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Topic: The effects of removing natural gas power plants from the EU ETS 1

Summary

In view of the current turbulence and disruption on the international fuel markets, and the knock-on effects on the European electricity market, various measures to reduce electricity costs are being discussed. These currently include proposals to exempt natural gas-fired power generation in the EU or in individual countries from the Emissions Trading System of the European Union for the energy sector and energy-intensive industry (EU ETS 1).

At a fundamental level, such measures[1] would cause serious damage to the robustness and predictability of the regulatory framework and the steering effects of energy prices, particularly in view of the transformation investments in European energy and industrial systems made in the past and those still needed in the future. These uncertainties would arise for both private investors and national budgets. There is, furthermore, a mismatch: the price effects from the energy markets are short-term, while the price effects from the interventions in the EU ETS 1 are long-term. Given this, it would not even be possible to estimate the net effects on electricity costs from both effects. It is thus not possible to determine effective parameters for interventions in the EU ETS 1.

Currently, natural gas-fired power generation accounts for between 15% and 16% of total electricity generation in the EU. Although it constitutes a smaller segment of the overall market, it is already the dominant source of fossil fuel-based electricity generation, accounting for around 57%. In the future, generation levels and the share of electricity generated by natural gas power plants will continue to decline. However, natural gas will account for the overwhelming majority of fossil fuel electricity generation from around 2030 onwards. In countries of the EU, development patterns that are similar in principle have different degrees of intensity. While the share of electricity generation from natural gas in total fossil fuel-based electricity generation in Germany currently stands at around 40%, a corresponding share of over 80% is already being achieved in Italy. Despite the relatively high probability of a predominantly downward trend in natural gas-fired power generation levels, electricity generation from natural gas continues to play a key role, primarily due to its price-setting function in the wholesale market, both currently and in the medium term.

In 2024, natural gas-fired power plants accounted for only approx. 11% of the total greenhouse gas emissions covered by the EU ETS 1 – substantially less than those from coal-fired power plants, industrial installations and other power plants or combustion plants. Although the overall level of emissions from gas-fired power generation will decline significantly, the share of emissions from natural gas power plants in the total emissions of stationary installations covered by the EU ETS 1 is set to rise sharply. It is expected to exceed one third by 2030 and thereby represent almost the entire volume of emissions from electricity generation in the EU.

Indicative sensitivity analyses show that the ratio of electricity price increases due to (temporarily) rising natural gas prices and the reductions in electricity prices resulting from the exclusion of natural gas-fired power generation from the EU ETS 1 strongly depends on the potentially highly volatile price situation in the fuel markets and the EU ETS 1. Even a degree of certainty regarding the direction of the net effects of these interactions between the markets will be virtually impossible to

[1] As well as other interventions in the design of the electricity market.

establish ex ante. Therefore, the intended cost reduction would, at best, only be achieved by chance and would likely only be temporary.

A complex model analysis of the wholesale markets for two variants of exempting natural gas-fired power generation from the EU ETS 1 (EU-wide or only for Italy) shows that, on the one hand, these measures may have significant effects on electricity prices, albeit varying over time and across regions. On the other hand, however, drastic distortions would arise in a wide range of areas. Natural gas-fired power generation and natural gas demand would rise very sharply, particularly in the short term, due to the very limited scope for adjustments in other sectors over this timeframe (greater expansion of renewable electricity generation, storage, etc.), which in turn could have (price-driving) effects on the natural gas market. Coal-fired power generation would be phased out in the short term through a rather chaotic process. On the one hand, this would lead to substantial reductions in CO_2 emissions, which could also lead to price effects on the emissions market. On the other hand, political interventions to support coal-fired power generation would then also be likely. If individual countries' natural gas power plants were excluded from the EU ETS 1 (especially in the case of Italy), the structures and levels of cross-border electricity supplies would change very rapidly and, in some cases, abruptly. With these changes to electricity generation and exchange structures, country-specific interventions in the EU ETS 1 would also result in significant carbon leakage effects within the European Union. Overall, given these complex and ultimately almost unmanageable interactions and consequences, measures within the EU ETS 1 to exclude individual groups of emitters, such as natural gas power plants, are not a useful or acceptable means of limiting electricity costs.

In addition to the structural measures that can be implemented in the medium to long term to mitigate the impact of natural gas-fired power generation on (wholesale) prices (such as increasing electricity generation from renewable sources and expanding storage, etc.), measures to reduce costs should primarily be targeted at the customers, especially if this also makes sense from a long-term perspective, e.g. if it can lead to more favourable price ratios between electricity and fossil fuels. These targeted measures are significantly more tailored and robust in terms of reducing electricity costs in the EU and individual Member States.

The consistent reduction of electricity taxes and, where applicable, separate VAT rates for electricity (and, where applicable, other measures relating to levies, grid access charges, industrial electricity prices, etc.) provide levers through which price effects can be achieved that are entirely comparable to those resulting from interventions in the wholesale market or the emissions market. When assessing the corresponding financing requirements, it should also be noted that distortions in the emissions trading market and risk premiums resulting from increasing uncertainties in the regulatory framework, particularly for investors, can also have substantial effects on the need for financing via public budgets.

In the context of raising additional funds from national budgets to finance other ways of reducing electricity costs, the Austrian proposal to skim off 'excess revenues' arising from the ETS pass-through in electricity prices does not threaten the integrity and robustness of the EU ETS 1. This measure is a fundamentally acceptable approach if individual Member States wish to introduce such a mechanism on a voluntary basis and accept the complexity and administrative burden of implementation. However, again, the potential for market uncertainty arising from inappropriate or situational parameters as a result of such models must be very carefully considered.

1 General classification

1.1 Preliminary remarks

The current turbulence in global fuel markets and its effects on the European electricity market have once again sparked discussions about appropriate countermeasures. These discussions revolve around interventions in the design of the electricity market, measures on the side of the electricity customers and, currently, the possible exclusion of natural gas-fired power plants from the European Union Emissions Trading System for the energy sector and energy-intensive industries (EU ETS 1). As the latter option in particular (based, among other things, on a proposal made by Italy) features significantly in the current discussions, selected analyses of such measures are presented below. The focus of this paper is primarily on quantitative assessments of such far-reaching interventions in a key instrument of EU policy, particularly with regard to the interactions between energy and emissions markets.

The analyses focus on the effects at EU level and the effects arising for Germany (as the country with the largest electricity system in the EU) and Italy (as a country heavily affected by current developments).

Notwithstanding these specific analyses, it should be noted that the described interventions in the EU ETS 1 and in the electricity market design more broadly must be viewed with extreme scepticism in terms of the stability and predictability of the regulatory framework for a strategically important sector which requires huge investments and has already received substantial transformation investments.

Finally, it should be explicitly noted that, beyond the measures discussed below – which have a very short-term impact and address a supply situation that is relatively inelastic in structural terms – highly effective structural policy options are available in the medium to long term and should be pursued. This applies above all to mitigating the (wholesale) price effects of natural gas-fired power generation through the expansion of electricity generation from renewable energies, of grids and storage, etc.

1.2 Natural gas-fired power generation

In 2025, electricity generation from natural gas accounted for around 16% of total net electricity generation in the EU 27.[2] It thus ranked third among electricity generation sources in the EU, behind nuclear energy (24%) and ahead of onshore wind power generation (15%). Between 2023 and 2025, these shares changed only slightly (nuclear energy 23–24%, natural gas 15–16%, onshore wind power 15–16%). Compared with the period from 2020 to 2022, however, the share of electricity generation from natural gas fell significantly (19–20%). Absolute generation from natural gas power plants stood at 442 TWh in 2025, and at 401 to 442 TWh in 2023 to 2025 (the lower volume is the 2024 level). However, compared with the level of natural gas-fired power generation in the period from 2020 to 2022 (541 to 561 TWh), natural gas-fired power generation has declined considerably. In terms of fossil-fuelled power generation, however, natural gas-fired power generation accounted for by far the largest share across the EU in 2025 at 57% (with coal accounting for 32% and other fossil fuel power generation 11%).

[2] All the generation data cited here is taken from the relevant statistics published by Eurelectric (https://electricity-data.eurelectric.org/).

However, the share and levels of electricity generation from natural gas vary significantly across the individual EU Member States. For example, the share of natural gas-fired power generation in Italy in 2023 to 2025 was 37% to 42% (2025: 42%), and generation levels ranged from 96 to 104 TWh (2025: 104 TWh). However, compared with the period from 2020 to 2022 (134 to 144 TWh or 50% to 51%), natural gas-fired power generation declined substantially. Natural gas-fired power generation in Italy accounted for 81% of the total power generation from fossil fuels in 2025 (with coal accounting for 2.5%, and other fossil fuels 16%). For Germany, the share of natural gas generation for 2022 to 2025 amounted to 15% to 16% (2025: 16%) and generation levels amounted to 74 to 79 TWh (2025: 79 TWh). Compared with the period of 2020 to 2022 (86 to 96 TWh), generation levels have fallen substantially, while the shares of total generation have declined only slightly (by 2 percentage points or less). Electricity generation from natural gas accounted for 40% of fossil fuel-based electricity generation in 2025 (coal accounted for 49%, and other fossil fuel-based generation for 12%).

Irrespective of the very different shares of generation, natural gas-fired power generation plays an important role in price formation on the wholesale market in most European regional markets. With higher shares of renewable energy or nuclear power in the electricity generation mix, the number of hours during which natural gas-fired power plants act as price setters decreases, and the annual average electricity price at the wholesale level is correspondingly lower.

Under the European Union's Emissions Trading System for the energy sector and energy-intensive industries (EU ETS 1), natural gas-fired power plants accounted for only around 11% of the total greenhouse gas emissions regulated by the EU ETS 1 in 2024, substantially less than those from coal-fired power plants (27%), industrial plants (43%) and other power plants or combustion plants (18%).[3] By 2030, however, this situation will change substantially, as generation from coal-fired power plants will decline sharply within the context of the relevant political and regulatory decisions and market-driven processes (driven by the CO_2 price). Consequently, while the overall level of gas-fired power generation will decline significantly in the years ahead[4], the share of emissions from natural gas power plants in the total emissions of stationary installations regulated by the EU ETS 1 will rise substantially. It is expected to exceed one third by 2030 and thereby constitute almost the entire volume of emissions from electricity generation in the EU.[5] The exemption of natural gas power plants from the EU ETS 1 currently under discussion would therefore not be a minor change. Rather, it could lead to the EU ETS 1 being rendered ineffective in the electricity generation sector in the years ahead.

3 Trends and projections in the EU-ETS in 2025. The EU Emissions Trading System in numbers (https://www.eionet.europa.eu/etcs/etc-cm/products/etc-cm-report-2025-06/@@download/file/ETS-Report_2025_final.pdf)

4 The International Energy Agency's (IEA) World Energy Outlook 2025 projects a decline in electricity generation from gas-fired power plants in the EU of between 35% and 53% for the period from 2024 to 2035 (https://iea.blob.core.windows.net/assets/6e3cfb8e-dba1-46f5-ac26-d4a0bd0dc24b/WorldEnergyOutlook2025.pdf)-

5 In the 2025 Projection Report for Germany, the share of natural gas power plants in emissions from stationary installations regulated under the EU ETS in 2030 is, for example, 36% (https://datacube.uba.de/vis?lc=de&df[ds]=dc-release&df[id]=DF_CROSS_PROJECTION_REPORT_CORE_INDICATORS_25&df[ag]=UBA&df[vs]=1.0&av=true&dq=.....&pd=2025,&to[TIME_PERIOD]=false&pg=0).

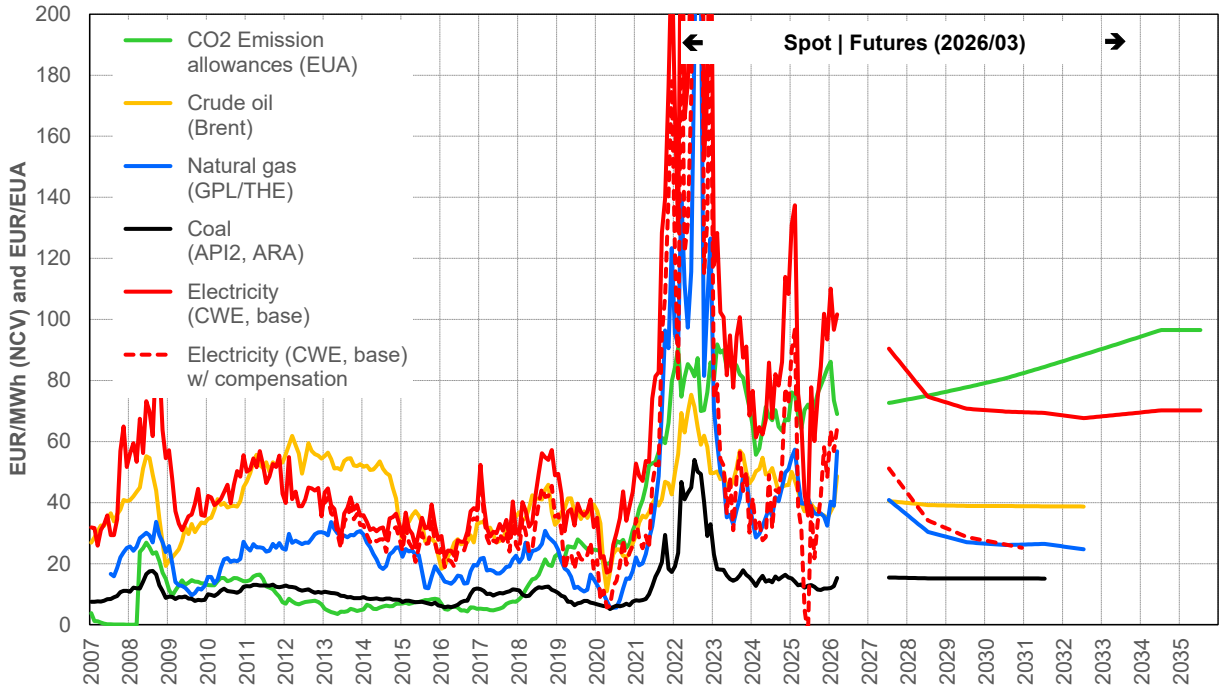
1.3 Fuel and CO_2 prices

The effects of suspending greenhouse gas pricing via the EU ETS 1 must always be viewed in the context of current and expected price trends for emission allowances and fuels.

In the wake of the recent turbulence on the global markets for fossil fuels, prices for natural gas and crude oil, as well as for hard coal, have risen substantially. By contrast, prices for emission allowances under the EU ETS 1 have changed little since the beginning of March 2026, despite the volatility in fuel prices.

At least for the time being, the markets anticipate an easing of fuel and electricity prices in the medium to long term, even when further price increases in the EU ETS 1 are considered. While this is a 'snapshot' of market assessments, it also indicates that all measures must take the corresponding market uncertainties into account. This particularly applies to serious interventions in wholesale markets that ultimately have a long-term impact and with a view to the EU ETS 1.

Figure 1 **Development of spot and futures prices for electricity, fuels and EU ETS 1 emission allowances**



Source: EEX, ICE, EPEX Spot, calculations by Oeko-Institut

The overview provided in Figure 1 also shows that the price changes on the global markets for fossil fuels since the beginning of March 2026 are not limited to natural gas and crude oil, but can also be observed for hard coal. This has implications not only for the short-term marginal costs of electricity generation and the dispatch of fossil fuel-fired power plants, but also for the contribution margins of power plants. These are required to finance fixed operating costs and have an impact on the associated decisions on decommissioning or investment.

Irrespective of all the fundamental questions surrounding a possible exemption of certain installations from the obligations of the EU ETS 1, such measures would – in addition to any price

reductions and the corresponding effects in the wholesale market – have (unintended) consequences for other electricity generation options or their financing. This concerns generation options that were built and financed in reliance on the EU ETS 1 and its effects on the wholesale market, or whose financing is provided, for example, through levies or national budgets.

In this context, the question arises as to the net effects of unexpectedly rising natural gas prices and the electricity market effects of exempting natural gas power plants from the obligations of the EU ETS 1.

Table 1 Effects of changes in fuel prices and possible exemptions from the costs of the EU ETS 1 on the electricity generation costs of natural gas power plants

		Increase in natural gas prices (€/MWh (NCV))					
		5	10	15	20	25	30
		Increase in power generation costs (€/MWh)					
Natural gas power plants with efficiency of	30%	17	33	50	67	83	100
	45%	11	22	33	44	56	67
	60%	8	17	25	33	42	50
		Exemption from EU ETS-1 costs (€/EUA)					
		65	70	75	80	85	90
		Decrease in power generation costs (€/MWh)					
Natural gas power plants with efficiency of	30%	43	47	50	53	57	60
	45%	29	31	33	36	38	40
	60%	22	23	25	27	28	30

Source: Calculations by Oeko-Institut

Table 1 summarises the results of corresponding sensitivity analyses. The overview shows that the net effects on short-term generation costs (and thus also the effects on the wholesale market) heavily depend on the assumptions regarding developments in the natural gas market and in the EU ETS 1. For the reference scenario of the modelling (described in section 2 below), it was further assumed that, in view of the global expansion of liquefied natural gas supplies, natural gas prices would fall sharply by 2030, reaching levels of approx. 20 €/MWh (NCV).[6]

- If natural gas prices are 20 €/MWh (NCV) higher than in the reference scenario and natural gas power plants receive a reduction of approx. €70 per EUA, then the reduction resulting from the EU ETS 1 is smaller than the cost increase on the natural gas market. This is the current situation on the spot markets.
- If natural gas prices are 10 €/MWh (NCV) higher than in the reference scenario, then the exemption of natural gas power plants from the EU ETS 1 leads to a considerably higher reduction in (marginal) costs, when an allowance price of €75 per EUA is assumed. This situation arises from the current futures market conditions for 2027.
- If natural gas prices are 5 €/MWh (NCV) higher than in the reference scenario, the exemption of natural gas power plants from the EU ETS 1 results in a much greater reduction in the

6 https://www.umweltbundesamt.de/system/files/medien/11850/publikationen/2026-02/2026_Rahmendatenpapier.pdf

(marginal) costs of natural gas-fired power generation, even at an allowance price of €65 per EUA. This scenario could arise in the run-up to 2030.

- If natural gas prices do not exceed the value in the reference scenario, and the exclusion of natural gas power plants from the EU ETS 1 leads to a cost reduction of €90 per EUA, it results in very high net cost-reduction effects for the short-term marginal costs of natural gas-fired power generation. Such a situation could arise in the long term, i.e. after 2030.

Precisely the above-mentioned spillover effects of excluding price-setting power plants from the EU ETS 1 pose a huge problem in terms of uncertainty and instability, given the ultimately unpredictable short-, medium- and long-term development of the gas prices. Particularly from the perspective of these interactions (also over time), the exclusion of natural gas power plants from the EU ETS 1 would not be a useful option.

2 Modelling analyses

2.1 Preliminary remarks

In order to quantify the effects of exempting natural gas power plants from the obligations of the EU ETS, model calculations were carried out using Oeko-Institut's EU-wide electricity market model, Powerflex. This fundamental model simulates dispatch decisions for the entire EU power plant fleet, taking into account grid-related constraints on cross-border electricity supplies. The parameters of the 'with measures' scenario (MMS) of the German government's (current) 2026 Projection Report were used as the reference scenario.[7]

All modelling results presented below are subject to methodological caveats. Huge changes in emission levels, particularly in the short term, as well as a loss of confidence in the EU ETS 1, could lead to substantial changes in the emission allowance prices of the EU ETS 1 (which are assumed to be constant in the modelling). Such changes would trigger complex interactions, the overall effects of which cannot be reliably predicted and which could have unintended consequences.

Finally, the current and currently expected fuel price trends could not be incorporated into the modelling (see the prototypical analyses in Figure 1). Consequently, the assessment focuses primarily on the direct effects of the potential exclusion of natural gas power plants from the EU ETS 1. The knock-on effects for the financing of renewable energy power generation plants etc. arising from the combined impact of higher fuel prices and lower electricity prices did not form part of the analyses presented here.

2.2 Exemption of all natural gas power plants in the EU from the obligations of the EU ETS 1

If all natural gas power plants in the EU were exempted from the obligations of the EU ETS 1, the short-term marginal costs of natural gas-fired power generation would fall substantially. It would have considerable effects on electricity prices on the wholesale (spot) market, power plant deployment across different EU countries, natural gas demand, cross-border electricity flows, and the CO_2 emissions from the EU power plant fleet. The core results of these model runs for 2026 to 2030 are summarised in Table 2.

[7] https://www.umweltbundesamt.de/publikationen/treibhausgas-projektionen-2026-ergebnisse-kompakt and https://www.umweltbundesamt.de/system/files/medien/11850/publikationen/2026-02/2026_Rahmendatenpapier.pdf

Table 2 Effects of exempting EU natural gas power plants from the EU Emissions Trading System compared to the reference scenario (MMS PB 2026)

		2026	2027	2028	2029	2030
Electricity price difference DE	€/MWh	-17	-18	-20	-21	-22
compared to reference	%	-19%	-22%	-26%	-30%	-33%
Electricity price difference IT	€/MWh	-25	-26	-27	-29	-30
compared to reference	%	-22%	-25%	-30%	-34%	-38%
Power production coal EU	TWh	-123	-112	-79	-42	-7
Power production natural gas EU	TWh	123	114	82	48	16
Emissions EU	Mt CO_2	-80	-74	-49	-25	-4
Emissions DE	Mt CO_2	-46	-41	-31	-20	-12
Emissions IT	Mt CO_2	7	11	9	5	3

Source: Calculations by Oeko-Institut

In the MMS of the German government's 2026 Projection Report, the CO_2 price in 2030 is 84 €/t CO_2 (at 2024 prices). In this reference scenario, an average natural gas power plant therefore has CO_2 costs of 32 €//MWh. Electricity prices in Germany fall by approx. 18 €/MWh in 2027 and by 22 €/MWh in 2030, corresponding to a decrease of 22% and 33% respectively compared to the reference scenario. These figures are slightly below the CO_2 costs of a modern natural gas power plant, which amount to around 32 €/MWh in 2030. The reason for this is that natural gas power plants do not set the price in every hour, and the number of such hours tends to decrease as renewable electricity generation increases. Electricity prices in Italy fall by approx. 26 €/MWh in 2027 and by 30 €/MWh in 2030, corresponding to a decrease of 25% and 38% respectively compared to the reference scenario. As natural gas power plants in Italy are price-setting for a greater number of hours, the annual average electricity price effects in Italy are slightly higher than in Germany.

Coal-fired power generation in the EU falls very rapidly compared to the reference scenario, by over 66% by 2029. The utilisation of lignite-fired power plants falls below 500 hours per year in 2027. The decrease in electricity prices hugely reduces the contribution margins of coal-fired power plants, as the CO_2 price for coal-fired power plants remains unchanged. Particularly in light of the low utilisation, coal-fired power plants in Germany are unlikely to be able to cover their fixed costs. In fact, there is likely to be an abrupt (market-driven) end to coal-fired power generation as early as 2027. This situation is unlikely to change fundamentally, even if prices on the international markets for fossil fuels (i.e. including hard coal) rise.

As the expansion of additional electricity generation capacities can only take place within very narrow limits, particularly in the short term, natural gas-fired power generation will, in turn, greatly expand in all European countries. In 2027, natural gas-fired power generation in the EU would increase by almost 114 TWh compared to the reference scenario, and the fuel demand of natural gas-fired power plants would rise accordingly (by well over 200 TWh, assuming an average efficiency of 50%). In view of the phase-out of coal-fired power generation in the reference scenario, the additional natural gas-fired power generation and the associated additional demand for natural gas would decrease substantially by 2030.

The CO_2 emissions from electricity generation fall in the short term as natural gas-fired power plants move ahead of coal-fired power plants in the merit order due to their exemption from the CO_2 price of the EU ETS 1 (which in turn leads to price effects in the electricity market). The additional emission reductions occur particularly in the years up to 2029. By 2030, only minor additional emission

reductions remain. The reason for this is that the shift in the merit order described above has already been fully realised by 2030 in the MMS of the 2026 Projection Report. In the reference scenario, there is hardly any production from coal-fired power plants left in 2030. Exempting natural gas power plants from the CO_2 price of the EU ETS 1 would not result in coal-fired power generation being displaced any further.

Due to the huge changes in emission levels in the EU ETS 1 (and irrespective of any loss of confidence in the EU ETS 1 market), emission allowance prices may also fall when the cap on allowances is not changed. This would result in correspondingly lower auction revenues. However, the interactions between emission levels and the market stability reserve are complex and would require further in-depth analysis.

2.3 Exemption of all Italian natural gas power plants from the obligations of the EU ETS 1

In a further model run, the effects of a variant were calculated in which only Italian natural gas power plants are exempted from the CO_2 price of the EU ETS 1 (Table 3). In the reference scenario, Italian natural gas power plants account for around 30% of the emissions of all natural gas power plants in the EU in 2030.

Table 3: Effects of exempting EU natural gas power plants from the EU Emissions Trading System compared to the reference scenario (MMS PB 2026)

		2026	2027	2028	2029	2030
Electricity price difference DE	€/MWh	-7	-6	-5	-4	-4
compared to reference	%	-8%	-8%	-6%	-5%	-6%
Electricity price difference IT	€/MWh	-38	-34	-27	-27	-28
compared to reference	%	-34%	-33%	-30%	-32%	-36%
Power production coal EU	TWh	-40	-27	-17	-10	-1
Power production natural gas EU	TWh	40	28	19	12	3
Power production natural gas IT	TWh	62	61	62	52	52
Net power exports IT	TWh	55	62	62	52	51
Emissions EU (w/o IT)	Mt CO_2	-42	-40	-33	-25	-19
Emissions DE	Mt CO_2	-26	-22	-14	-9	-5
Emissions IT	Mt CO_2	17	23	24	20	20

Source: Calculations by Oeko-Institut

Exempting Italian natural gas power plants from the CO_2 price of the EU ETS 1 leads to reductions in wholesale prices in Italy of 34 and 28 €/MWh in 2027 and 2030 respectively, or 33% and 36% compared to the reference scenario.

The European electricity markets are highly interconnected. This also results in (albeit limited) electricity price effects for Germany. For 2027 and 2030, these amount to 6 and 4 €/MWh respectively, or 8% and 6% below the reference level. The corresponding effect thus amounts to around 25% of the electricity price reductions in the event of a complete removal of natural gas power plants in the EU from the EU ETS 1.

The changes in the EU electricity system therefore are primarily driven by increased natural gas-fired power generation in Italy and increased cross-border electricity flows. Given the well-developed

grid connections between Italy and its neighbouring countries, generation from natural gas-fired power plants in Italy will substantially increase.

Compared to the reference scenario, the additional output from Italian natural gas-fired power plants that are no longer subject to the CO_2 price of the EU ETS 1 amounts to approx. 61 and 52 TWh in 2027 and 2030 respectively. Consequently, emissions in Italy rise by approx. 23 and 20 million tonnes of CO_2 respectively. In 2030, production, natural gas demand and emissions from Italian natural gas power plants rise by 40% compared to the reference scenario. Italy will transition from being a net electricity importer to a net electricity exporter.

This additional production in Italy displaces production from natural gas- and coal-fired power plants in countries which are fully covered by the European Union Emissions Trading System. Coal-fired power generation in the EU would decline by 27 and 10 TWh in 2027 and 2029 respectively, and remain virtually unchanged in 2030. In 2030, natural gas-fired power plants in particular will be displaced.

EU-wide CO_2 emissions (excluding Italy) fall by approx. 40 and 19 million tonnes of CO_2 in 2027 and 2030 respectively. As emissions in Italy rise at the same time, it becomes clear that exempting Italian natural gas power plants from EU ETS 1 would result in large carbon leakage effects, as there are strong incentives to import electricity generated in Italian natural gas power plants into the remaining EU Emissions Trading System.

Auction revenues in the EU ETS 1 would consequently also decrease by approx. €1.7 billion (assuming a constant EUA price of €84, multiplied by 20 million tonnes of CO_2). If this leakage effect is not taken into account in the planning of the cap, prices in the EU ETS 1 are also likely to fall, which would undermine the current ambition of the EU ETS (and thus cause auction revenues to fall further).

3 Timing of price effects and other measures with a rapid impact

3.1 Introduction

Even if changes in fuel or CO_2 prices, or the exemption of certain power plants from obligations under the EU ETS 1 result in price effects on the spot wholesale electricity markets in the very short term, it does not automatically mean a cost reduction for consumers in the short term in the various consumption sectors and regional markets across Europe.

Traditionally, electricity is sold forward by generators. The main buyers of these forward contracts are electricity suppliers, who use them to hedge their customer portfolios in terms of both volume and price. These sales are arranged up to three years in advance. This is particularly significant because it means that any reduction in CO_2 costs on the part of generators may take several years to reach the electricity customers. If power plant operators have sold their electricity generation on a forward basis, then reductions in CO_2 costs merely result in windfall profits for the power plant operators and do not lead to any (short-term) cost reductions for customers.

The contractual structures for electricity customers and the marketing structures of power plant operators differ considerably across various regional markets in Europe. Short-term interventions in the regulatory framework of the EU ETS 1 and in the design of the electricity market in general would thus lead to considerable distortions between the different regional electricity markets of the European Union.

Setting aside all fundamental considerations (stability of the regulatory framework, confidence of market participants and investors, etc.), the above-mentioned time-related aspects alone lead to the conclusion that interventions in the EU ETS 1 and the electricity market design – however well-intentioned they may be in response to potential short-term market turbulence – should definitely be avoided. If the aim is to respond to short-term market turbulence – or to turbulence whose duration is difficult to predict – and to forego the steering effect of prices, particularly in situations of scarcity, then this can only be achieved with short-term effectiveness on the customer side of the market. All other measures have, at best, only a partial effect in the short term and can lead to substantial distortions in the electricity market, including unintended consequences.

At the same time, however, it should also be noted that the shift in relative prices between electricity and fossil fuels can form an important building block in the transition to climate neutrality. In any case, electricity should not be taxed at a higher rate than fossil fuels.[8]

The following section therefore briefly describes selected options for the short-term reduction of electricity costs, without intending to recommend the adoption of the respective measures, at least in the current energy price environment. The conceivable portfolio of measures for achieving short-term cost reductions (which is not discussed further here) is significantly broader and ranges from the abolition of various levies, through subsidies for grid usage charges and various options for introducing industrial electricity prices, to the broad or consistent application of electricity price compensation.

Short-term measures to reduce electricity costs generally entail costs for national budgets. However, this also applies to the interventions in the EU ETS 1 considered here, which regularly lead to

[8] See chapter 11.3 of the 2025 Monitoring Report by the Expert Commission on Energy Transition Monitoring (https://www.oeko.de/publikation/bericht-der-expertenkommission-zum-energiewende-monitoring-2025/).

reduced revenue from the auctioning of emission allowances. This aspect is not analysed in detail here and requires more comprehensive analysis and assessment. At the same time, it should be borne in mind that a change in the relative prices between electricity and fossil fuels may also result in a change in the subsidy costs for national budgets.

3.2 Electricity tax

Table 4 shows that the electricity tax in Italy for households, at 22.7 €/MWh (2.27 ct/kWh), is considerably higher than the EU average (14.4 €/MWh). If the electricity tax for households in Italy were decreased to the level of the EU minimum tax rate, the cost reduction potential amounts to 21.7 €/MWh. In terms of scale and over time, this could achieve a similar contribution to cost reduction to that resulting from the abolition of the CO_2 price of the EU ETS 1 for natural gas power plants in Italy.

In Germany, the electricity tax for households amounts to 20.5 €/MWh. Here, too, a reduction in the electricity tax could result in cost savings similar to those achieved by excluding natural gas power plants in the EU from the EU ETS 1, albeit with a shorter-term effect and without distortions caused by a very severe intervention in the electricity or emissions trading market.

For consumption sectors beyond households and small consumers, the reduction in the electricity tax results in lower, yet still significant, potential cost reductions for both Germany and Italy. For Germany, however, it should be noted that the electricity tax has already been effectively abolished for many, but not all, sectors of industry.

Table 4: Comparison of electricity taxes in Germany and Italy in the context of the EU

		Non-business use	Business use
		2024	2024
Electricity tax Germany	€/MWh	20.50	15.37
Electricity tax Italy	€/MWh	22.70	12.50
Electricity tax EU average	€/MWh	14.40	7.10
Electricity tax minimum rate EU	€/MWh	1.00	0.50

Source: https://taxfoundation.org/data/all/eu/excise-duties-electricity-europe-2024/

3.3 Value added tax

The VAT rate on electricity in Italy is 10% for domestic customers and 22% for other consumers.[9] With a net electricity price of around 30 ct/kWh[10], the potential cost reduction would therefore be 3 ct/kWh if VAT on electricity were reduced from 10% to zero. Therefore, the potential cost reduction arising from a VAT reduction in Italy is, for customers who cannot claim input tax deduction, in some cases even greater than the effect of abolishing the CO_2 price of the EU ETS 1 for natural gas power plants in Italy.

9 https://taxing.it/table-of-vat-rates-2/
10 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Electricity_price_statistics

A similar situation arises in Germany. A VAT rate of 19% is levied on electricity consumption; assuming a net electricity price of approx. 30 ct/kWh[11], this results in a potential cost saving of up to 5.7 ct/kWh.

3.4 Austrian proposal: 'Improving the merit order – transparency and measures to address ETS pass-through in EU day-ahead electricity prices'

On 16 March 2026, Austria, along with other countries, submitted a paper on electricity market-related measures.[12] Based on this proposal, transparency in the day-ahead electricity markets is to be increased in order to determine which technology is setting the price in each quarter-hour period on the electricity market and how high the ETS pass-through in electricity prices is on the electricity market in each quarter-hour. It is intended that this new transparency data forms the basis for any follow-up measures. These follow-up measures have not yet been specified in detail. However, the aim has been described as capturing inframarginal profits from the ETS pass-through in electricity prices. This means that, for example, in the case of existing hydropower plants (these are power plants with lower marginal costs than price-setting natural gas power plants), the additional profits arising from the ETS pass-through in electricity prices are to be captured.

The Austrian proposal suggests that it would be straightforward to determine in every quarter-hour (the market time unit or MTU) whether natural gas power plants are price-setting. In reality, however, this precision is not possible; instead, generalised assumptions would have to be used. The following problems cannot be solved precisely:

- Storage power plants (reservoir water, pumped storage, batteries) base their bids on alternative generation. These are often natural gas power plants. Even if storage power plants are price-setting, CO_2 prices may thus be included in the electricity price.
- Due to import-export relationships, the marginal power plant is not located domestically at all during many hours. Even if no natural gas power plant is in operation in Austria, the Austrian price may include a CO_2 component via a German marginal power plant if prices are equal in both zones.

The aim of the Austrian proposal appears to be similar to part 3 of the German Electricity Price Control Act (StromPBG)[13] – to skim off inframarginal revenues. If, for example, it is determined that natural gas power plants are price-setting and the CO_2 component of that hour is 3 ct/kWh, inframarginal producers (e.g. hydroelectric power plants) would have to pay this 3 ct/kWh.

EU law already provides for such a levy on 'excess profits' for (new) subsidised renewable energy sources. However, experience gathered with the German Electricity Price Control Act has shown that determining which generators can be subject to the levy and to what extent is very complicated. It would mean that the variable costs and full costs of all generators would need to be known. Keeping this data up-to-date is very labour-intensive, and there is a risk of market distortions if these parameters are set incorrectly. The Austrian proposal is therefore complex and involves a high administrative burden. However, it preserves the environmental integrity of the EU ETS 1.

If individual Member States wish to introduce such a mechanism (on a voluntary basis) and the complexity and administrative burden of implementation are deemed acceptable and the

11 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Electricity_price_statistics
12 https://www.parlament.gv.at/gegenstand/XXVIII/EU/63462 and https://table.media/assets/europa/at_nonpaper_ets_electricity.pdf
13 https://www.gesetze-im-internet.de/strompbg/StromPBG.pdf

determination of robust parameters is considered feasible, this measure seems to be entirely acceptable, particularly as a source of funding for other measures to reduce electricity costs.