

Electricity generators in the European Union Emissions Trading System: definitional aspects in the light of a judicial decision

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Abstract The “electricity generator” definition (introduced through Directive 2009/29/EC, based on electricity sale and effective since 1.1.2005) is significant within the European Union greenhouse gases Emissions Trading System (ETS). Established through Directive 2003/87/EC, ETS currently (2021-2030) runs Phase IV of free allowances distribution (for emitted carbon-dioxide equivalent tonnes), following the 2005-2007, 2008-2012 and 2013-2020 Phases. Starting with Phase III (2013), electricity generators do not receive free allowances (except for specific reasons), with auction intended for the power sector. For Phase III preparation, the legally non-binding “Guidance paper to identify electricity generators” (revised v2, 18.03.2010), partly limiting the definition’s scope (through comparison of on-site electricity consumption with production), was published by the European Commission; it was withdrawn in preparation for Phase IV, with a European Court of Justice decision (5th Chamber, 20.6.2019, Case C-682/17) involving the definition (among other questions) issued in between. Since the definition reaches beyond the power sector, aspects of it (scope, retroactivity, congruity with the equal treatment principle) are considered, relevant to the decision’s content, underlining merits of the Guidance paper provision (differentiation between occasional and core electricity sale, less prominent differences in allowances cost recovery possibilities) and the fairness of a flexible electricity sale starting point.

Keywords: European Union Emissions Trading System, Electricity Generator, Directive 2003/87/EC, Guidance paper to identify electricity generators

1. Introduction

The Emissions Trading System of the European Union (EU ETS) has been instituted through Directive 2003/87/EC (ETS Directive) as a scheme for trading greenhouse gas (GHG) emission allowances (EUAs), aiming at promoting the achievement of GHG emissions reduction objectives of the EU and its Member States (MS) in a cost-effective and economically efficient manner (EP, 2003). Having started with energy-intensive activities (listed in Annex I of the ETS Directive), the EU ETS currently includes intra-EU aviation, through progressive amendments of the pertinent legislation. The EU ETS is,

in principle, a cap-and-trade system, limiting aggregated annual emissions through a gradually diminishing “cap” (maximum emissions) and requiring eligible entities to surrender one EUA for each tonne of carbon dioxide equivalent (considering other GHGs as well) emitted over a year. Auction (“trade”) and free allocation (initially by MS, at present by the EU) are the main ways for EUAs acquisition; free allocation has proceeded in phases, under varying rules and in progressively reduced quantities. Phase IV, currently under way (period 2021 – 2030), has followed Phases III (2013 – 2020), II (2008 – 2012) and I (2005 – 2007).

Early in Phase II, the ETS Directive was amended by Directive 2009/29/EC (EP, 2009) that, inter alia, extended the Annex I activities list and defined (Article 3(u)) “electricity generator” (henceforth “EG”), as an installation that, on or after 1 January 2005, has produced electricity for sale to third parties, and in which no activity listed in Annex I is carried out other than the ‘combustion of fuels’. The latter appears in Annex I as: “Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)”. Introduction of the EG definition followed the legislative aim for full auctioning to be the rule from 2013 onwards for the power sector, considering its ability to pass on EUAs cost (EP, 2009, recital 19); free EUAs are granted to EGs under specific conditions, such as district heating and heating produced by high-efficiency cogeneration. Power sector entities were considered likely to receive the majority of free allowances in Phase I, as well as capable of passing on EUAs cost (Ekins, 2005); this was corroborated by later indications (Sijm et al., 2008; Bruyn et al. 2021). Coupling of free allocation of allowances with cost pass-through implies increased (“windfall”) profits for the power sector (Hintermann et al., 2016), advocating EUAs auction, instead. Though initially limited (5% in Phase I; 10% in Phase II), EUAs auction expanded starting with Phase III, exceeding 40% in 2013 (Chandreyee and Velten, 2014).

In preparation for Phase III, the European Commission (EC) provided guidance material (EC, 2011), including a legally non-binding guidance paper, elaborating on the EG definition (EC, 2010a). The European Court of Justice

(ECJ) subsequently included the EG definition (among other issues) in a judgment (ECJ, 2019a). Since the significance of the EG definition transcends the power sector, the present work focuses on definitional aspects (highlighted in the aforementioned documents; including broadness, retroactivity and clarity, linkage with permits as defined in the ETS Directive, and EU law principles) relating to EG status of installations (power sector ones and others).

2. Methods and Materials

2.1. *Guidance paper to identify electricity generators (revised v2, 18.3.2010)*

The “Guidance paper to identify electricity generators” (henceforth, “Guidance paper”) aimed at guiding MS on identifying EGs in a unified way, for the EC to determine and publish the estimated amount of EUAs to be auctioned, in terms of the ETS Directive (as revised); the Guidance paper was withdrawn in preparation for Phase IV. Four Criteria (installation status, electricity production, electricity sale on or after 1.1.2005, “combustion of fuels” as ETS Directive Annex I sole activity) for EG status were identified and analyzed (with a decision-tree graph); they were implemented through 6 Steps, involving 12 explanatory Notes. Notes 10 to 12 related to Step 6 (implementing Criterion 3, considered last, pertinent to “Sale of electricity”). Note 10 regarded all electricity generating installations (at any time from 1.1.2005) as meeting Criterion 3 (as well as Criterion 2), directing disagreeing electricity generating installations to provide MS Competent Authorities with evidence (for non-compliance with Criterion 3) for the period 2005 – 2010 (or as available). However, the approach of Note 10 was moderated by Note 11, stating (for installations carrying out, beyond combustion of fuels, activities not listed in Annex I) that, in order to avoid too onerous and complex investigations by MS Competent Authorities, it had to be assumed that no sale took place, if the total electricity consumption of the installation exceeded its total electricity generation, on a yearly basis from 1.1.2005 until 31.12.2009 (relevant operational period of EU ETS). The above-mentioned variables (referring to electricity quantities) i.e. consumption (C), production as generation (G) and sale (S), supplemented (in the general case, beyond the power sector) with purchase (P), imply a simple balance, $C = G - S + P$ (all quantities being non-negative), that is elaborated upon in the following section.

2.2. *European Court of Justice, Judgment of the Court (Fifth Chamber), 20 June 2019, Case C-682/17*

The EG concept was among issues considered by the ECJ in terms of paragraphs (henceforth “par.”) 60 to 96 of the judgment. The ECJ can give definitive judgments concerning the interpretation of the ETS Directive (EC, 2010b, p. 3). The pertinent Opinion of Advocate General also included the EG concept (ECJ, 2019b, points 51 to 87) with points 55 and 57 as well as endnotes 24 to 26 and 39 citing the Guidance paper. Invoking the principle of legal certainty, inherent in the EU legal order (ECJ, 2019a, par. 129), the judgment remarked (par. 88) that, in case the EG

status depended on whether an installation’s electricity sales fell within a main or an ancillary activity of the installation, then “the determination of the final amount of the free emission allowances ... would, in the absence of any threshold laid down by the EU legislature, be based on criteria the content of which would not be sufficiently clear and foreseeable and ... could well lead to emission allowances allocated being challenged”. As to the EG status, the judgment noted (par. 77) that it is not conditional on any electricity production threshold and (as in ECJ, 2019b, point 58) it is accorded irrespective of any fluctuation over time in the ratio between the quantity of electricity sold and the quantity produced (to meet the producer’s own needs). The judgment also considered (par. 90 to 92), as a general principle of EU law, the principle of equal treatment, requiring that “comparable situations must not be treated differently and that different situations must not be treated in the same way unless such treatment is objectively justified”.

3. Results and Discussion

The EG definition inception and main effect (ineligibility for free EUAs, as a rule) responded to practices of the power sector (EP, 2009; term used in recital 19, only) but its scope affects other sectors, industrial (e.g. food industry (EC, 2010a, Note 11)) and non-industrial ones (e.g. greenhouses (EC, 2010b, p. 7)). Though (overall) such sectors cannot pass EUAs cost through (ECJ, 2019a, par. 95), relevant installations are (as a rule) deprived of free EUAs. In terms of the intended scope and in favor of broadness of the definition, its wording is understood (ECJ 2019b, point 86 and endnote 56) as specifically opting for exclusion from free EUAs of installations generating electricity essentially for on-site use (“autoproducers”), in case sale is involved. Though the resulting exclusion from free EUAs appears selective, with installations shielded through use, by the EG definition, of additional Annex I activities (other than combustion of fuels), the differentiation may reflect a precedence arrangement (EC, 2010b, p.10) involving activity thresholds based on rated thermal input rather than otherwise, in line with a suggestion (EC, 2010b, p.5) for broad definition of installation boundaries (encompassing many activities).

Date 1.1.2005 (EU ETS start) attaches retroactivity to the EG definition that was enacted in 2009 (ECJ, 2019b, endnote 32). After 1.1.2005, installations may have sold electricity while not yet included in the EU ETS (e.g. carrying out only combustion of fuels, with total rated thermal input less than 20 MW); subsequent inclusion terms them EGs, ineligible (as a rule) for free EUAs and deprived of a choice between benefit from electricity sale (ruling out free EUAs) or from free EUAs (excluding electricity sale). In the ETS Directive the term “electricity generator” defines a commodity (electricity) producer with two indirect criteria: (intention for) commodity sale (rather than commodity production) and dependence (through Annex I in ETS Directive) on activities other than “combustion of fuels” (key electricity production link in the ETS Directive scope). Hence, an installation that produces and occasionally sells electricity, while carrying out a core activity not included in Annex I (but involving combustion of fuels) is termed an EG, whereas an

installation that produces and regularly sells electricity next to an additional Annex I activity (beside combustion of fuels) is not classed as an EG.

Since inclusion in the EU ETS requires permitting by MS, mention of the EG status in a permit (environmental or EU ETS) might facilitate the definition (pointing at the permit content), while retaining appropriate rules that are not efficiently expressed in a short definition statement. Reference to permitting as well as characterization based on main purpose are used (EC, 2010b) for identifying research installations (excluded from the EU ETS scope).

Further, several Annex I activities (including combustion of fuels) involve certain thresholds, as the Guidance paper explicitly clarifies (EC, 2010a, Note 8). Since thresholds are possible to cross in both directions during a period of free EUAs allocation (Phase), it is evident that classification (based on EG definition) of an installation as EG (or non-EG) depends, eventually, on a production capacity (for several Annex I activities). Consequently, effects on the principle of legal certainty become relevant. In such a framework, beside the issue of electricity sale constituting a main or ancillary activity, considered by the ECJ judgment (ECJ, 2019a, par. 74 to 79 and par. 88) as mentioned above, references (ECJ, 2019a, par. 96, included in the ruling) to production of a product not falling within Annex I, as well as to “even a small part” of electricity production being “continuously” fed into the public electricity network, may contain uncertainty. Lack of thresholds in distinguishing between electricity sale as a main or ancillary activity, cited as liable to undermine legal certainty (ECJ, 2019a, par. 88), is remediable by a provision akin, in principle, to that in the Guidance paper, namely that electricity consumption exceeds production “on a yearly basis”. Fluctuation over several years is overcomeable through use of aggregated quantities, starting either from 1.1.2005 or, even, from a subsequent date (countering retroactivity), allowing eligible installations a choice between earnings from electricity sale and benefits from free EUAs.

Regarding carbon dioxide emissions in terms of the equal treatment principle, in absence of electricity sale on or after 1.1.2005, an installation included in ETS for combustion of fuels as well as another Annex I activity is eligible for free allowances pertinent to both activities, as is an installation included in EU ETS for combustion of fuels only, for its sole activity. Both installations are subject to ETS, each for all its regulated emissions, receiving appropriate free EUAs. In case electricity sale on or after 1.1.2005 is involved, the second installation is classed as an EG and (as a rule) becomes ineligible for free EUAs. Different treatment follows the EG definition, rather than the activities per se. If regarded in the same way as other Annex I activities, combustion of fuels would be decoupled from the power sector (i.e. it will not be inferred, any more, that an installation with combustion of fuels as sole Annex I activity that has sold electricity on or after 1.1.2005 belongs to the power sector). Therefore, the different treatment sought for the power sector could focus on core power production and sale, likely through wholesale power market procedures (rather than be based on combustion of fuels, an activity that also relates to installations beyond the power sector).

Besides, when differences preclude treatment in the same way, the effect of their attenuation on the consequences of different treatment is noteworthy. Under conditions of increased similarity of installations, application of the EG definition appears to increase their difference in receiving free EUAs, as exemplified schematically (Fig. 1) by two pairs of ETS installations. Installations A and B (Fig. 1a) are similar in: involving combustion of fuels (black boxes in Fig 1), producing and (substantially) selling electricity, as well as carrying out an additional activity; A and B differ regarding listing of the latter in Annex I: listed (A, white box), not included (B, gray box). Not termed an EG, A is eligible for free EUAs, contrary to B that (as a rule) is ineligible (being an EG). Installations C and D have additional identical activities, not listed in Annex I (gray boxes, Fig. 1b), compared to A and B, respectively. It is evident that, due to the added activities, the difference between installations C and D is less pronounced than that between A and B. In terms of granting of free EUAs, though, the difference between the two installation pairs broadens, with D being (as a rule) ineligible (as an EG), while C receives increased amounts of free EUAs (e.g. by fall-back sub-installations: heat-benchmark and fuel-benchmark), compared to A, for its additional activities. Whereas, in terms of activities, the difference between the two installation pairs becomes less prominent (overall), their difference regarding eligibility for free EUAs increases. This effect appears relevant to the EG status being (in part) determined by (Annex I) activities not crucial for electricity generation, rather than by electricity production (largely for sale) per se.

Further, considering pass-through of EUAs cost and free EUAs allocation as two forms of revenue, the provision for combustion of fuels as sole ETS Directive Annex I activity pertinent to EGs, leads to imbalanced access to such revenue by installations involved (having sold electricity on or after 1.1.2005), as shown in Fig. 2.

As the Guidance paper refers the EG status to electricity consumption and generation (on a yearly basis), it refers, indirectly, to electricity sale falling within a main or subsidiary activity. In the first case (core activity) on-site generation would markedly exceed consumption. In the second case (occasional electricity sale, in terms of a side activity), sale would be limited compared to generation (though electricity generation as a side activity would not necessarily dismiss the prospect of generation exceeding consumption), as shown below. Referring to the balance $C = G - S + P$, the condition $C > G$ (Guidance paper) leads to $P > S$ (a comparison relevant to the net-metering concept), i.e. the installation purchases more electricity than it sells. A general restriction is $S \leq G$, so that S/G lies in $[0, 1]$. If electricity generation for sale is the main activity of the installation (as in the power sector), S/G would approach 1, whereas quantities $(G - S)$, P and C/G would be close to 0 (likely $P=0$), therefore violating the Guidance paper condition $C > G$. On the contrary, if generation is a side activity S/G is not necessarily close to 0; a value near 0 implies limited, occasional sale, but a larger value (still less than 1) combined with $P = 0$ (no purchase) implies $G > C$. Then electricity generation, as side activity, may routinely exceed consumption for the main activity needs; the Guidance paper provision would not shelter such an installation from being termed an EG.

Therefore, whereas $C > G$ is incompatible with the power sector (identified by electricity generation for sale as its core activity), $G > C$ is inconclusive. The Guidance paper condition ($C > G$) set power sector installations apart from installations that produce electricity as a side activity (i.e. if $C > G$, the installation is not in the power sector; if the installation is not in the power sector, it is not certain whether $C > G$). Thus, the Guidance paper specified a conclusive condition, rendering substitutable the appraisal of power sale as falling within the main (cf. power sector) or a side activity (ECJ, 2019a, par. 88) of an installation.

4. Conclusions

Following an upholding consideration by the ECJ in terms of a particular case, certain features of the EU ETS definition for EG keep drawing reflection; retroactivity, handling of the power sector (the definition's motivator) and equal treatment issues are some, with the date used and the connection with ETS Directive Annex I activities acting as main causes. On the contrary, the Guidance paper used a condition (based on electricity production and consumption) able to differentiate power sector installations (identified by electricity production and sale as core activity) from others. This feature, coupled with a provision countering retroactivity, could be incorporated in the EG definition, or used in referring EG status to a permitting process.

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Figure 1. Divergent effect of similarity between installation pairs on allocation of free EUAs.

Installations with Combustion of fuels activity (Annex I), having sold electricity on or after 1.1.2005	Electricity Generator (participation in wholesale market)	ETS Directive Electricity Generator (EG definition Article 3(u))	EUAs Cost Recovery Options	EUAs Cost Recovery Options per activity	Installations with Combustion of fuels activity (Annex I), having sold electricity on or after 1.1.2005	Electricity Generator (participation in wholesale market)	ETS Directive Electricity Generator (EG definition Article 3(u))	EUAs Cost Recovery Options	EUAs Cost Recovery Options per activity
Power sector with additional Annex I activity	✓		2	1	Annex I core activity			1	1
Power sector	✓	✓	1	1	Core activity not listed in Annex I		✓	0	0

Figure 2. Imbalance between installations in terms of availability of revenue for recovering EUAs cost.