Bay-G7-Summit-Communique-PDF-430KB-25-pages-3-1.pdf>

⁵ Point 7b of Article 13 of the European Climate Law

⁶ The preparatory works on the implementing act have already started and by the end of 2022 the implementing act is planned to be adopted.

⁷ https://ec.europa.eu/info/sites/default/files/revision_of_the_energy_tax_directive_0.pdf

⁸ Regulation (EU) 2020/852 of the European Parliament and of the Council on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088, OJ L 198/13, 22.6.2020 <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R0852&from=EN>

national policies to target green activities, and scaling up green investments at lower costs, at the expense of fossil fuels and other less environmentally friendly activities.

In order to prepare this new issue (the ‘second’) of the annual report on subsidies the Commission conducted a study⁹ to gather data from Member States and expand earlier datasets with results of 2019 and 2020¹⁰. It must be noted that 2020 data were not complete at the time of the finalisation of the Commission subsidy study (July 2021), and given significant estimations, 2020 numbers should be treated cautiously in the current report¹¹. Some Member States could not provide the same information or in the same quality as in earlier years, referring to lack of resources to prepare datasets and reports for 2020, also owing to the Covid-19 situation.

The results of this study confirm that the EU and its Member States have to do more to reduce fossil fuel subsidies to achieve climate neutrality by 2050. Between 2015 and 2019, energy subsidies grew in the EU by 8%. Subsidies on renewables also rose by 8%, whereas energy efficiency subsidies were up by almost a half, which was a favourable development with regards to attaining the EU green energy transition objectives. On the longer run, as technology costs reductions, enabling market driven energy investments, and on condition of attaining our climate goals, subsidies for renewables and energy efficiency might also decrease.

Fossil fuel subsidies rose further, (by 4% between 2015 and 2019), however, some countries, such as Latvia, Lithuania Sweden, Greece or Ireland, managed to decrease subsidies for fossil fuels. In the EU, subsidies on petroleum products, in sectors such as transport and agriculture, kept on growing over this period, whereas subsidies on coal and lignite decreased, largely owing to diminishing role of solid fuels in electricity generation.

In 2020, fossil fuel subsidies decreased measurably compared to 2019, mainly due to lower fuel consumption in transport, particularly in aviation, amid significant travel restrictions and lockdowns in the EU. As available data shows, subsidies on renewables decreased slightly in 2020. At the same time, subsidies in the form of compensations to nuclear, owing to new subsidy instruments for closure and decommissioning of nuclear facilities (mainly in Germany and France) rose significantly. Subsidies for energy efficiency measures managed to increase further in 2020.

Nevertheless, fossil fuel consumption is expected to rebound with economic recovery. The EU will thus need to step up efforts to avoid returning to pre-pandemic subsidy levels. Recovery programmes should contribute to this objective by largely focussing on greening the economy.

⁹ Study on energy subsidies and other government interventions in the EU, hereinafter: the Commission study

¹⁰Due to re-assessment of the subsidy inventory for the earlier years, and to the change in the monetary basis (‘expressed in 2020 euros’ in the current report) total amounts on the charts of this report may differ from the last energy subsidy report published in 2020.

¹¹ In the case of some subsidy items, if 2020 were not available, 2019 values were taken as estimate for 2020. In most cases 2020 data are referred to in this report, however, if only 2019 data are robust enough for the analysis, they are taken as the latest available.

2. Energy subsidies and fossil fuel subsidies in the EU

2.1. Energy subsidies in the EU

Subsidies in this report are defined following the methodology set forth by the World Trade Organization (WTO)¹², which was used in the new supporting Commission study¹³ and the previous (2020) energy subsidy report.

Energy subsidies can be looked at from different angles, for example by the purpose they foster (production, consumption/demand or energy efficiency), by fuel type (fossil fuels, renewables, nuclear), by economic sectors (energy sector, transport, industry, agriculture¹⁴, residential, etc.), or by instrument types used to impose subsidies (tax reliefs, grants, price or income supports).

Looking at the evolution of energy subsidies in the EU, total financial support amounted to €176 billion in 2019, up by 8% since 2015. Subsidies for energy efficiency measures grew at a much faster pace, by 43% (+€5 billion) over this period, whereas subsidies for energy production went up by only 4% (+€3 billion), mainly due to still increasing renewable generation subsidies.

In 2020, the overall amount of energy subsidies in the EU remained practically stable (at €177 billion). However, subsidies for energy efficiency measures kept on increasing compared to 2019 (by 5%), whereas energy demand related subsidies¹⁵ fell by 4%, principally owing to lower energy consumption in the aftermath of Covid-19 induced lockdowns and other restrictions. On the other hand, the estimated amount of subsidies for industry restructuring rose to €4.5 billion in 2020 (up from €1.8 billion in 2019), owing to increasing financial support for decommissioning of power generation facilities.

¹² World Trade Organisation (WTO) Agreement on Subsidies and Countervailing Measures

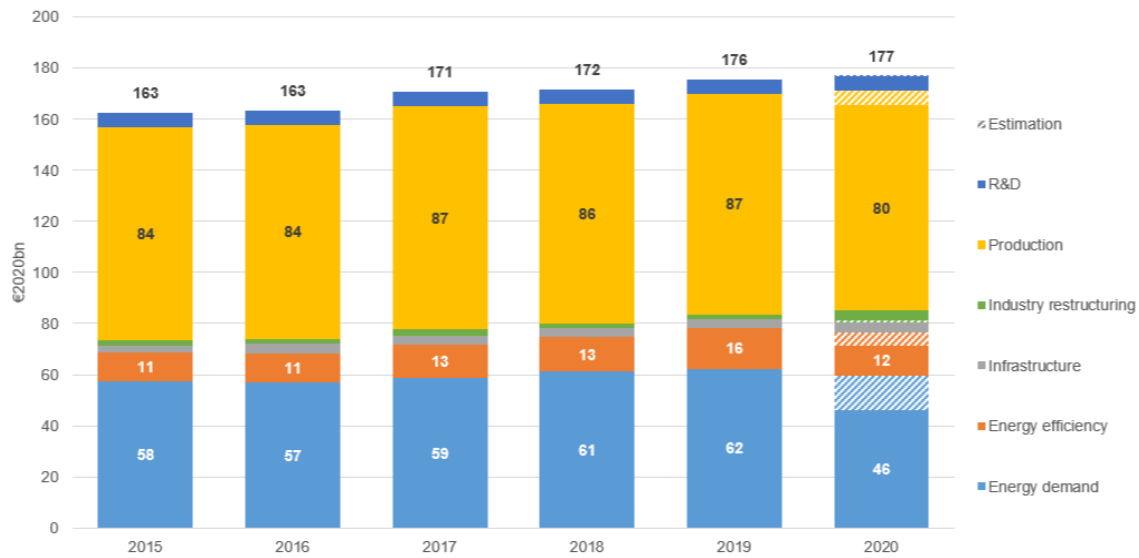
https://www.wto.org/english/tratop_e/scm_e/scm_e.htm

¹³ See more on energy subsidy methodology in the Commission study

¹⁴ In the current report including subsidies for fishing as well

¹⁵ Energy demand related subsidies incentivise energy consumption in various economic sectors, for example via tax reductions or refunds on energy consumption, regulated prices in certain sectors, direct payments aiming at alleviating consumer burdens stemming from energy costs. Some of energy demand subsidies have social implications, going beyond pure economic considerations and having strong social dimension, which also need to be taken into account in policy decisions.

Figure 1 – EU energy subsidies by purpose



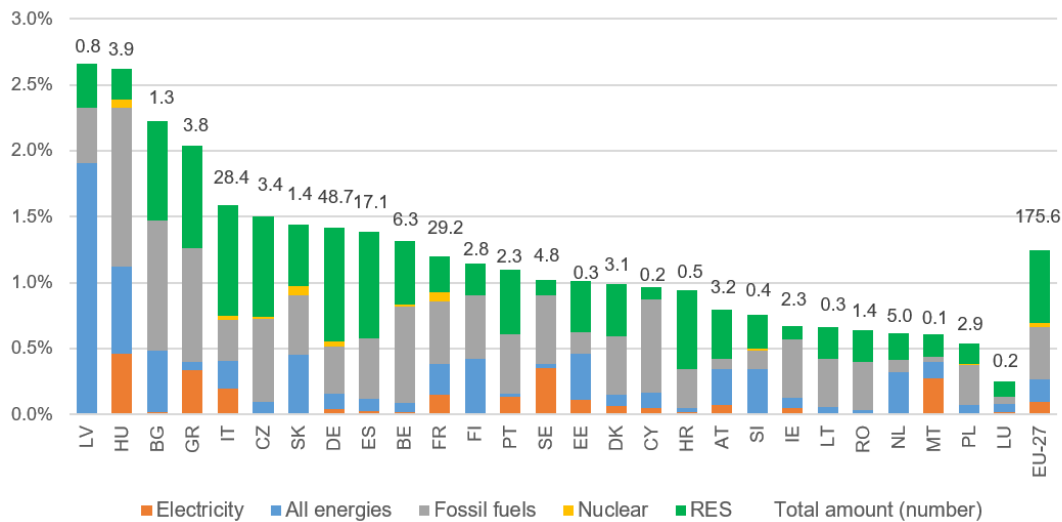
Source: Study on energy subsidies and other government interventions in the EU. In the case of 2020 data diagonal-lined stack bars show that these data are based on estimations, and each category should be interpreted as adding the blank bar (factual data) with the diagonal-lined bar (estimations) to compare with earlier years.

When compared to the GDP, energy subsidies continued to vary significantly across Member States in 2019, ranging from 2.7% of the GDP in Latvia to only 0.3% in Luxembourg. In the EU energy subsidies amounted on average to 1.2% in 2019. In 2015, this share was slightly higher, reaching 1.3%.

The analysis also shows that different countries use subsidies to support different policies and measures, which impact the EU green energy transition objectives differently. Latvia spent almost 2% of its GDP on subsidies for energy efficiency measures in 2019. Germany spent around 0.9% of its GDP on subsidising renewables, and Bulgaria, Greece, Italy, Czechia and Spain each spent 0.8% of their GDP on renewable subsidies.

At the same time, other countries still tend to spend more on fossil fuels than measures incentivising green transition. Hungary and Bulgaria spent more than 1% of their GDP on subsidising fossil fuels, and in Greece and Belgium this share was close to 1%, discouragingly from the aspect of green transition.

Figure 2 - Subsidies for different energy sources, as percent of GDP and in billion euros in 2019



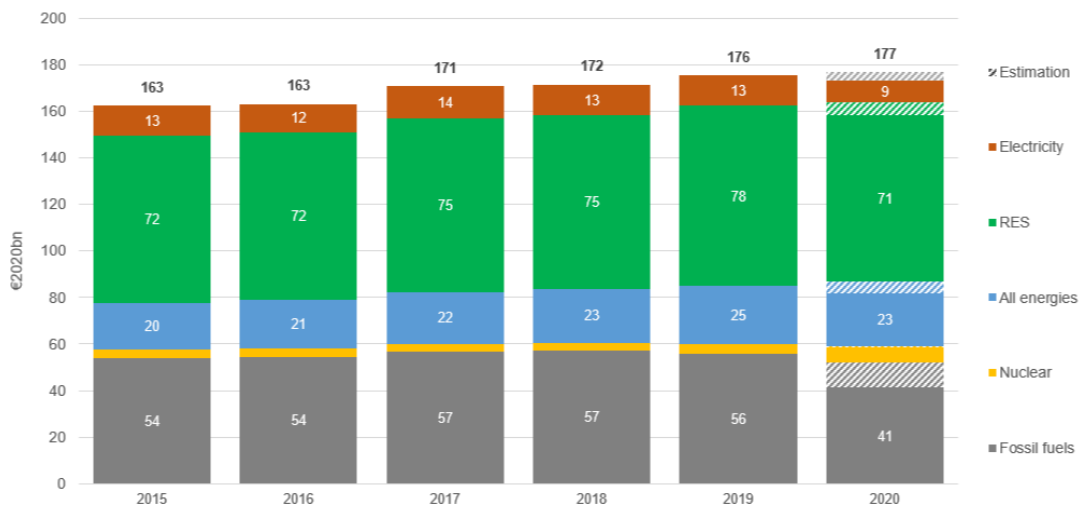
Source: Study on energy subsidies and other government interventions in the EU. Electricity refers to general non-technology specific support for electricity, while all energies refers to measures that cannot be assigned to a single technology (or multiple technology support)

More than 40% of the total energy subsidies were assigned to **renewable sources** in the past few years. Renewable subsidies were up by €6 billion (+8%) in 2019 compared to 2015, and in 2020 they decreased only slightly. On the other hand, fossil fuel subsidies went up by €2 billion, (+4%) in the same period, whereas in 2020 they were estimated to have decreased by € 4 billion (-7%) compared to 2019, owing to lower fossil fuel consumption, principally in the transport sector.

Subsidies for **electricity** were stable between 2015 and 2019, whereas subsidies for ‘all energies’ (multiple energy sources or measures non-directly assignable to energy products) went up measurably (by €5 billion or 25%) in the same period, and increased further in 2020.

Subsidies for **nuclear energy**, were stable in the 2015-2019 period, at a level between 2% and 4% of the total energy subsidies. In 2020, an additional €2.7 billion were disbursed as new instruments for compensation of early closure and decommissioning of nuclear facilities, principally in Germany and France, started to take effect. In the forthcoming years, compensations for early closure of nuclear, coal and lignite-fired power generation facilities are expected to have increasing impact on the total amount of energy subsidies in the EU.

Figure 3 – EU energy subsidies by fuel type

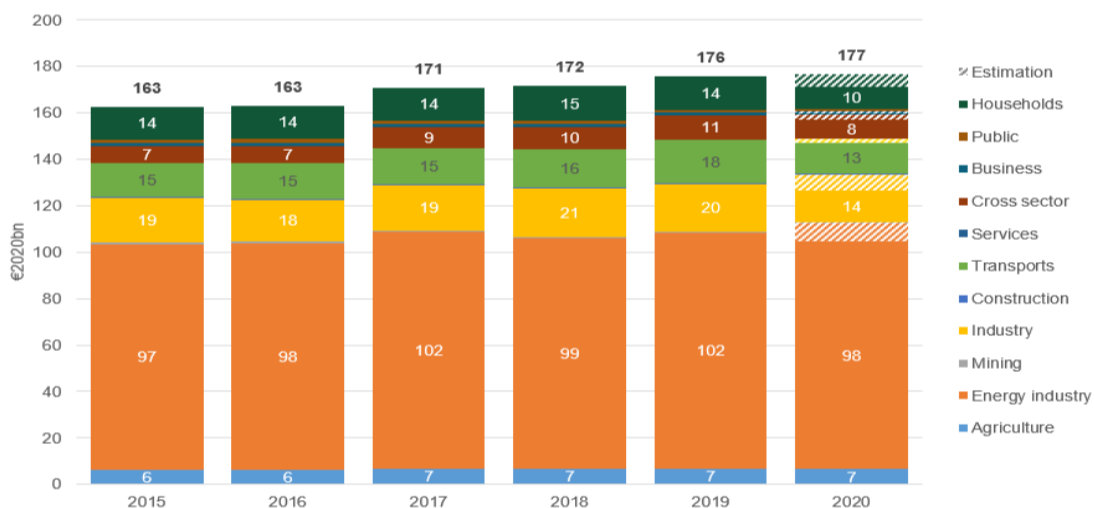


Source: Study on energy subsidies and other government interventions in the EU. All energies represent subsidies not directly attributable to energy carriers or fuels (e.g. energy efficiency measures, energy demand/consumption incentives, irrespectively of the energy carrier, investment grants, and particular R&D expenditures)

Almost 60% of energy subsidies could directly be linked to the **energy sector** in 2019 and 2020. In the same period, the share of industry and transport was both above 10%, while the shares of the household sector and agriculture were respectively lower, 8% and 4%. Between 2015 and 2019, subsidies rose by the most in the energy and the transport sectors (by €4 billion in both, respectively representing increases of 4% and 27%).

In 2020, subsidies in the energy sector rose further, whereas in the transport it fell back (-20%) compared to 2019, principally in the aviation sector (-€3.3 billion), owing to lower fuel consumption amid the pandemic-related lockdowns and restrictions of travel.

Figure 4 – EU energy subsidies by economic sector



Source: Study on energy subsidies and other government interventions in the EU

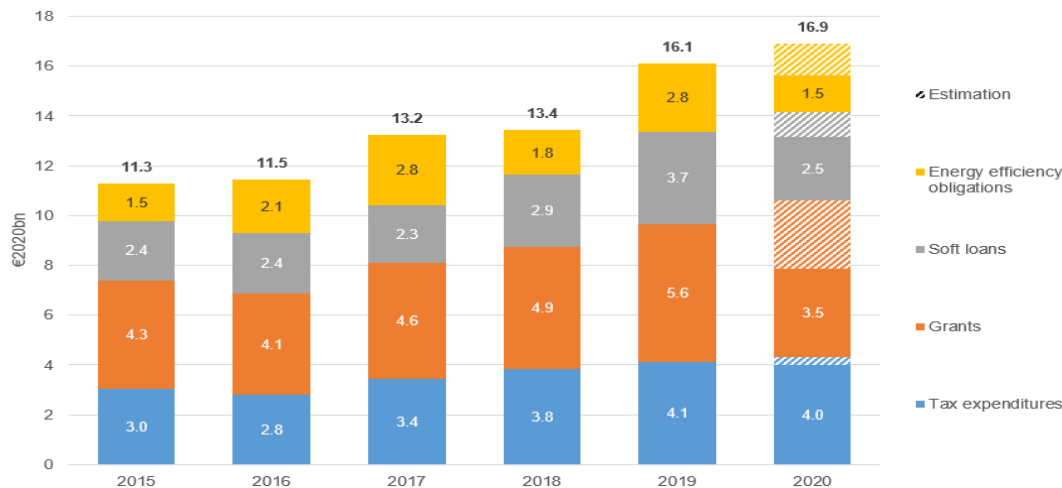
More than 92% of the total **renewable subsidies** in the EU (€72 billion in 2019) occurred in the energy sector, whereas the share of other sectors, such as industry (4%) and transport (1%) was much lower. Around 36-37% of the total renewable subsidies could be linked to solar energy in 2019 and 2020, whereas the share of wind was around 27%, and the share of biomass was around 22% within the total renewable subsidies.

The most important **renewable energy subsidy instruments** in the EU Member States were feed-in tariffs (amounting to €53 billion in 2019). They reflect subsidies stemming from long term contracts concluded mostly more than a decade ago, as recent contracts no longer apply feed in tariffs with the exception of some small producers. Feed-in premiums and renewable quotas with trading certificates represented lower amounts (respectively €8 billion and €6 billion in 2019). Tax relief instruments (mainly in the form of tax reductions and exemptions) also contributed by around €6 billion to the total amount of renewable subsidies.

Energy efficiency subsidies in the EU showed an increasing trend since 2015-2016 and in 2020 they were estimated reaching €17 billion, up by almost 50% compared to 2015. Looking at energy efficiency subsidy instruments, grants had a share of slightly less than 40% in the recent years, whereas tax expenditures represented around a quarter, and soft loans and energy efficiency obligations respectively had shares of 21% and 16% within energy efficiency subsidies. Around half of energy efficiency subsidies could not directly be linked to any economic sectors observed by the Commission study (so-called ‘cross-sector’), whereas 27% occurred in the household sector and 11% in energy sector.

Increase in energy efficiency subsidies would also have contributed to the decreasing energy intensity of the EU economy. GDP of the EU-27 was up by 14.5% between 2015 and 2019, whereas in the same period the final available energy consumption rose by 3.4%, implying that energy intensity of the EU economy decreased by 10%. Further shift from subsidies incentivising energy consumption towards subsidies for energy efficiency measures would contribute to the ongoing decreasing trend of energy intensity of the EU economy.

Figure 5 – Energy efficiency subsidies in the EU



Source: Study on energy subsidies and other government interventions in the EU

Looking at other sectors, **households** received around 8% of the total energy subsidies within all economic sectors, with the largest share of subsidies not directly attributable to energy carriers (e.g. energy efficiency) and support to electricity consumption¹⁶.

Price regulation both on the consumer and producer sides still had importance in the EU energy markets, although subsidies for these measures showed a decreasing trend over the last few years. Consumer price guarantees (e.g. in the form of social tariffs) amounted to €2.1

¹⁶ Mainly in the form of reduced VAT. Special forms of financial support to vulnerable households needs to be taken with care, going beyond strictly energy market considerations.

billion in 2019, benefitting mainly the household sector. Producer price guarantees (e.g. purchase agreements, fuel costs guarantees, etc.) were mainly characteristic in the energy sector, and amounted to €3.6 billion in 2019.

Capacity payment subsidies showed a high degree of stability in the last few years and amounted to €2.1 billion in 2019.

Subsidies for **hydrogen** showed a measurable increase over the past few years going from €195 million in 2015 to €350 million in 2019. These are mainly R&D expenditures, however, in 2019 subsidies for developing hydrogen filling station infrastructure and support for fuel cells also appeared as individual measures in some EU Member States. As the Commission did in 2020, increasing number of Member States are adopting their strategies on hydrogen, foreseeing significant electrolyser capacities, hydrogen fuel infrastructure and other hydrogen-related asset developments and market support programmes in the forthcoming decade, thus it is expected that subsidies for developing hydrogen will keep on increasing in the years to come.

2.2 Fossil fuel subsidies in the EU

Between 2015 to 2019, the total amount of **fossil fuel subsidies** grew by 4% the EU. There was a measurable decrease in 2020, as fossil fuel subsidies fell to €52¹⁷ billion, principally owing to lower transport activities¹⁸.

Focussing on different sectors of the economy, fossil fuel subsidies in the **energy sector** fell by €1.8 billion (-10%) between 2015 and 2019, mainly as a consequence of decreasing subsidies on coal and lignite (falling consumption in electricity generation), a positive development in the perspective of achieving the climate objectives of the EU. In 2020, fossil fuel subsidies continued to decrease in the energy sector.

On the other hand, fossil fuel subsidies in the **transport sector** rose by €3.4 billion (+25%) in the same period, owing to increasing subsidies to petroleum products. In 2020, subsidies fell measurably in the transport sector, mainly in aviation.

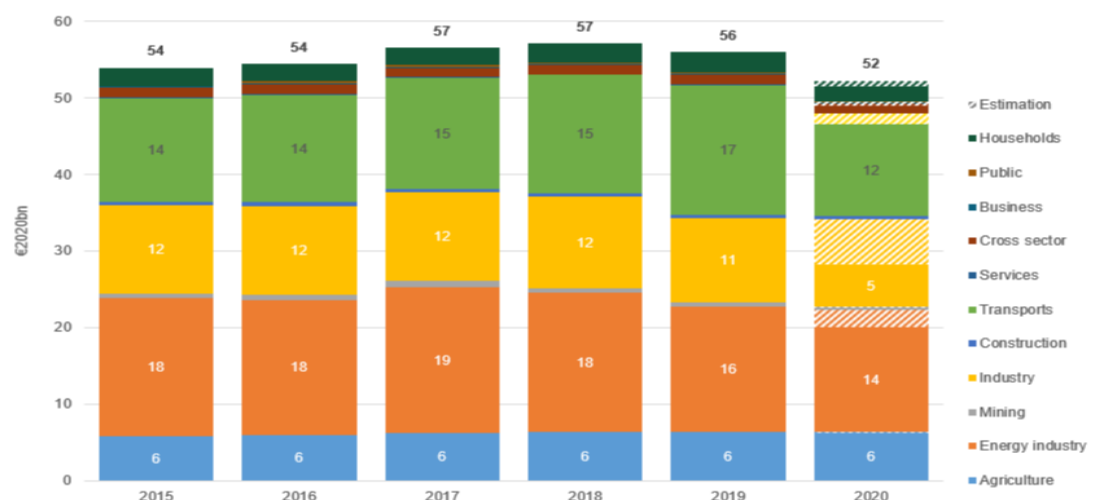
Fossil fuel subsidies were also up in **agriculture** (+€0.6 billion or by 10% between 2015 and 2019), and the sector received subsidies overwhelmingly in the form of petroleum product consumption support. Fossil subsidies were up by €0.3 billion (+13%) for **households** in the same period, principally in the form of subsidies on heating oil and natural gas consumption.

In contrast, fossil fuel subsidies in **industry**, provided mainly in the form of tax reductions and exemptions for energy use, fell by €0.5 billion (-4%) between 2015 and 2019, as the decrease in coal subsidies was higher than the increase in subsidies for gas.

¹⁷ In order to follow consistent methodology across Member States, energy carriers, sectors and subsidy instruments, some items considered as subsidy in other sources were not counted in the total numbers in the Commission study. For example, many Member States apply different excise rates for petrol and diesel, where arising subsidies might be significant. Similarly, extra-EU international aviation and maritime transport are not covered.

¹⁸ Considering that both GDP and energy consumption fell in 2020 by around 7%, the amount of subsidies in 2020 represented the same intensity vis-à-vis energy consumption as in 2019. There is therefore no clear trend for a decrease in the level of subsidies, in spite of the EU's international commitment'

Figure 6 – Fossil fuel subsidies in different sectors in the EU



Source: Study on energy subsidies and other government interventions in the EU

Subsidies on **petroleum products**, representing more than half of the total fossil fuel subsidies in the EU, grew by €4.4 billion (+18%) between 2015 and 2019. This increase could mostly be linked to the transport sector, and to a lesser extent, to agriculture. Petroleum subsidies rose by €2.5 billion (+40%) in France and by €0.6 billion (+19%) in Belgium, whereas they fell by €0.4 billion (-24%) in Sweden. In 2020, petroleum product subsidies showed a measurable decrease (approx. 13%) compared to 2019, owing to the decrease in fuel consumption amid the pandemic-related restrictions of transport and travel activities.

Subsidies on **coal and lignite** showed a continuous decrease in the EU between 2015 and 2019, principally owing to decrease in solid fuel use in electricity generation. Coal subsidies were down by €1.8 billion (-20%) over this period. The two biggest drops in solid fuel subsidies in this period could be observed in Germany (-€1.3 billion, 27%) and Spain (-€0.5 billion, 61%). Rising European emission allowance (EUA) prices over the last few years made solid fuels increasingly uncompetitive in power generation. However, in the future subsidies for the coal sector might temporarily pick up, as compensation schemes for plant closures are foreseen in several Member States.

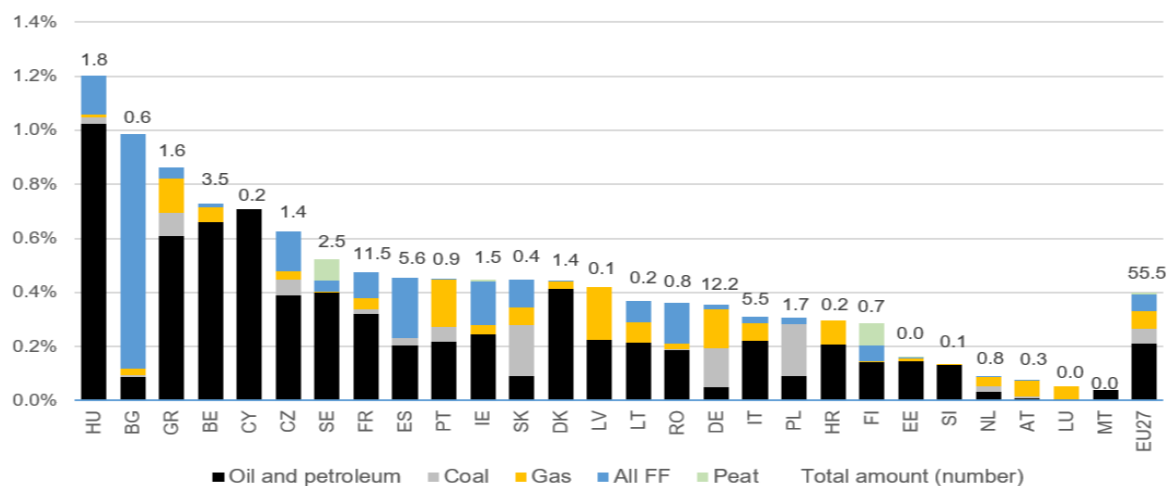
Subsidies for **natural gas** grew by €0.8 billion (+10%) between 2015 and 2019, representing around 16% of fossil fuel subsidies, slightly more than the share of coal and lignite (13%). Natural gas subsidies rose by €0.5 billion both in Germany and France in this period, whereas other countries showed a mixed picture in subsidy changes. In spite of the increasing role of natural gas in the EU power generation in 2020, subsidies did not grow during that year, probably owing to low wholesale gas prices, reducing fuel costs supports in this period.

Around three fourths of the total fossil fuel subsidies were provided in the form of tax expenditures (tax reductions, exemptions) in 2019 in the EU. Income and price supports (e.g. price guarantees, capacity payments, feed-in tariffs and premiums, etc.) represented around 20%, while the share of direct payments (e.g. grants) was 5%.

The importance of fossil fuel subsidies, compared to the size of the economy, differs significantly across the EU Member States. In 2019, Hungary spent the most on fossil fuel subsidies (1.2% of the GDP), whereas Malta only spent 0.01%. In the EU on average, fossil fuel subsidies amounted to 0.4% of the GDP, similarly to the share in 2015.

Hungary spent the most on subsidising oil and petroleum products, 1% of its GDP in 2019, whereas Cyprus and Belgium spent 0.7% and Greece spent 0.6% of their respective GDP on petroleum subsidies. Bulgaria spent 0.9% of its GDP on general support for demand, in the form of excise tax reductions. Poland and Slovakia spent 0.2% of their GDP on subsidising coal, whereas Portugal and Latvia spent the same share on natural gas subsidies in 2019.

Figure 7 – Fossil fuel subsidies in the EU Member States, as percent of GDP and in billion euros in 2019



Source: Study on energy subsidies and other government interventions in the EU

3. The market impact of the Covid-19 pandemic on energy subsidies and recovery programmes of the EU Member States

As of March 2020, measures resulting in widespread lockdowns and restriction in free movements of persons within the EU countries and elsewhere in the world were imposed and demand for energy products was impacted significantly, leading to an immediate drop in consumption, and market prices falling to multi-year lows.

As the Commission study estimated, fossil fuel subsidies in the EU were down by 7% in 2020 compared to 2019, mainly as a consequence of decreasing fuel consumption. Tax expenditure subsidies, giving a better approximation of the impact of market developments on energy demand, fell by 9% in 2020 year-on-year. A significant share (around 60%) of this amount of decrease in tax expenditure subsidies can be linked to decreasing kerosene consumption in aviation. The Commission study estimated, though based on limited data, that a drop of 4%¹⁹ occurred in the feed-in tariff and premium type of renewable subsidies in 2020, largely owing to low wholesale electricity prices, even if renewable production kept on increasing in 2020.

As in 2020 the drop in fossil fuel subsidies is estimated to be largely driven by the change in fuel consumption, economic recovery in the following years might contribute towards reaching the climate objectives of the EU. The Recovery and Resilience Facility,²⁰ which entered into force in February 2021, aims at mitigating the economic and social impact of the coronavirus pandemic and making European economies and societies more sustainable,

¹⁹This analysis were based only a limited number of Member States, where data were available. Feed-in tariff and premium type of subsidies rose in those countries, where wholesale power prices fell the most, while in others these subsidies went down, probably owing to expiring old power purchasing subsidy contract, as new contracts imply less subsidies or are entirely markets based.

²⁰ https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en

resilient and better prepared for the challenges and opportunities of the green and digital transitions. To benefit from the support of the Facility, most of the Member States submitted their recovery and resilience plans (RRPs) to the European Commission. Investments facilitating green energy transition, such as measures to support the production and uptake renewable energy generation, deployment of energy storage technologies, promotion of renewable heat and energy communities, energy efficiency measures, etc. are important components of the plans.

4. Conclusions

Since the adoption of the 2020 State of the Energy Union Report, several legislative actions, including the adoption of the European Climate Law that amended the Governance Regulation and the adoption of the new taxonomy regulation, have taken place, impacting the energy market and subsidies. Amendment of the Governance Regulation and more detailed specification of reporting requirements on subsidies and their phase out will result in closing the data gaps and showing a clearer picture in the Member States. The effectiveness of the new legislation can be measured during the next subsidy data collection exercise.

Ongoing efforts around the EU sustainable finance strategy and the EU taxonomy are also expected to help rechannelling investments towards sustainable energy in the medium term, by providing tools to identify environmentally sustainable economic activities and facilitating the implementation of initiatives to scale up green investment at a lower cost.

In parallel with the economic recovery, fossil subsidies, falling in 2020, might pick up in the next years again amid increasing consumption. The recovery and resilience plans of the Member States, by promoting green energy transition, are expected to lead to reducing long-term reliance on fossil fuels.

The detailed results the Commission study on subsidies will also be published, to provide a comprehensive picture of the situation.