



State Aid for Indirect CO₂ Costs of Emissions Trading (Electricity Price Compensation) in Germany for 2020 (EPC Report 2020)

Editorial information

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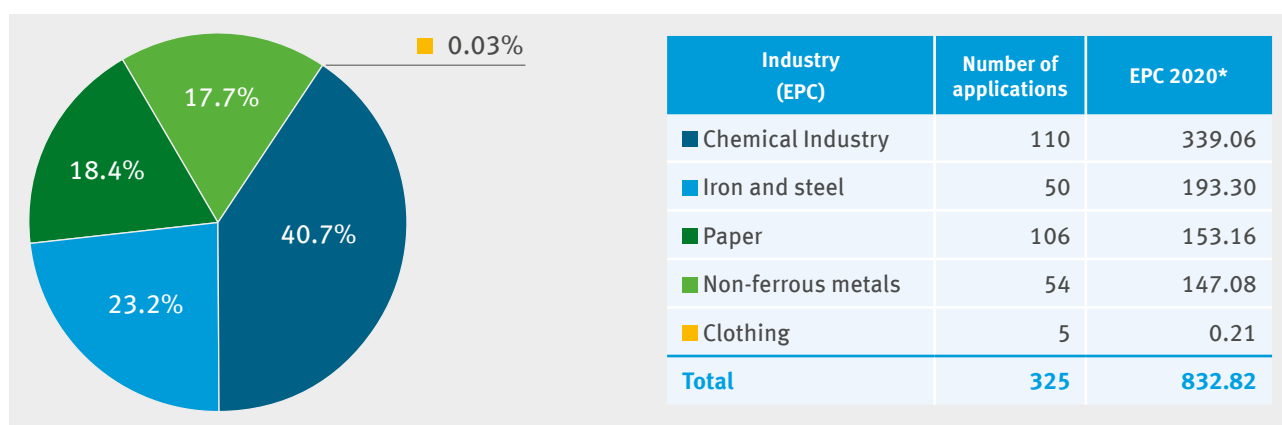
Summary

326 companies submitted state aid applications for indirect CO₂ costs of emissions trading to the German Emissions Trading Authority at the German Environment Agency in the 2020 accounting year.

Following verification of the applications, 325 companies with 893 installations received around €833 million in aid. The EUA price used to calculate the aid (cf. explanatory notes in Section 1, p. 5 onwards) was €25.20. Thus, the approved state aid amount for 2020 of around €833 million again significantly exceeded the aid of €546 million paid out for the accounting year 2019.

In certain circumstances, the so-called difference carried forward (see explanatory notes in Section 1, p. 5 onwards) was applied to determine the aid amount for the 2020 accounting year, as was the case in the previous accounting years. In 2020, this amounted to around €8.39 million (about €3.15 million for the 2019 accounting year) and has already been included in the total aid allocation of €833 million. In 2020, 80 companies benefited from the difference carried forward due to the trends in production and electricity consumption in 132 of their installations.

As in the previous year, companies in the chemical industry received a 41 percent share, which was the largest share of the compensation. Companies in the iron and steel industry followed with 23 percent, the paper industry with about 18 percent, and the non-ferrous metal industry also with approximately 18 percent. The clothing industry had a very small share of the total compensation with 0.1 percent and just five applications. Since the introduction of electricity price compensation in 2013 the shares of the individual industries have only changed marginally or not at all.



* Prices in million euros
As of 04/12/2021

Figure 1: Distribution of state aid for the 2020 electricity price compensation for individual industries

Of the 893 installations for which aid has been granted, 471 participate in the European Emissions Trading Scheme (EU ETS). Thus their share of the total state aid is almost 68 percent (see Table 3). Many beneficiary installations, particularly in the chemical industry, do not fall within the scope of the EU ETS while installations in the paper industry as well as the iron and steel industry are largely covered by the EU ETS.

As a basis for the 2020 state aid calculation, product-specific electricity consumption efficiency benchmarks (hereinafter called ‘benchmarks’) are just as important as the ‘fallback factor’: about half of the total state aid results from the manufacture of products for which a benchmark exists and from the manufacture of products where the fallback factor has been applied to their electricity consumption (see explanatory notes in Section 1, p. 6 onwards). The largest share of aid for the 2020 accounting year is held by the benchmarks for chlorine (17 percent) and primary aluminium (twelve percent), as well as the fallback calculation elements of the sectors ‘Manufacture of paper and paperboard’¹ (14 percent) and ‘Manufacture of basic iron and steel and of ferro-alloys’² (ten percent).

¹ Code 2112 according to NACE Rev. 1.1

² Code 2710 according to NACE Rev. 1.1

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1 State Aid for Indirect CO₂ Costs of the EU Emissions Trading Schem

State aid for indirect CO₂ costs due to emissions trading is intended to prevent the risk of ‘carbon leakage’ to locations outside the geographical scope of the EU Emissions Trading Directive (ETS)³. Indirect CO₂ costs are caused by the fact that electricity producers are passing on the cost of emission allowances to their customers via the electricity price.

The state aid is intended to compensate companies for some of these costs in certain high electricity usage sectors and subsectors mentioned in Annex II of the EU State Aid Guidelines⁴ applicable for the third trading period.

The European Commission has identified the sectors and subsectors in which it has detected a risk of indirect carbon leakage. These sectors include production processes with particularly high electricity usage and are subject to strong international competition (see Table 1)⁵. Thus, the approval of the application depends on the products manufactured by a company. If these products are eligible for state aid, the assignment of a company to a particular industry is not critical for granting the state aid. Since state aid is linked to the installations’ electricity consumption, it does not matter whether the installations are covered by EU ETS or not. The granting of aid is based on the State Aid Directive⁶ adopted by the Federal Ministry for Economic Affairs and Technology in 2013.

Since the aid is intended to offset part of the indirect CO₂ costs of the previous year, applications can be made in the following year, therefore, applications for the 2020 accounting year could be submitted between 01/03/2021 and 31/05/2021. The May deadline was then used as the final cut-off point.

Annex III of the EU State Aid Guidelines sets out product-specific benchmarks for some of the products eligible for aid. They specify the amount of electricity consumption in megawatt-hours per tonne of product produced in order to calculate the state aid. The aid calculation is therefore based on the tonnes of product produced (see Number 5.2.1 of the State Aid Directive). For products eligible for aid without a benchmark, the aid is based on the electricity consumption for the manufacture of these products (see Number 5.2.2 of the State Aid Directive). However, the electricity consumption is multiplied by a uniform fallback electricity efficiency benchmark factor (hereinafter called ‘fallback factor’) which is 0.8.

Products with an identical benchmark manufactured within an installation are grouped together into ‘calculation elements’ for further calculation. Affiliation to the same sector is crucial for the aggregation of fallback products into calculation elements.

According to the EU State Aid Guidelines applicable for the third trading period and the German State Aid Directive, a total aid amount per applicant is calculated by using these quantities, the emission allowance price to be applied (EUA price)⁷, the CO₂ emission factor (0.76 tonnes of carbon dioxide per megawatt-hour) and the state aid intensity⁸.

3 Article 10a(6), Directive 2003/87/EC of 13/10/2003, as of 25/06/2009 (EC Emissions Trading Directive).

4 European Commission Guidelines on certain State aid measures in the context of the greenhouse gas emission allowance trading scheme post-2012 (Communication 2012/C 158/04, Official Journal of the European Union (OJ) EU C 158 of 05/06/2012, p. 4), amended by Communication 2012/C 387/06 (OJ) EU C 387 of 15/12/2012, p. 5), as corrected by Communication 2013/C 82/07 (OJ) EU C 82 of 21/03/2013, p. 9).

5 Annex II of the EU State Aid Guidelines.

6 Directive on aid for companies in sectors or subsectors deemed to be exposed to a significant risk of carbon leakage due to EU ETS allowance costs passed on in electricity price (aid for indirect CO₂ costs) of 23/07/2013, official part of the Bundesanzeiger (Federal Gazette AT) 06/08/2013 B2, last amended by the second Amendment of Directive of 21/08/2018, Bundesanzeiger (Federal Gazette AT) 28/08/2017 B1.

7 The EUA price to be applied for an accounting year is determined from the previous year’s average of the closing offer price of the reference contract on each trading day. For the 2020 accounting year, this was the ICE futures Europe with delivery in December of 2020 (see Section 5.1 k) of the State Aid Guidelines).

8 The following aid intensities (Ai) set out in the EU State Aid Guidelines under margin No. 26 apply: Ai2013–2015 = 0.85; Ai2016–2018 = 0.8; Ai2019–2020 = 0.75.

The German State Aid Directive for electricity price compensation stipulates that the CO₂ costs for the purchase of one gigawatt-hour of electricity per year per installation are subtracted from the company's total aid amount. This retention is calculated based on the EUA price for 2020 (€25.20) and the CO₂ emission factor of 0.76 tonnes of carbon dioxide per megawatt-hour. This results in a CO₂ retention cost of €19,152 per installation for the purchase of one gigawatt-hour of electricity.

In certain circumstances, the term known as 'difference carried forward'⁹ also applies to determine the amount of aid for the 2020 accounting year. In principle, the aid is determined based on the accounting year data, however, this is limited by the aid which would have resulted based on the baseline data – as a rule the period between 2005 and 2011. If the amount of electricity actually purchased in a previous accounting year exceeded the aid based on the baseline data, the carryover would be credited as a positive balance to the difference account. If the amount of electricity for a later accounting year, in this case 2020, is lower than the amount of electricity based on the baseline data, the aid is increased by the difference carried forward. However, the increase is limited to the aid amount based on the baseline.¹⁰

Section 2 presents the evaluation methods used to compile this report. The results of the 2020 application process are presented and explained in Section 3.

In addition, Section 4 includes an evaluation to the interfaces of electricity price compensation and EU ETS. Section 5 evaluates the source of electricity used by companies and the total electricity consumption of the respective companies or installations. Section 6 explains the results at the level of products used in eligible sectors and companies. Section 7 presents summary evaluations for the period 2013 to 2020. Section 8 deals with the share of electricity price compensation in Germany's auction proceeds.

The last Section 9 provides an outlook on electricity price compensation for the 2021 accounting year and an overview of the design of the amended EU State Aid Guidelines as a basis for electricity price compensation for the fourth trading period from the 2021 accounting year.

2 Evaluation Methods

2.1 Summary of Sectors

For a more transparent analysis and presentation, this report combines sectors and subsectors eligible for aid into industries (see Table 1). This enables an unambiguous assignment to industries at a calculation element level (see Section 6). Each calculation element belongs to just one of the sectors and subsectors eligible for aid. At the company level (see Section 3), the assignment usually depends on which sectors have the largest share of the aid amount. The assignment at the company level was subsequently transferred to that company's installations.

⁹ Difference carried forward in euro at installation level in accordance with Section 5.2.1(a) and (b) of the funding guideline in conjunction with Section 1 of the decree of 27/12/2013

¹⁰ Cf DEHSt 2021b, Section 3.5 Influence of the basic data of the reference period and the difference carried forward on the amount of state aid.

Tabelle 1: List of sectors and subsectors eligible for aid according to NACE Revision 1.1 (2007) in accordance with the EU State Aid Guidelines (Annex II)

Sectors according to NACE ¹¹ Revision 1.1	Name	Industry
1310	Mining of iron ores	Iron and steel
1430	Mining of chemical and fertiliser minerals	Chemical industry
1711	Spinning of cotton-type fibres	Clothing
1810	Manufacture of leather clothes	
211114	Parts of the industry 'Manufacture of pulp': mechanical pulp	Paper
2112	Manufacture of paper and paperboard	
2413	Manufacture of other inorganic chemicals	Chemical industry
2414	Manufacture of other organic chemicals	
2415	Manufacture of fertilisers and nitrogen compounds	
2416 (Parts)	Parts of the industry 'Manufacture of plastics in primary forms': <ul style="list-style-type: none"> ▸ 24161039 Low-density polyethylene (LDPE) ▸ 24161035 Linear low-density polyethylene (LLDPE) ▸ 24161050 High-density polyethylene (HDPE) ▸ 24165130 Polypropylene (PP) ▸ 24163010 Polyvinyl chloride (PVC) ▸ 24164040 Polycarbonate (PC) 	
2470	Manufacture of man-made fibres	
2710	Manufacture of basic iron and steel and of ferro-alloys	
272210	Parts of the industry 'Manufacture of steel pipes, steel tube fittings': seamless steel pipes	Iron and steel
2742	Aluminium production	Non-ferrous metals
2743	Lead, zinc and tin production	
2744	Copper production	

In Section 4, the installations are apportioned according to whether they are subject to emissions trading or not. The assignment to industries will continue to be based on the method mentioned above and not on assignments that may have originated from emissions trading evaluations.

2.2 Results of the 2020 Application Process

Due to the retention per installation (see Section 1), the state aid amount cannot be allocated to the individual calculation elements without conversion. The retention per installation was therefore divided proportionally among an installation's calculation elements.

¹¹ NACE (Nomenclature générale des activités économiques dans les Communautés Européennes) Rev. 1.1 is the Statistical Classification of Economic Activities in the European Community, published together with Commission Regulation (EEC) No. 29/2002 of the Commission of 19/12/2001.

3 Results of the 2020 Application Process

In total, applications from 325 companies with 893 installations were approved for the 2020 accounting year. The amount of aid approved for 2020 was around €833 million (cf. Table 2). One application was rejected because the products manufactured were not eligible for aid.

The increase in the aid amount of around €287 million compared to the previous year is mainly due to the higher EUA price (€25.20 compared to €16.15 for 2019) for the calculation of the aid for 2020. The shares of the individual sectors in the aid amount have changed only slightly compared to 2019.

Tabelle 2: Number of approved applications and number of installations by industries and total aid paid in 2020

Industry (EPC)	Number of applications	Number of installations	2020 EPC*
Chemical industry	110	473	339,058,082.85
Iron and steel	50	158	193,304,581.21
Paper	106	141	153,161,855.10
Non-ferrous metals	54	116	147,082,698.99
Clothing	5	5	210,533.89
Total	325	893	832,817,752.04

* Prices in euro
As of 04/12/2021

Table 2 shows the distribution of the total aid amount among the individual industries. The chemical industry continues to have the largest share in the aid amount with around €339 million and 41 percent.

This is followed by the iron and steel industry with around 193 million, which amounts to a share of 23 percent. The paper industry accounted for about €153 million in 2020. It continues to have the third largest share of the total aid with just over 18 percent. The non-ferrous metals industry received about €147 million for 2020 and thus just under 18 percent of the total 2020 aid. The clothing industry has a very small share of the 2020 electricity price compensation with about 210,500 euros or 0.03 percent.

4 Electricity Price Compensation and European Emissions Trading

Of the 325 companies that received aid in the 2020 accounting year, 893 produced products eligible for aid. Just over half of them (471 installations) participate in the emissions trading scheme (see Table 3).

In the chemical industry, 270 out of 473 installations (57 percent) are not subject to emissions trading. These installations received 67 percent of the aid in this industry. The reason for this is that many of the high electricity usage processes do not discharge significant amounts of greenhouse gases and are therefore not subject to emissions trading. In addition, many chemical sites have centralised power and steam sources to which the emissions trading obligation is limited.

The same applies to the non-ferrous metal industry – about 76 percent of the installations here (88 out of 116) are not included in the emissions trading scheme. These are often installations that have no primary emissions (e. g. cold rolling or pressing plants – i.e. forming plants), or installations that do not achieve the required rated thermal input. However, these installations account for only an eleven percent share of the aid amount available to this industry. This is mainly because the major beneficiaries in the non-ferrous metal industry – the installations for aluminium production through electrolysis – are also subject to emissions trading.

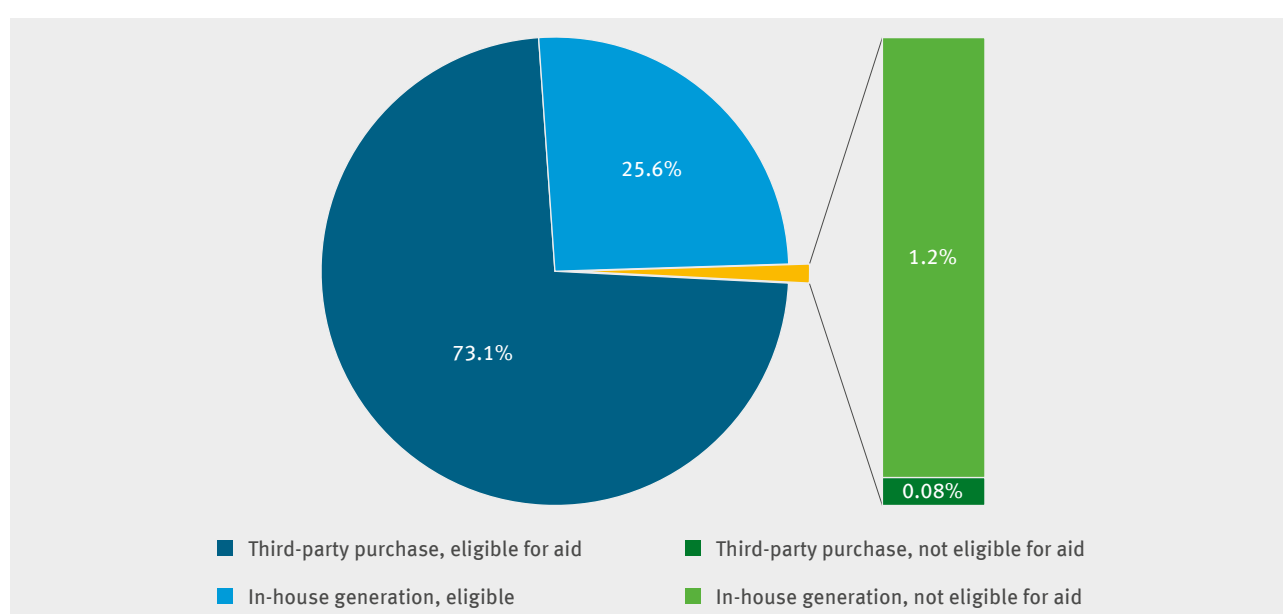
Tabelle 3: Number of installations per industry in 2020, showing those subject to emissions trading and those that are not

Industry (EPC)	Number of installations	Of which		Share of aid in industry	
		ETS	Non-ETS	ETS	Non-ETS
Chemical industry	473	203	270	33%	67%
Iron and steel	158	111	47	93%	7%
Paper	141	129	12	94%	6%
Non-ferrous metals	116	28	88	89%	11%
Clothing	5	0	5	0%	100%
Total	893	471	422	68 %	32 %

As of 04/12/202

5 Source of Electricity

The basis for calculating aid is the CO₂ emission factor of 0.76 tonnes of CO₂ per megawatt-hour of electricity, which is uniform for German companies. If there are no CO₂ costs associated with the electricity consumed, no aid is granted. This is the case, for example, for companies with in-house generated electricity from installations not subject to emissions trading. Figure 2 shows the share of individual sources of electricity in the total electricity consumption of those installations where electricity price compensation was granted. Overall, around one percent of total electricity consumption is not eligible for support because it was not associated with CO₂ costs. Around 26 percent of electricity consumption is generated by the companies that received aid in installations subject to emissions trading. About 73 percent of electricity consumption is electricity eligible for aid that comes from other companies. According to the applicants, CO₂ costs were explicitly stated in the electricity supply contract for only a small portion, i.e. around five percent of the third-party purchased eligible electricity. For a large part of the third-party purchased electricity eligible for aid (69 percent), the CO₂ costs associated with it were verified by means of electricity labelling pursuant to Section 42 of the Energy Industry Act (EnWG).¹² In addition, around 13 percent of the third-party purchased electricity eligible for aid came directly from an electricity exchange, i.e. the exchange price that usually includes CO₂ costs had already been paid.

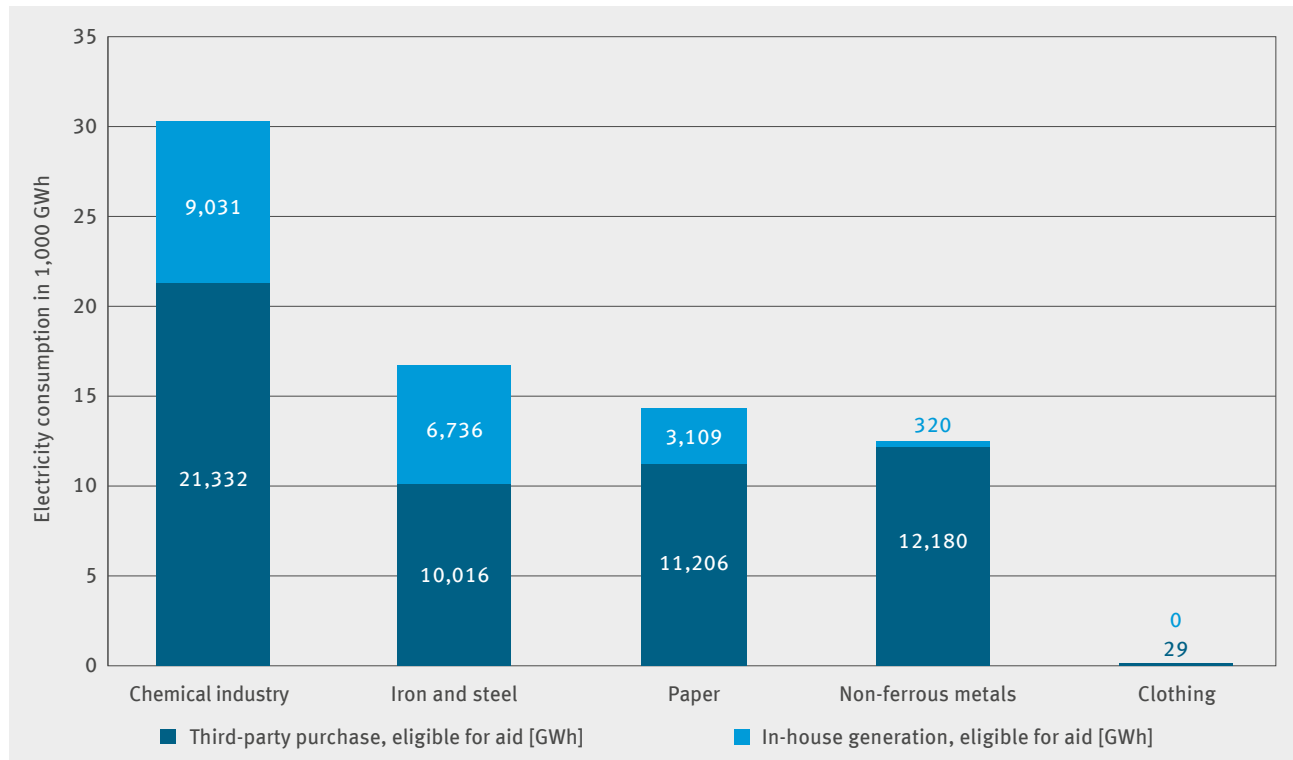


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Figure 2: Source of electricity in 2020

¹² This means that it was not exclusively CO₂-free electricity (nuclear power or renewables), but that part of the electricity supplied came from fossil fuels. In this case, the electricity supplied with such a supply contract is fully eligible for aid.

However, depending on the industry, the share of in-house generated electricity in total electricity consumption is quite different (see Figure 3). The clothing industry only purchases electricity from other companies (barely visible in Figure 3 due to the low volume). The non-ferrous metals industry also hardly generates any electricity itself: only about three percent of the eligible electricity consumption comes from in-house generation. The share of in-house generation in the paper industry amounts to 22 percent, around a quarter of the eligible electricity consumption. In the iron and steel industry, in-house generation accounts for 40 percent of eligible electricity consumption. In the chemical industry, the share of in-house generation is around 30 percent.



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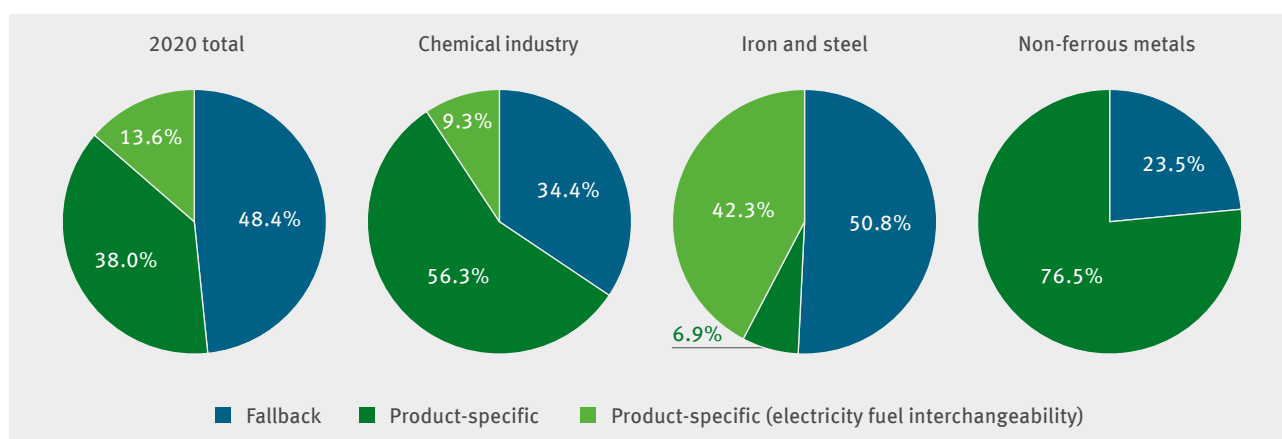
Figure 3: Source of electricity in 2020 of eligible electricity consumption by industry

6 Results at Product Level

As described in Section 2, products manufactured within the same installation are grouped into calculation elements for the calculation of aid. To combine different products into one calculation element, an identical benchmark is necessary or the fallback products must belong to the same sector. There are 19 product-specific benchmarks and 16 fallback combinations available. In total, the approval of the 2020 aid was based on around 1,000 calculation elements.¹³

Figure 4 shows the shares of the fallback and benchmark approach in the total aid granted for 2020. Around 52 percent of the total aid comes from the manufacture of products for which a product-specific benchmark exists. The remaining 48 percent of the total aid results from the manufacture of products where the fallback factor had to be applied to the electricity consumption to determine the aid amount. The shares of total aid have not changed compared to the 2019 accounting year (see DEHSt 2021a).

However, these shares vary greatly depending on the industry. There are no benchmarks in the mining and paper industries, and the aid amount is determined using the fallback factor. In the non-ferrous metals industry, around 77 percent of the aid amount is determined using benchmarks. This figure is around 66 percent in the chemical industry and around 49 percent in the iron and steel industry.



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Figure 4: Shares of the fallback and benchmark approach in the 2020 total aid amount and in aid amounts for selected industries

For the chemical industry and the iron and steel industry, compensation according to benchmarks – taking into account the electricity and fuel interchangeability – is envisaged. The decisive factor here is the requirements of the EU State Aid Guidelines, which apply to the third trading period. As a rule, these benchmarks are applied to installations that are also subject to the EU ETS. If a benchmark product is manufactured using a fairly high electricity consumption, the installation receives a higher electricity price compensation.

If a product is manufactured in a fuel or heat energy-intensive way, for example using a high steam input, it receives more free allocation. However, the emissions trading obligation is not a prerequisite for the application of benchmarks with electricity and fuel interchangeability.

Most of the electricity-intensive products in the chemical industry from installations that also participate in EU emissions trading, are produced by using more heat than electricity. The resulting electricity price compensation is therefore relatively low and free allocation predominates. Therefore, the share of benchmarks with electricity and fuel interchangeability in the industry's aid amount is relatively low.

¹³ However, there was no application from the '1810 – Leather clothing' sector. The product benchmarks silicon carbide, high-carbon ferromanganese, carbon black and silico manganese were also not applied.

Within the iron and steel industry, electric steel installations in particular benefit from the electricity price compensation due to the technology involved. Benchmarks that take into account the electricity and fuel interchangeability also exist for the production of electric steel. However electricity use clearly dominates, even compared to other installations in the iron and steel industry which receive aid. This is reflected in the high share of benchmarks with electricity and fuel interchangeability in the industry's total aid.

Table 4 shows the shares of the individual product benchmarks in the total aid for the 2020 accounting year. As in previous years, the largest share is accounted for by the production of chlorine (Cl₂) with around 17 percent, followed by the production of primary aluminium with around twelve percent. Five other benchmarks account for between 1.5 percent and 6.1 percent of the total aid. They include the iron and steel industry benchmarks (carbon steel, high-alloy steel, oxygen steel). The remaining eight product benchmarks account for a total of 3.7 percent of the total aid for 2020.

Table 4: Shares of the benchmark calculation elements¹³ in the 2020 total aid amount

Product benchmark	Share of 2020 EPC
Chlorine (Cl ₂)	16.8%
Primary aluminium	12.1%
EAF (electrical arc furnace) carbon steel	6.1%
Hyperpure polysilicon	5.5%
EAF high-alloy steel	3.7%
Highly refined chemicals	2.1%
Oxygen steel	1.5%
Other eight benchmarks	3.7%
Total	51.6%

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The shares of the fallback calculation elements in the aid amount are shown in Table 5. The largest shares are in sectors 2112 (manufacture of paper and paperboard) with 14 percent and 2710 (manufacture of basic iron and steel and of ferro-alloys) with around ten percent. Seven other sectors and subsectors account for between 1.7 and 5.8 percent of the total aid. The remaining six sectors and subsectors account for about three percent of the total aid. Again, there were no changes in the ranking of the individual shares of the total aid.

Tabelle 5: Shares of fallback calculation elements¹³ in the 2020 total aid amount

Fallback calculation element	Share of 2020 EPC
Fallback 2112 – Manufacture of paper and paperboard	14.1%
Fallback 2710 – Manufacture of basic iron and steel and of ferro-alloys	10.3%
Fallback 2414 – Manufacture of other organic basic chemicals	5.8%
Fallback 2111 (Subsector) – mechanical pulp	4.2%
Fallback 2416 (Subsector) – manufacture of plastics in primary forms	3.0%
Fallback 2413 – Manufacture of other inorganic basic chemicals	2.4%
Fallback 2744 – Copper production	2.1%
Fallback 2742 – Aluminium production	1.9%
Fallback 2415 – Manufacture of fertilisers and nitrogen compounds	1.7%
Other six sectors and subsectors (fallback)	2.8%
Total	48.4%

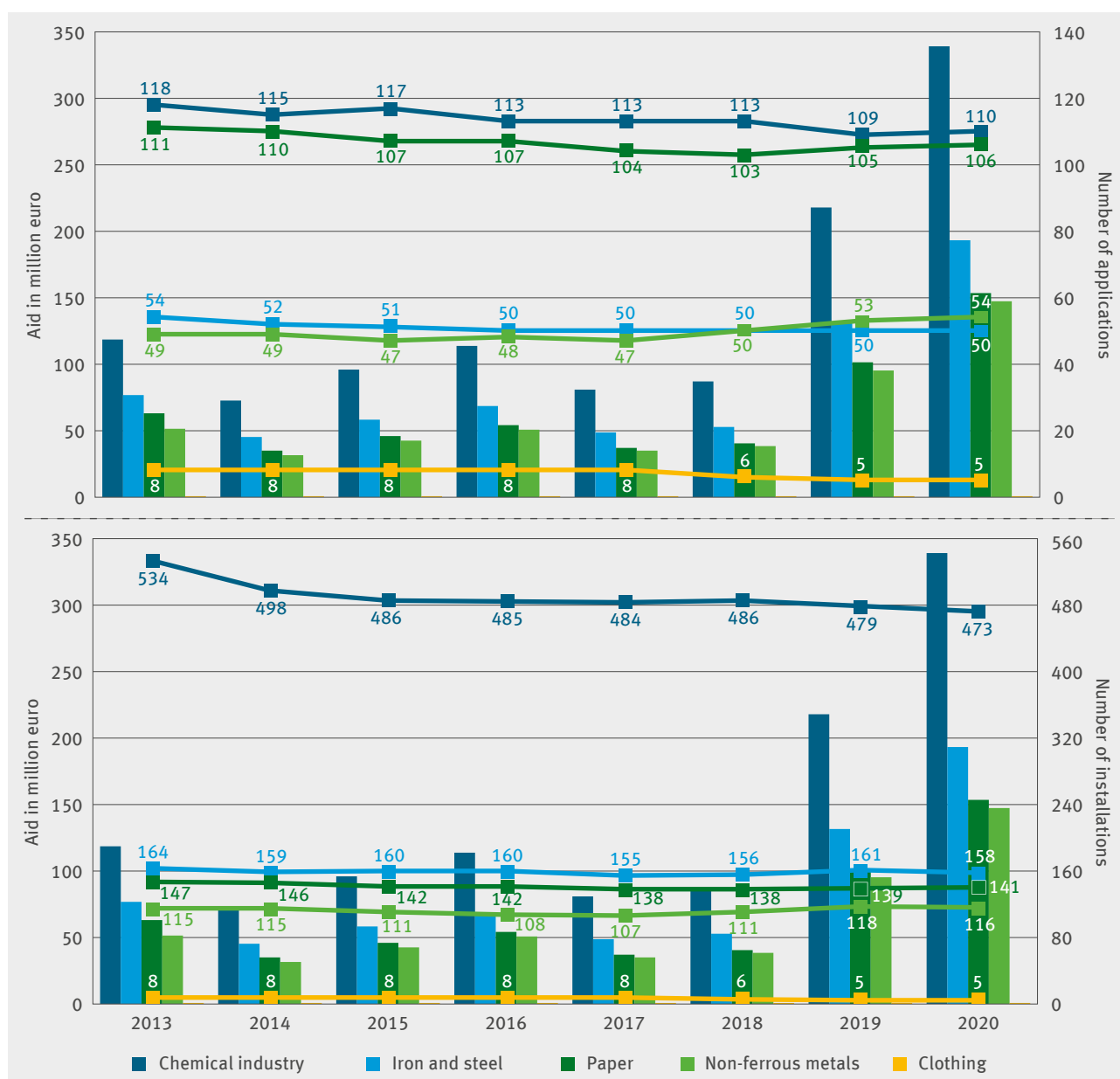
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7 Trends in the Period between 2013 and 2020

7.1 Annual Total Aid Compared to the Number of Applications and the Number of Installation

Figure 5 shows the annual aid amount since 2013 distributed across the individual industries, as well as the number of applications and the number of installations per industry. The increase in total aid with rising EUA prices is clearly visible, especially in 2019 and 2020.

However, the shares of the individual industries in total aid per year have hardly changed over time. Only companies in the chemical industry saw a slight increase (plus three percent) in total aid compared to 2013 and 2020. At around 40 percent per year, these companies received the largest share of the total aid approved. In comparison, the companies in the clothing industry received only a marginal share of less than 0.1 percent of the total aid and are therefore not visible in this figure in relation to the other industries.



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Figure 5: Number of applications and installations and total aid per industry

During the third trading period, both the number of applications or companies that received aid for indirect CO₂ costs (minus four percent) and the number of associated installations (minus eight percent) fell.

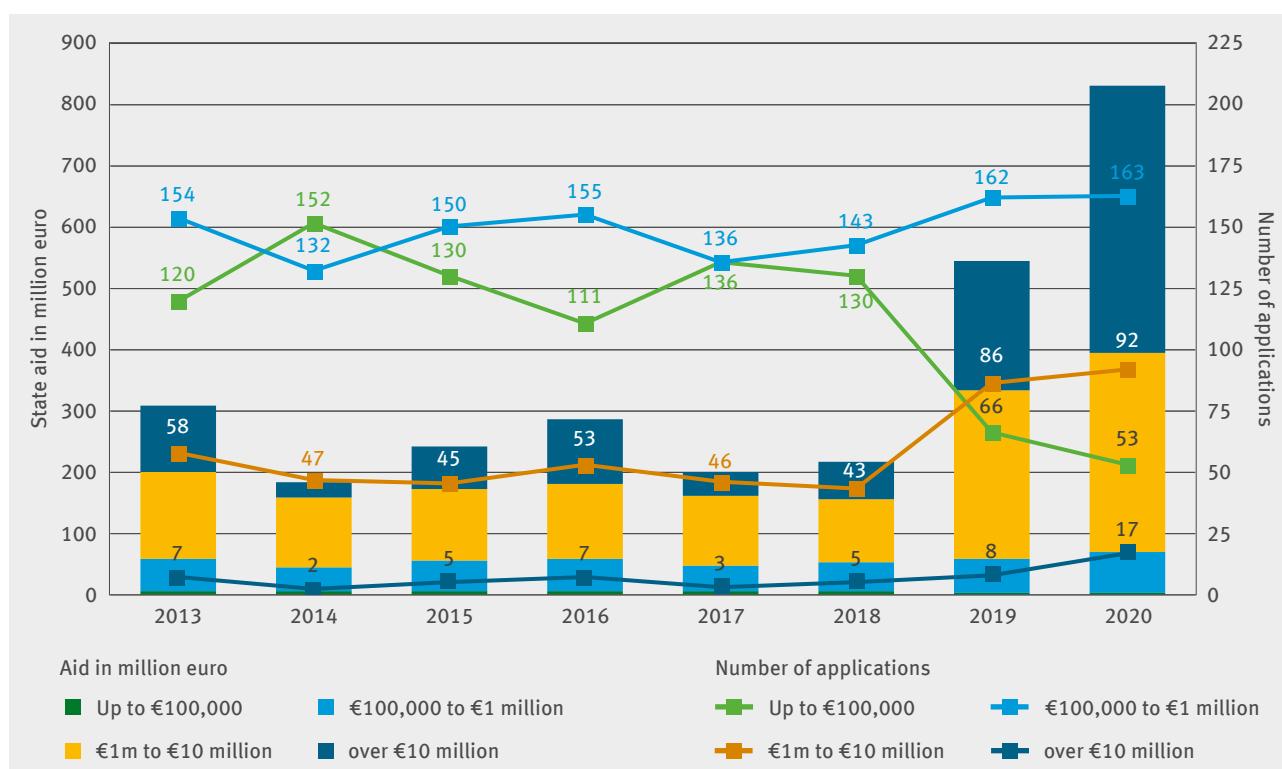
Most applications came from the sectors of the chemical industry (114 applications on average) and the paper industry (107 applications on average). Although both industries have a similar number of applying companies, the companies in the chemical industry with around 491 installations per year have more than three times as many installations as the companies in the paper industry with an average of 142 installations per year.

The clothing industry has the smallest share of the total number of applications and installations: an average of only seven companies and seven installations.

In the chemical industry, the number of applications fell by around seven percent and the number of installations by around eleven percent compared to 2013. In the iron and steel and paper industry companies, the number of applications has also decreased compared to 2013. Companies in the clothing industry have seen the largest decline in percentage terms: the number of applications and installations has fallen by around 38 percent from eight initially to five in 2020. Only in the non-ferrous metals industry has the number of applying companies increased: here, the number of applications increased from 49 at the beginning of 2013 to 54 in 2020 (plus ten percent) with the number of installations remaining relatively constant at an average of 113 per year.

7.2 Annual Total Aid and Compensated CO₂ Amounts

Figure 6 shows the annual aid amount since 2013 and divides it into aid categories (columns). The aid category up to €100,000 per application has the smallest share of the total aid. The category of €1 million to €10 million per application has the largest share for each year. The figure also shows the number of applications and companies in each of the aid categories since 2013 (lines). The highest numbers of applications can be found in the two smallest aid categories: up to €100,000 per application and €100,000 to €1 million per application. The figure clearly shows the trend of total aid as a function of the applicable EUA price. In 2013 this was set at €7.94, higher than in the following accounting years; in 2014 a significantly lower EUA price of €4.68 was relevant for the calculation of the aid amount. It rose again in 2015 and 2016 (2015: €6.17, 2016: €7.80) and then remained at a similar price level for the accounting years 2017 (€5.40) and 2018 (€5.88). Compared to 2018, the 2019 EUA price almost tripled to €16.15. In 2020, the EUA price was again significantly higher than the previous year's price at €25.20. As the EUA price has fluctuated, so has the number of applications in each aid category over the years.



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Figure 6: Number of applications and total aid by aid amount per application

In the highest aid category (over €10 million), the number of applications fell from seven companies to two between 2013 and 2014, the lowest level in the third trading period. It then rose again to seven companies by 2016 – the same as in the 2013 accounting year. In 2017, the number of applications decreased to three due to the lower EUA price. The lowering of the aid intensity in 2017 reinforced this effect. Compared to 2017, the number of applications in the highest aid category (over 10 million) increased again by two in 2018 and by three in 2019 – in line with the slightly increased EUA price compared to 2017. Due to the significantly higher EUA price in 2020, twelve applications were added in this aid category compared to 2018, despite a renewed reduction in the aid intensity in 2019. This means there is now a total of 17 companies that received more than half of the total aid for the 2020 accounting year, with approximately €437 million or around 52 percent. Despite the low number of applications, the companies in the highest aid category (over €10 million) received a total aid of €133 million per year on average, or around 38 percent of the total aid amount disbursed, in the period from 2013 to 2020.

Even in the smallest aid category of up to €100,000, the number of applications changes according to the trend of the relevant EUA prices (and aid intensity) in the individual years. Basically, the following statement can be made for this category: when EUA prices were relatively high such as €25.20 in 2020, the number of applications from 53 companies was lower than in those years when the EUA price was comparatively low (for example, 152 applications in 2014). In 2019 and 2020, the overall aid payments were higher than in 2018 so the number of applications in this category more than halved. Around 59 percent of the applications that fell into the aid category of under 100,000 in the previous year, can now be found in the larger categories.

Compared to other aid categories, the aid category €100,000 to €1 million records the largest number of applications with an average of 149 applications per year. In this category, however, only a small and clearly disproportionate share of the total aid amount was paid out, with an average of about €51 million or 14.5 percent. In line with the fluctuations in EUA prices - i.e. when EU prices are higher such as in 2020 – some of the applications move from the smallest aid category to this category.

The aid category €1 million to €10 million is, after the largest aid category (over €10 million), the group with the lowest number of applications. In this category, only 59 applications were submitted on average or about 18 percent over all previous accounting years. However, this aid category has the largest share of the total aid with an average of 47 percent. Compared to other aid categories, the fluctuations in the EUA price in the €1 million to €10 million category had little impact on the number of applications until the 2018 application year. However, with the significant increase in the EUA price in the last two accounting years, many applications in the smaller aid categories have been transferred to this category. Consequently, the number of applications in the aid category of €1 million to €10 million has more than doubled.

While the total aid for the 2013 to 2020 accounting years varied greatly in line with the fluctuating EUA price (see Figure 6 and Tables 9 to 16 in the Annex), the amount of carbon dioxide on which the calculation is based remained relatively constant at around 46 million tonnes of CO₂ up to and including 2018.¹⁴ Only in the last two accounting years was there a minor drop in the amount of carbon dioxide by around five percent – from around 46.4 million tonnes of CO₂ in 2018 to 44.1 million tonnes of CO₂ in 2020. Thus the 2020 accounting year showed the lowest amount of carbon dioxide on which the aid calculation is based since the introduction of electricity price compensation.

The high fluctuations in the total aid are due more to the volatile EUA price than to a change in the amount of carbon dioxide.

Figure 7 shows (similarly to Figure 6) the total amount of CO₂ on which the aid calculation is based, broken down by CO₂ amount category per application (columns) and the number of applications in each of these categories (lines).

The CO₂ amount category of up to 10,000 tonnes of carbon dioxide per application is based on about 26 percent of applications. In total, these applications have the smallest share of the total CO₂ amount on which the aid calculation is based at only about one percent. The category 10,000 to 100,000 tonnes of carbon dioxide has the smallest amount of CO₂ - an average of six million tonnes of CO₂ per year, or 13 percent of the total amount of CO₂ across all applications. With an average of 164 applications per year or 50 percent of all applications, most companies fall within this group.

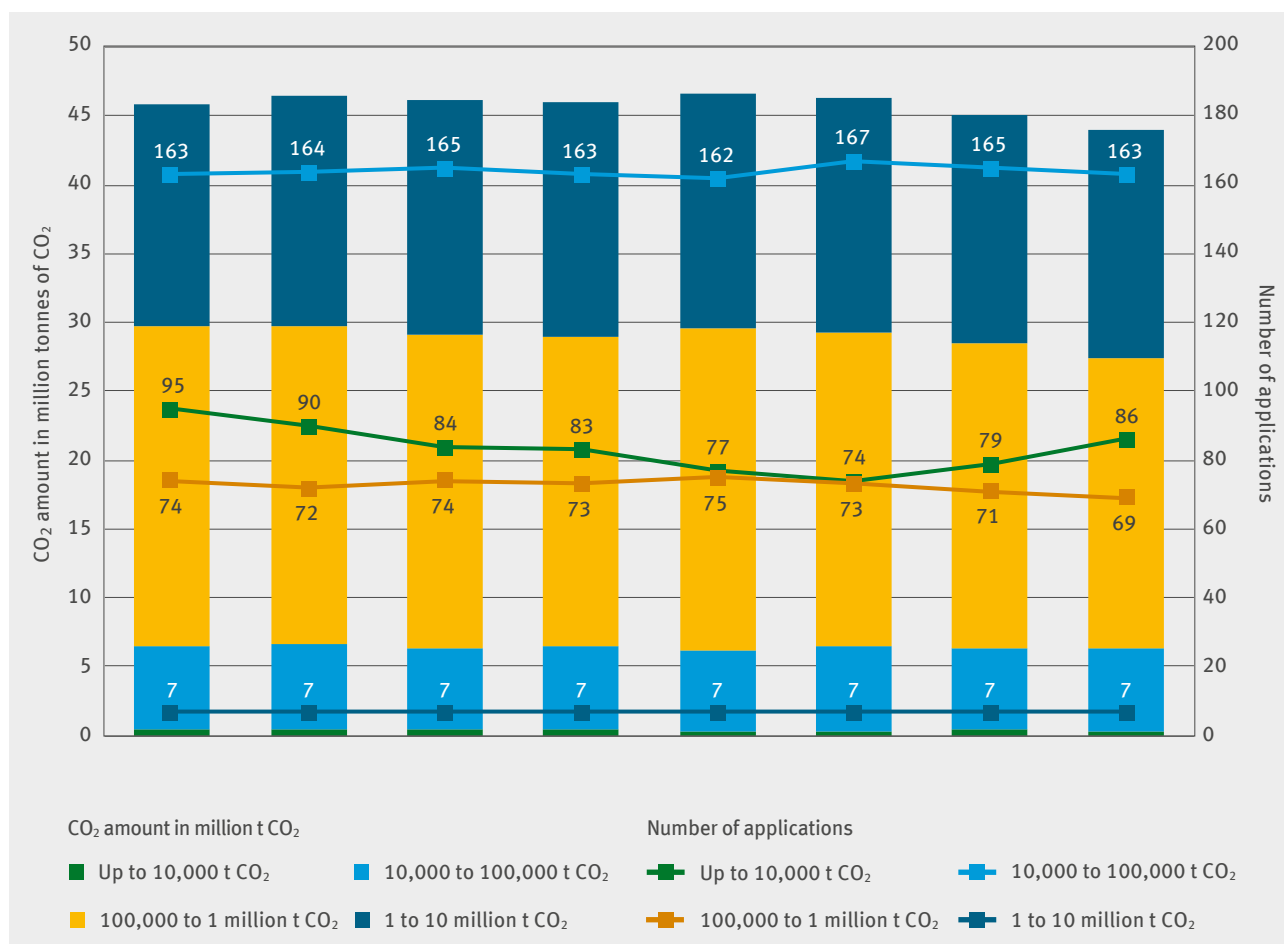
In contrast, the category 100,000 to 1 million tonnes of carbon dioxide per application is based on comparatively few applications, with an average of 73 applications per year or 22 percent of the total number. However, this is where the highest share of the CO₂ total can be found at around 50 percent. In the CO₂ amount category of 1 to 10 million tonnes of carbon dioxide, the number of applications has remained unchanged at seven since 2013.

In the individual categories, only slight changes can be seen over time for both the amount of CO₂ and the number of applications.

¹⁴ This value is determined from the disbursed aid amount, the EUA price P_t to be applied and the aid intensity A_{it} : the values for the EUA price result from the requirements of the funding guideline, i.e. $P_{2013} = €7.94$, $P_{2014} = €4.68$, $P_{2015} = €6.17$, $P_{2016} = €7.80$, $P_{2017} = €5.40$, $P_{2018} = €5.88$, $P_{2019} = €16.15$, $P_{2020} = €25.20$. The aid intensity is also predetermined, i.e. $A_{i2013-2015} = 0.85$, $A_{i2016-2018} = 0.8$, $A_{i2019-2020} = 0.75$.

The trend of the number of applications in the category up to 10,000 tonnes of carbon dioxide per application is noticeable: the number of applications fell significantly over the years from 95 in 2013 to 74 applications in 2018.

The amount of CO₂ on which the aid calculation is based also decreased in this category by around 15 percent compared to 2013. With the comparatively high EUA prices for the 2019 and 2020 accounting years, the number of applications increased by a total of twelve applications or 16 percent. The amount of CO₂ on which the aid calculation is based has also increased by around three percent since then. In this category, the effort required to submit an application compared to the aid amount disbursed as well as the retention per installation (CO₂ costs for one gigawatt-hour of electricity), could play a decisive role in the decrease in the number of applications in the period from 2013 to 2018 and in the increase in the years with a higher EUA price.



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Figure 7: Number of applications and total CO₂ amount on which the aid calculation is based, by CO₂ amount per application

In the category 10,000 to 100,000 tonnes of carbon dioxide per application, neither the number of applications nor the CO₂ amount on which the aid calculation is based have been subject to major fluctuations. Only in the accounting year 2018 did both the number of applications and the amount of CO₂ increase slightly. Some applications in the previous year, within the category of up to 10,000 tonnes of carbon dioxide, have moved into this CO₂ amount category and then fallen back into the smallest amount category in 2019 and 2020. This category contains the largest number of applications (over 50 percent), but only accounts for 13 percent of the CO₂ amount.

The 100,000 to 1 million tonnes CO₂ category has the largest share of CO₂ amount. This category has seen the most fluctuations in the number of applications and the CO₂ amount during the entire trading period. Both the number of applications and the CO₂ amount decreased between 2013 and 2016. They increased again in 2017, only to decrease continuously until 2020 (eight applications or nine percent of the total CO₂ amount).

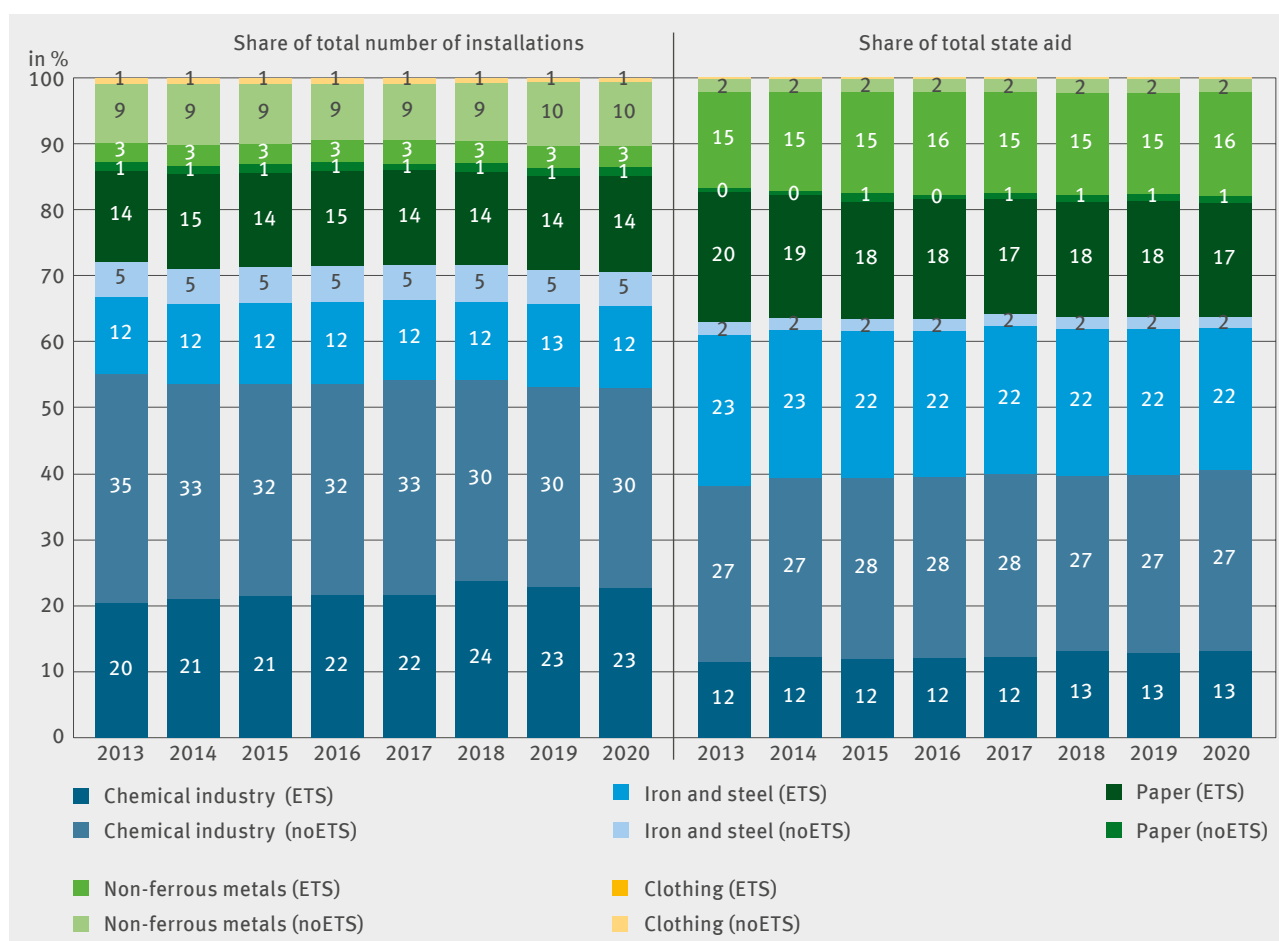
An increase in the CO₂ amount on which the aid calculation is based over all previous accounting years can be seen, albeit only slightly, exclusively in the category of 1 million to 10 million tonnes of carbon dioxide per application. Here, the amount of CO₂ rose by around three percent: from 16.1 million tonnes of CO₂ in 2013 to around 16.6 million tonnes of CO₂ in 2020.

7.3 Electricity Price Compensation and European Emissions Trading between 2013 and 2020

On average, 471 installations or 52 percent of the installations for which aid was approved, are subject to the European Emissions Trading Scheme (EU ETS).

Chemical industry companies account for the largest share of installations subject to emissions trading in the total number of installations eligible for aid, their share averaging 22 percent or 200 installations. They are followed by paper industry companies with around 131 installations or 14 percent and the iron and steel industry companies with approximately 111 plants or twelve percent. None of the clothing industry companies that receive aid for indirect CO₂ costs are subject to the EU ETS.

In the period between 2013 and 2020, there were no noticeable changes in the distribution of aid among sectors or in the number of installations subject to the EU ETS. Only the chemical industry showed a slight increase in the number of installations subject to the EU ETS in 2018. This was mainly due to the polymerisation plants that were included in emissions trading in Germany in 2018. However, the total number of installations eligible for aid remained the same. Only the assignment of the polymerisation plants has shifted, away from the plants not subject to the EU ETS and towards the plants subject to the EU ETS.



As of 04/12/2021

Figure 8: Number of applications and amount of state aid per sector divided into installations participating in the EU ETS and installations not participating in the EU ETS

7.4 Electricity Consumption

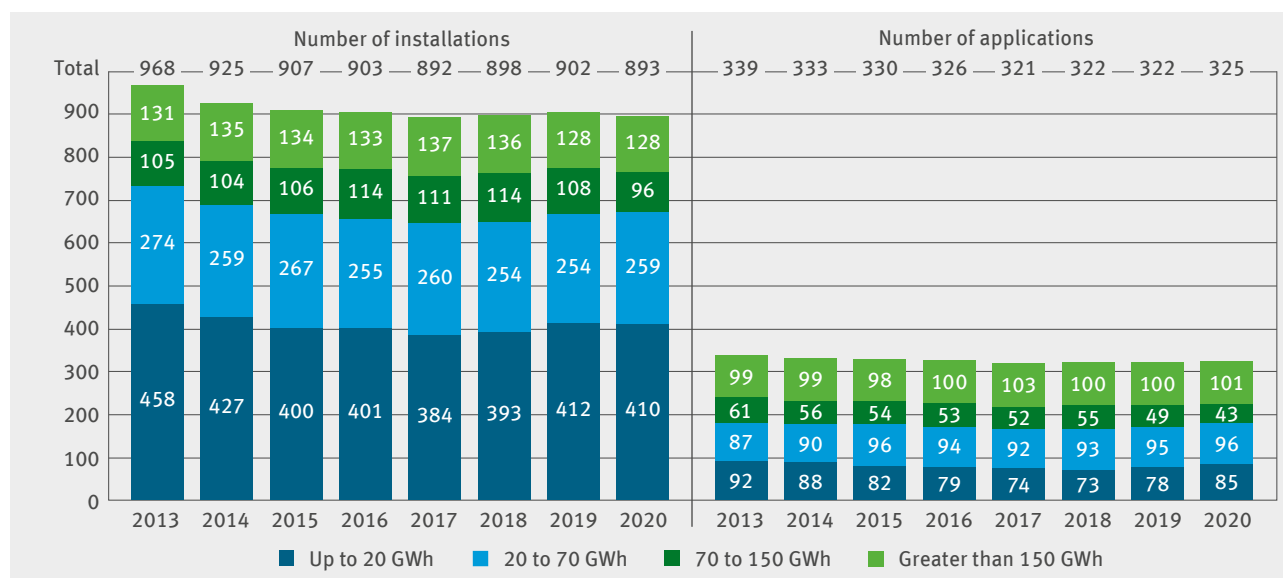
Figure 9 shows the number of installations and applications summarised by the total electricity consumption of the respective companies or installations¹⁵ for each year since 2013. The total electricity consumption is not just based on the electricity consumption eligible for aid but may also include the electricity consumption for production of non-eligible products. This serves to illustrate the actual size of the company or installation.

Looking at the entire period from 2013 to 2020, it is noticeable that both the number of applications and the number of installations fell relatively constantly until 2017. This is mainly due to the trend in the smallest electricity consumption category of up to 20 gigawatt-hours per year, which, with an average of 411 installations and a share of 45 percent, comprises the majority of installations eligible for aid. In the case of micro consumers, the number of installations fell from an initial 458 to 384 in 2017 and rose again to the current 410 installations in the last two application years. The number of applications in this category also decreased continuously until 2018 and increased significantly in the last two years (plus twelve applications). Reasons for this trend could be the effort needed to submit an application compared to the resulting amount of aid and the retention amounting to the CO₂ costs of one gigawatt-hour of electricity. These are significantly influenced by the level of the EUA price in the actual application year. If the EUA price and the corresponding state aid are higher, more micro consumers may apply for compensation of their indirect CO₂ costs.

In the case of large consumers with a electricity consumption of over 150 gigawatt-hours per year, there are fewer installations – while the number of applications has remained almost the same since 2018. In the years 2013 to 2018, the number of installations averaged 134, whereas it was 128 in the 2019 and 2020 accounting years. There has been very little fluctuation in the number of applications from large consumers since 2013.

In the category of 70 to 150 gigawatt-hours, the number of applications – with the exception of 2015 – has been decreasing continuously. In terms of the number of installations, this trend has only been noticeable since 2018. This category is the only one among the four electricity consumption categories with decreasing application and installation numbers compared to 2019.

No clear development trend can be identified in the 20 to 70 gigawatt-hours category.

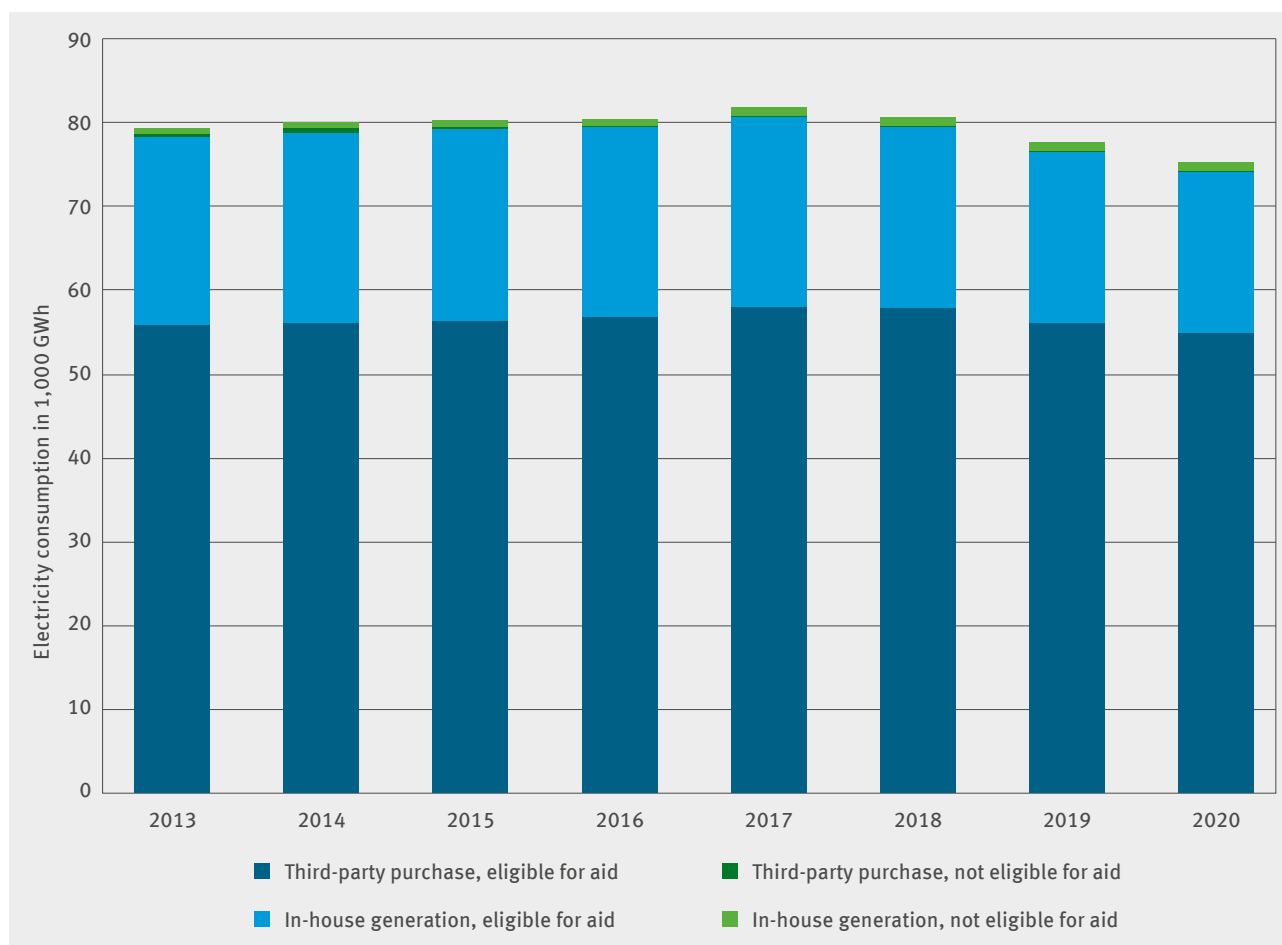


As of 04/12/2021

Figure 9: Number of installations and applicant companies by electricity consumption

¹⁵ The categories are based on the methodology of Eurostat, 'Energy statistics - electricity prices for domestic and industrial consumers, price components', Section 3.4. Statistical concepts and definitions, New Methodology (from 2007 semester 2 onwards), industry, Volume-IA, -IB, -IC, -ID summarised < 20 GWh, Volume-IE 20 to 70 GWh, Volume-IF 70 to 150 GWh, Volume-IG over 150 GWh, cf. http://ec.europa.eu/eurostat/cache/metadata/DE/nrg_pc_204_esms.html

7.5 Total electricity Consumption and Source of Electricity



As of 04/12/2021

Figure 10: Source of electricity

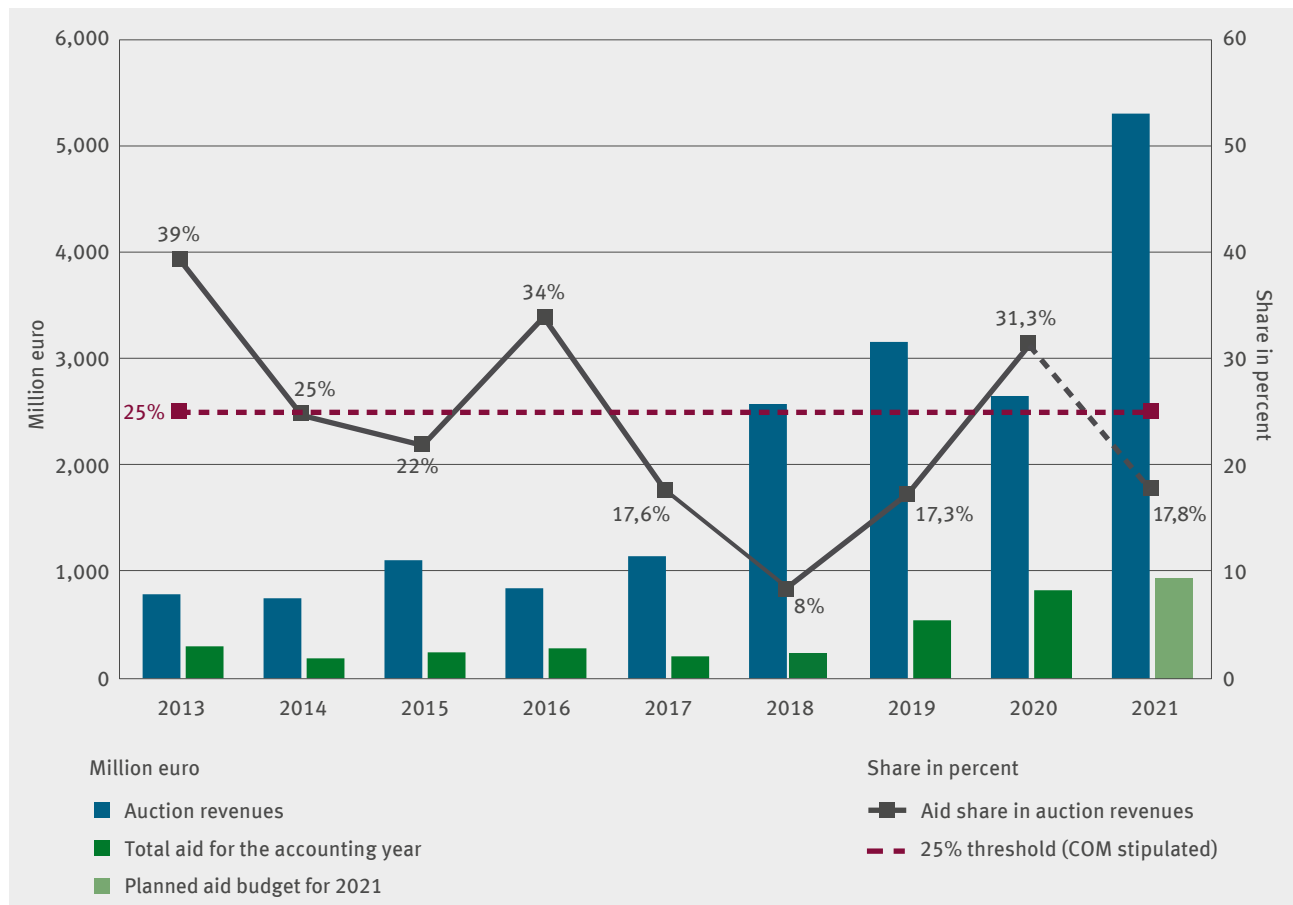
Figure 10 shows the total electricity consumption of the installations eligible for aid for the period between 2013 and 2020. The share of third-party purchase eligible electricity consumption in total electricity consumption is the largest, with an upward trend and averages 71 percent. On average, 27 percent of total electricity consumption comes from the companies' in-house generation. Only about 1.3 percent of the installations' total power consumption is not eligible.

Figure 10 shows that the total electricity consumption of all installations eligible for state aid increased slightly until about the middle of the trading period in 2017 (plus three percent) and then fell again until 2020 (minus eight percent compared to 2017). Compared to 2013, the total electricity consumption of the installations fell by a good five percent. In the 2020 accounting year, the total electricity consumption of all installations eligible for state aid was the lowest since the introduction of electricity price compensation. A similar trend can be observed in the amount of carbon dioxide used as the basis for calculating the aid (see Figure 7).

8 Share of Electricity Price Compensation in Auction Revenues

According to Article 10a(6), the Emissions Trading Directive as amended in 2018 even before the start of the fourth trading period, specifies that the amount paid should not exceed 25 percent of the auction revenues of the Member State concerned. Otherwise, the Member State must justify why the share of the aid in the auction revenues exceeds this threshold. According to the European Commission¹⁶, the share is calculated as the ratio of aid for a given reporting year to the auction revenues of the same year.

Since applications for electricity price compensation in Germany are subsequently submitted and granted, this means for this report that the reported aid for 2020 (accounting year) was applied for and granted in 2021. This value for 2020 is offset against the 2020 auction revenues for determining the share. Thus the share for the 2020 accounting year is around 31 percent.



As of 05/01/2022

Figure 11: Disbursed aid in the accounting year (for 2021: estimated budget), auction revenues (EUA and aEUA) of the respective year and respective share since 2013

16 Cf. COM 2019, Table 4, page 22.

Figure 11 shows both the aid disbursed for the 2013 – 2019 accounting years and the auction revenues of the same years as columns, and the share of the annual aid disbursed in the auction revenues as lines. This share should be less than 25 percent, however the figure shows that this was not the case in 2013 and 2016. In those years, the share in some cases was well above the 25 percent threshold at 39 and 34 percent, respectively. In 2014, the figures were just below the threshold. For 2015, 2017, and 2018, the share was below the 25 percent threshold, and for 2019 it was also below the threshold at around 17 percent. For the 2020 accounting year, however, the share of aid disbursed in the auction revenues was again well above the 25 percent threshold at around 31 percent (see explanations in the paragraph “What are the reasons for these varying shares of the aid disbursed in the auction revenues?”).

However, based on the planned aid budget¹⁷ for the 2021 accounting year, the share will again probably be below the 25 percent mark at around 18 percent.

What causes the shares of disbursed aid to vary in the auction revenues?

The amount of annual aid disbursed mainly depends on two factors: firstly, the aid intensity, which was highest in 2013-2015 with 85 percent of the volume of electricity eligible for compensation, then 80 percent for 2016 to 2018, dropping to 75 percent in 2019 and 2020. Secondly, the relevant EUA price. For electricity price compensation, this is determined based on the respective previous year's average of the daily settlement prices of the exchange-traded reference contract for European emission allowances (EUA). For the 2013-2021 accounting years, this was the futures contract traded on the ICE Futures Europe in London with delivery in December of the following year (cf. Figure 12). Thus, the maturity of the reference contract corresponds to the electricity price compensation accounting year. For the 2020 settlement year, the relevant EUA price was therefore the annual average for 2019 of the futures contract with delivery in December 2020. Nevertheless, it has been shown that futures can only limitedly reflect the actual price trend in the maturity year (see below). Table 6 shows the reference prices.

Table 6: EEA price relevant for aid calculation and aids disbursed since 2013

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
EUA Price (EPC calculation basis)*	7.94	4.68	6.17	7.80	5.40	5.88	16.15	25.20	25.09
EPC (aid disbursed)**	310.00	185.16	243.11	287.91	202.21	218.50	546.04	832.82	

* Prices in euro
 ** Prices in million euros
 As of 05/01/2022

Another possible factor with relevance to the aid amount is the volume of CO₂ underlying the aid calculation (as a product of the relevant amount of power and emission factor). This has remained approximately the same since 2013 (cf. Figure 7 and the accompanying text) and thus does not play a major role in fluctuations of the aid share in the auction revenues.

¹⁷ At the time of publication of this report, the parliamentary procedure on the 2022 budget had not been completed. Therefore the said aid budget for the 2021 accounting year is subject to reservation.

The volume of the auction revenues depends on the auctioned amount and the prices obtained. German auction volumes – as well as those of other Member States – have been falling successively since 2013 in line with the declining cap. However, due to the ‘backloading’, there was a significant unscheduled reduction in 2014–2016 – a total of 900 million EUA¹⁸ across Europe – in order to stabilise the price level. These auction volumes should have been returned to the market in 2019 and 2020 but have now been transferred to the Market Stability Reserve (MSR). The MSR entered into force in the beginning of 2019, and the EUA volume to be auctioned was reduced in line with the MSR mechanism in 2019, 2020 and 2021.

Figure 12 shows the trend in the EUA price level since 2013. Between the beginning of 2013 and the end of 2017, the EUA price initially fluctuated within an interval of about three to eight euros. The price increased significantly after early 2018 with the benchmark contract (ICE EUA Front December) nearly reaching €30 in mid-2019. Due to strong turbulence on the international securities and energy markets caused by the COVID 19 pandemic, EUAs lost significant value in March 2020 and briefly fell to below €15. However, this was followed by a strong upward movement and the EUA price rose to over €30 by the end of 2020. In 2021, the continuous upward trend of the previous years intensified and the EUA benchmark contract gained significantly in value. In May 2021, the €50 mark was exceeded for the first time, and in December 2021 the EUA price reached a new all-time high of around €90.



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Figure 12: EUA price trend since 2013

¹⁸ Germany accounted for about 175 million of these allowances.

Table 7 shows the average volume-weighted German auction revenues per allowance on an annual basis.

Table 7: Volume-weighted annual average EUA price of the German auctions (excluding aviation) and EUA price relevant for the aid calculation

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
EUA Price (German auctions)*	4.33	5.90	7.60	5.26	5.80	14.90	24.66	24.59	52.47
EUA Price (EPC calculation basis)*	7.94	4.68	6.17	7.80	5.40	5.88	16.15	25.20	25.09

* Prices in euro
As of 05/01/2022

As a result, EPC calculation basis and auction price are clearly drifting apart. The relevant calculation price for electricity compensation is determined from the average of the futures price in the previous year so that there is a one-year delay between the relevant pricing for electricity price compensation and that for auction revenues. Certain market trends are thus not yet reflected in the price relevant to aid calculation. This becomes clear from a comparison of the prices in Tables 6 and 7. For example, the price to be applied for the 2018 EPC settlement year was €5.88, while the average price amounted to €14.90, i.e. nearly threefold, in the 2018 German auctions.

If the prices for aid calculation and from auctions were identical, the share of aid in the German auction revenues would be between 19 and 31 percent in the 2013–2020 period. If one were to take into account the EUA quantities not auctioned between 2014 and 2016 (backloading) and from 2019 (MSR) in the calculation of the auction revenues, the share would be between 16 and 22 percent (see Table 8). By default, this adjusted calculation approach also applies to taking into account the auction volume reductions starting in 2019 and equalling the withdrawn volume for the MSR for the following years.

Table 8: Shares of the disbursed aid in the auction revenues according to different calculation methods

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
Regular (cf. Figure 11)	39.2%	24.7%	21.9%	33.9%	17.6%	8.5%	17.3%	31.3%	17.8%
Identical EEA price	21.4%	31.1%	27.0%	22.8%	19.0%	21.5%	26.4%	30.5%	37.2%
Identical EUA price, without backloading/MSR	21.4%	19.3%	19.3%	18.4%	19.0%	21.5%	15.8%	17.5%	20.8%

As of 05/01/2022

25-percent threshold as a tool for assessing EPC aid levels?

Two factors primarily determine the ratio of the disbursed aid to the auction revenues for a given reporting year: firstly, the time-delayed approach determining the two relevant EUA prices (EPC calculation basis based on the previous year's future contract and the revenues from Germany's auctions in the year under consideration), secondly, the volume of EUAs auctioned and the power consumption eligible for aid, i.e. the production of sectors eligible for aid.

The effect of the time lag between the relevant price formation for the electricity price compensation and for the auction revenues can be seen especially clearly in the period between 2020 and 2021:

The average revenue per EUA of the German auctions in 2020 was almost at the previous year's level. However, due to the significantly lower auction volumes compared to 2019¹⁹, the total annual revenue in 2020 decreased by around 16 percent compared to the previous year. This results in an overshoot of the 25 percent threshold.

Due to a continuous upward trend in EUA prices in 2021, the average revenue per EUA in 2021 is more than twice as high as in the previous year. The total annual revenue in 2021 is also almost 100 percent higher than in the previous year, despite moderately lower auction volumes. However, the planned aid budget was determined based on the average EUA price during 2020 (EPC calculation basis). Therefore, the ratio of the planned state aid budget to the auction revenues is expected to be significantly less than 25 percent again in the 2021 and 2022 accounting years.

In general, it can be said that the 25 percent threshold has tended to be exceeded in the past when the auction revenues decreased, as for example in the 2020 accounting year due to a special effect, or the EUA price of the EPC calculation basis exceeded the auction price. In addition, the level of production in sectors eligible for aid and thus the power consumption eligible for aid also played a role. This means that if this was higher (for example, compared to other Member States or compared to the previous year), the 25 percent threshold was also more likely to be exceeded. In the past, whether the threshold was exceeded depended on factors outside the direct sphere of influence of the respective Member State's policy (for example, EUA price trend, economic structure).

9 Outlook

The Energy and Climate Fund (ECF) provided a budget of €878 million for electricity price compensation for the 2020 accounting year. More than 95 percent of this budget has been exhausted, thus no budgetary reductions in the total state aid were necessary.

The application process for aid for the 2021 accounting year will take place later in 2022 than in previous years, probably in the third quarter. The EUA price to be used for calculating the aid for 2021 is €25.09 so is therefore at the 2020 price level. In March 2022, the Federal Cabinet adopted the second government draft of the 2022 federal budget, which provides for 944 million euros for the 2021 accounting year.

The EU State Aid Guidelines, i.e. the current European legal basis for electricity price compensation for the third trading period, only regulates the compensation of indirect CO₂ costs of the EU ETS up to and including the 2020 accounting year. Therefore, the European Commission revised the State Aid Guidelines for the fourth trading period and published them on 21/09/2020 (cf. EU 2020). The State Aid Guidelines provide the framework for the arrangement of electricity price compensation in Germany. They include in particular: adjustments to the list of eligible sectors in accordance with Annex II; a constant maximum aid intensity of 0.75 for the entire 2021 – 2030 period; actual production volumes and power consumption as the basis for aid calculation; applicants' obligation to implement environmental offsets from a certain company size and the possibility of increasing the aid amount depending on the gross value added of the applicant companies.

The Federal Ministry for Economic Affairs and Climate Protection is developing a new version of the national funding guidelines for the compensation of indirect CO₂ costs in Germany based on the guidelines published on 21/09/2020.

¹⁹ The total volume of emission allowances to be auctioned in 2018 for Germany originally amounted to 194,027,000 EUA. Auctions that were provisionally scheduled for the period after 09/11/2018 were deleted from the 2018 auction calendar. The corresponding volume of 21,807,000 EUA was distributed among the volume to be auctioned in 2019.

10 Annex

The 2013–2019 figures published in the report may differ from previous publications due to retrospective amendments to aid payments because of legal actions such as appeals, lawsuits and reclamations.

Table 9: Number of approved applications and number of installations by industries and total aid disbursed in 2013

Industry (EPC)	Number of applications	Number of installations	EPC 2013*
Chemical industry	118	534	118,632,406.21
Iron and steel	54	164	76,581,873.35
Paper	111	147	63,028,256.58
Non-ferrous metals	49	115	51,359,198.42
Clothing	8	8	294,916.01
Total	340	968	309,896,650.57

* Prices in euro
As of 04/12/2021

Tabelle 10: Number of approved applications and number of installations by industries and total aid disbursed 2014

Industry (EPC)	Number of applications	Number of installations	EPC 2014*
Chemical industry	115	498	72,772,467.66
Iron and steel	52	159	45,132,947.99
Paper	110	146	35,167,223.57
Non-ferrous metals	49	115	31,677,160.50
Clothing	8	8	112,527.51
Total	334	926	184,862,327.23

* Prices in euro
As of 04/12/2021

Tabelle 11: Number of approved applications and number of installations by industries and total aid disbursed in 2015

Industry (EPC)	Number of applications	Number of installations	EPC 2015*
Chemical industry	117	486	95,745,661.56
Iron and steel	51	160	58,602,195.31
Paper	107	142	46,157,796.95
Non-ferrous metals	47	111	42,172,046.56
Clothing	8	8	152,301.63
Total	330	907	242,830,002.01

* Prices in euro
As of 04/12/2021

Tabelle 12: Number of approved applications and number of installations by industries and total aid disbursed 2016

Industry (EPC)	Number of applications	Number of installations	EPC 2016*
Chemical industry	113	485	114,007,491.31
Iron and steel	50	160	68,367,537.38
Paper	107	142	54,182,766.43
Non-ferrous metals	48	108	50,518,085.52
Clothing	8	8	168,054.73
Total	326	903	287,243,935.37

* Prices in euro
As of 04/12/2021

Tabelle 13: Number of approved applications and number of installations by industries and total aid disbursed 2017

Industry (EPC)	Number of applications	Number of installations	EPC 2017*
Chemical industry	113	484	80,683,178.14
Iron and steel	50	155	48,813,781.90
Paper	104	138	36,962,447.49
Non-ferrous metals	47	107	34,993,017.35
Clothing	8	8	117,901.97
Total	322	892	201,570,326.85

* Prices in euro
As of 04/12/2021

Tabelle 14: Number of approved applications and number of installations by industries and total aid disbursed 2018

Industry (EPC)	Number of applications	Number of installations	EPC 2018*
Chemical industry	113	486	87,016,959.40
Iron and steel	50	156	52,560,853.84
Paper	103	138	40,554,106.83
Non-ferrous metals	50	111	38,077,941.46
Clothing	6	6	101,397.23
Total	322	897	218,311,258.76

* Prices in euro
As of 04/12/2021

Tabelle 15: Number of approved applications and number of installations by industries and total aid disbursed in 2019

Industry (EPC)	Number of applications	Number of installations	EPC 2019*
Chemical industry	109	479	217,973,189.65
Iron and steel	50	161	131,243,260.14
Paper	105	139	101,638,947.24
Non-ferrous metals	53	118	95,000,343.89
Clothing	5	5	201,444.63
Total	322	902	546,057,185.55

* Prices in euro
As of 04/12/2021

Tabelle 16: Number of approved applications and number of installations by industries and total aid disbursed 2020

Industry (EPC)	Number of applications	Number of installations	EPC 2020*
Chemical industry	110	473	339,058,082.85
Iron and steel	50	158	193,304,581.21
Paper	106	141	153,161,855.10
Non-ferrous metals	54	116	147,082,698.99
Clothing	5	5	210,533.89
Total	325	893	832,817,752.04

* Prices in euro
As of 04/12/2021

11 Literature and Sources

DEHSt 2016	German Emissions Trading Authority [eds.], „Beihilfen für indirekte CO ₂ -Kosten des Emissionshandels (Strompreiskompensation) in Deutschland für die Jahre 2013 und 2014 – SPK-Bericht 2013/2014“, (State Aid for indirect CO ₂ costs of emissions trading (electricity price compensation) in Germany for 2013 and 2014 – EPC Report 2013/2014), Berlin, March 2016 www.dehst.de/SharedDocs/downloads/DE/spk/Auswertungsbericht_2013_2014.pdf
DEHSt 2017	German Emissions Trading Authority [eds.], „Beihilfen für indirekte CO ₂ -Kosten des Emissionshandels (Strompreiskompensation) in Deutschland für das Jahr 2015 – SPK-Bericht 2015“, (State Aid for indirect CO ₂ costs of emissions trading (electricity price compensation) in Germany for 2015 – EPC Report 2015), Berlin, March 2017 www.dehst.de/SharedDocs/downloads/DE/spk/Auswertungsbericht_2015.pdf
DEHSt 2018	German Emissions Trading Authority [eds.], „Beihilfen für indirekte CO ₂ -Kosten des Emissionshandels (Strompreiskompensation) in Deutschland für das Jahr 2016 – SPK-Bericht 2016“, (State Aid for indirect CO ₂ costs of emissions trading (electricity price compensation) in Germany for 2016 – EPC Report 2016), Berlin, March 2018 www.dehst.de/SharedDocs/downloads/DE/spk/Auswertungsbericht_2016.pdf
DEHSt 2019	German Emissions Trading Authority [eds.], „Beihilfen für indirekte CO ₂ -Kosten des Emissionshandels (Strompreiskompensation) in Deutschland für das Jahr 2017 – SPK-Bericht 2017“, (State Aid for indirect CO ₂ costs of emissions trading (electricity price compensation) in Germany for 2017 – EPC Report 2017), Berlin, March 2019 www.dehst.de/SharedDocs/downloads/DE/spk/Auswertungsbericht_2017.pdf
DEHSt 2020a	German Emissions Trading Authority [eds.], „Beihilfen für indirekte CO ₂ -Kosten des Emissionshandels (Strompreiskompensation) in Deutschland für das Jahr 2018 – SPK-Bericht 2018“, (State Aid for indirect CO ₂ costs of emissions trading (electricity price compensation) in Germany for 2018 – EPC Report 2018), Berlin, March 2020 www.dehst.de/SharedDocs/downloads/DE/spk/Auswertungsbericht_2018.pdf
DEHSt 2021a	German Emissions Trading Authority [eds.], „Beihilfen für indirekte CO ₂ -Kosten des Emissionshandels (Strompreiskompensation) in Deutschland für das Jahr 2019 – SPK-Bericht 2019“, (State Aid for indirect CO ₂ costs of emissions trading (electricity price compensation) in Germany for 2019 – EPC Report 2019), Berlin, March 2021 www.dehst.de/SharedDocs/downloads/DE/spk/Auswertungsbericht_2019.pdf
DEHSt 2021b	German Emissions Trading Authority [eds.], „Leitfaden zur Erstellung von Anträgen auf Beihilfen für indirekte CO ₂ -Kosten (Strompreiskompensation)“ (Guidelines for the preparation of applications for state aid for indirect CO ₂ costs (electricity price compensation)), Berlin, March 2021
EU 2020	European Commission, Guidelines on certain State aid measures in the context of the system for greenhouse gas emission allowance trading post-2021. (2020/C 317/04). https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020XC0925(01)&from=EN

