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2nd AIEE Energy Symposium Conference Proceedings



Current and Future Challenges to Energy Security

Rome, 2-4 November, 2017 - LUMSA University



www.aieeconference2017rome.eu



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Published by: AIEE - The Italian Association of Energy Economists, Rome, Italy

2nd AIEE Energy Symposium - Current and Future Challenges to Energy Security
Executive summaries and papers selection
2-4 November 2017, in Rome, Italy.
Published 2017 by: The Italian Association of Energy Economists (AIEE), Rome , Italy

ISBN: 978-88-942781-0-1

The 2nd AIEE Energy Symposium - Current and Future Challenges to Energy Security was organized by AIEE (Associazione Italiana Economisti dell'Energia) and hosted by the University LUMSA

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EU ETS 2021-2030 – A TOO MUCH AMBITIOUS DIRECTIVE

Francesco Scalia and Agime Gerbeti

Context

Since the first international agreements to fight climate change have been adopted by the European Union (EU), starting with the United Nation Framework Convention on Climate Change, then the Kyoto Protocol (2008-2012) and the recent Paris Agreement¹, EU has been at the forefront fulfilling and pursuing the objectives of these treaties, with constancy and perseverance to make it unique in the international geo-energetic panorama.

In fact, the EU aims to achieve the reduction of total emissions of 80 - 95% by 2050 compared to 1990 data. Based on the same guideline by 2030, the main and only target² to be achieved at EU level is the decline of emissions by at least 40%. In particular³, through the Emissions Trading Scheme (ETS) by 2030⁴ the emissions reduction effort has to be equivalent to 43% compared to 2005 and to 33 % for the non-ETS sectors.

As far as 2013-2020 period is concerned, the EU is in line with its goal regarding the second commitment period deriving from the Kyoto Protocol⁵. The EU QELRO (Quantified Emission Limitation or Reduction Objectives) is equivalent to 20% compared to 1990. At European level, this objective has been divided into a 21% for the ETS sectors and 10% in the non-ETS⁶ sectors, considering as a baseline the 2005 data.

With the new targets set for 2030⁷, the EU intends to address various issues related to environment, energy and industry, such as high energy prices and the EU's dependence on energy imports especially from politically unstable regions and the need to deliver a stable regulatory framework for potential investors.

Preliminarily, it is observed that although a significant effort is recognized to the EU Commission for elaborating a legislation that also takes into account the trans-sectoral needs and a comprehensive understanding of the regulation that affects in many ways the carbon emitted for various production phases, the carbon routes will still have to be deepened as well as the effects on the European industrial competitiveness of such rigorous legislation.

However, in this article we will discuss only some novelties in the process of adoption of the EU recast ETS directive. In fact, at the EU institutions level the negotiations on the modification of the ETS Directive 2003/87/EC already amended by Directive 2009/29/EU are closing.

¹ EU ratified Paris Agreement on October 5th 2016 following an accelerating procedure. Also each Member States has ratified the Paris agreement. The Intended Nationally Determined Contribution INDC has become the NDC of EU with the same emissions reduction target.

² On October 23rd 2014 the European Council agreed the framework on Energy and climate change considering the 2030 horizon based on the European Commissions' proposal of January 22nd 2014.

³ "Trends and projections in Europe 2017. Tracking progress towards Europe's climate and energy targets" EEA report no 17/2017.

⁴ The Environment Council approved on March 6th 2015 the EU's intended nationally determined contribution to achieve an at least 40% domestic reduction in greenhouse gas emissions compared to 1990 levels by 2030. These targets were included in the INDC communicated by the EU Presidency and the European Commission to the United Nations Secretariat.

⁵ With the so called EU 20-20-20 package.

⁶ Decision 406/2009 Effort sharing.

⁷ In particular, EU proposes the following actions: a commitment to continue reducing greenhouse gas emissions, setting a reduction target of 40% by 2030 relative to 1990 levels; a renewable energy target of at least 27% of energy consumption, with flexibility for member states to set national targets; improved energy efficiency through possible amendments to the energy efficiency directive; reform of the EU emissions trading scheme to include a market stability reserve; key indicators - on energy prices, supply diversification, interconnections between member states and technological developments - to measure progress towards a more competitive, secure and sustainable energy system; a new governance framework for reporting by member states, based on national plans coordinated and assessed at EU level.

It is important to highlight that the EU started to recognize that the desired environmental objectives have not been achieved with the current policies. The EU ETS has not yet provided price responses to accelerate the decarbonisation of the energy sector and increase the effectiveness of the EU emission trading scheme of CO₂⁸. So the European Commission for the first time, is working together with the Member States on a comprehensive package of an all-inclusive and wide-ranging measures including a new regulation on EU Governance that coordinates policies both on climate change and on energy.

Adoption process of the recast directive

The European Commission's proposal⁹ for the revision of the EU ETS, on the basis of what was agreed at the October 2014 European Council, is negotiated according to the ordinary legislative procedure. The agreed text will be submitted to the European Parliament for final approval. The title of the new ETS Directive being adopted is different from the original one of Directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading within the Community, which remains unchanged with Directive 2009/29/EC: now it will be called "to enhance cost-effective emission reductions and low- carbon investments"

It is worth highlighting that Europe is moving towards the integration of actions linked to low-carbon technological innovation. Beyond any evaluation of the functioning of the ETS scheme it is good that there is such an improvement of decarbonisation policies. Their interaction promotes the awareness that we must not act with a single flagship instrument such as the ETS but, through a combination of measures. However, tools such as innovation and energy efficiency in industry cannot be subordinated to the ETS mechanism which, for many reasons, has not been able to promote them so far.

Main Changes

Here below we will analyze the main elements where the legislative changes will have the main impact:

- a) EU cap of allowances
- b) Allocation of CO₂ allowances.

In conclusion, we will face the nascent Chinese ETS market and the desired linking with the EU ETS.

a) EU cap of allowances

On the basis of Article 9 of Directive 2009/29/EC, the EU cap of allowances to be issued each year, starting from 2013, decreases in a linear manner of 1.74% (the so-called linear reduction factor). The number of allowances of the 2013 starting year (with a reduction of three times for 1.74%) was calculated on the basis of 2010 (intermediate period 2008 - 2012). The amount of allowances in 2013 was equal to 2,084,301.856 units. The annual reduction is equivalent to 38 million of allowances per year.

With the new, higher objectives EU is aiming to reach a reduction of its emissions governed by the ETS equal to 43% compared to 2005 by 2030. Obviously to achieve this goal, was agreed to apply a higher linear reduction factor compared to the current phase, that is 2.2%.

According to the European Commission, this change included in Article 9 will result in a drop of CO₂ allowances of around 556 million during the ten years 2021-2030, equivalent to 55 600 000 allowances per year.

⁸ See also the "Report on the functioning of the European carbon market" Report from the Commission to the European Parliament and the Council, Brussels, 23.11.2017 COM (2017) 693 final.

⁹ Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments. (COM (2015) 337 final, 2015/0148 (COD)).

So, in the face of the problems that have emerged in order to reach a “useful” price, the changes of the directive, for the fourth ETS phase, aim to act on the “supply” side, reducing the number of overall CO₂ allowances offered on the market faster.

b) Allocation of CO₂ allowances

The ETS System, started in 2005, has undergone substantial changes over time with the purpose of improving its effectiveness and eliminating the competitive distortions deriving from its implementation. The most important of these changes is certainly the evolution of the system of allocation of the allowances necessary for the plants to offset their emissions and thus be compliant with the ETS obligations.

In the periods 2005 - 2007 and 2008 - 2012, the general principle of allocation of allowances was the so-called grandfathering, i.e. the allowances were allocated by the national competent authorities to their plants on the basis of historical emissions and free of charge. Only for the period 2008 - 2012, the directive 2003/87/EC allowed to replace grandfathering in some sectors in favour of a benchmark criterion with the aim of limiting the European emissions cap. The directive also gave to Member States the right to test the allocation through auction mechanisms for a quantity of allowances not exceeding 10% of the national allowances. Some countries like Germany, Great Britain, The Netherlands and Austria have chosen to experiment this solution.

Onerous allocation of allowances - The 2013-2020 period marks a radical change in the ETS system, sanctioning the allocation by way of an auction as the main criterion for allocating allowances to installations subject to this system.

The new directive states in article 10 foreseen that starting from 2019 Member States will auction all allowances that will not be allocated for free according to Articles 10. a) and 10. c) and which have not been placed in the market stability reserve created by Decision¹⁰ (EU) 2015/1814 (which will be established in 2018 in which the allowances are integrated from 1st January 2019) or cancelled pursuant to Article 12 paragraph 4¹¹.

From 2021 onwards, and subject to a possible reduction pursuant to art. 10a paragraph 5a at least 57% of allowances shall be auctioned.

Moreover, by way of derogation it is envisaged (Article 10. a paragraph 5b) to reduce the share of allowances to be auctioned in the decade 2020-2030 only if the request for free CO₂ allowances triggers the necessity up to an additional 3% of the total quantity of allowances.

Free allocation of allowances – The free allocation has been harmonized at European level (Directive 2009/29/EC) on the basis of common benchmarks, i.e. benchmarks that quantify the average emissions content per unit of output calculated on the basis of the performance of the most efficient European plants. In particular, plants of the manufacturing sectors recognized at risk of carbon leakage - the risk of delocalizing factories and production as a consequence of the environmental costs linked to the ETS - received 100% of allowances for free. This was compared to the reference benchmark. The other manufacturing installations subordinated to the ETS were recognized only 80% based on benchmarks¹². So, for all manufacturing plants, a period of transition and partial allocation of free allowances was envisaged, even though, decreasing from year to year,

¹⁰ Decision (EU) 2015/1814 of the European Parliament and of the Council of 6 October 2015 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and amending Directive 2003/87/EC.

¹¹ “*In case of closure of electricity generation capacity in their territory due to additional national measures, Member States may cancel allowances from the total quantity of allowances to be auctioned by them referred to in Article 10(2) up to the average verified emissions of the installation concerned over a period of five years preceding the closure. The Member State concerned shall inform the Commission of such intended cancellation in accordance with the delegated acts adopted pursuant to Article 10(4).*”

¹² For each type of product, the quantity of allowances received from the installation will be quantified based on the historical production mean multiplied by the reference benchmark. An installation that makes different products will receive a number of allowances equal to the sum of the products between the historical production of each product for the respective benchmarks.

because were deemed at the risk of international competition with industries of countries not providing regulations similar to the ETS. However, also for the period 2020-2030, remains the continuation of the free allocation policy as an exemption for the carbon leakage sectors and subsectors that in the new directive is motivated as *“a justification to temporarily postpone full auctioning, and targeted free allocation of allowances to industry is justified in order to address genuine risks of increases in greenhouse gas emissions in third countries where industry is not subject to comparable carbon constraints as long as comparable climate policy measures are not undertaken by other major economies”*¹³.

In this regard it is noted that it is not clear why the Commission continues to say¹⁴ that, given the danger of carbon leakage, temporarily, free permits are recognized for certain sectors.

What is surprising is the concept of temporality: indeed, the industrial production can bear the costs of the ETS or it cannot. If the temporariness refers to the hope that from now to 2030, or to another future date, other geo-energetic areas will impose similar obligations on the same sectors, and that therefore European industries will no longer be tempted to delocalize the plants, this is probably a naive hope.

If the Commission considers that the costs of the energy transition are only initial and after that there is a soft landing phase, it should be remembered that the progression on the emission limits and on the allocation of free allowances on the one hand can be justified due to the lowering of the costs of renewable technologies, on the other hand it does not take into account the increase in the marginality of costs for the emission efficiency¹⁵. In other words, by approaching the maximum possible efficiency, the costs will rise exponentially, creating a constant and growing handicap for European industries with respect to the fewer obligations on non-European ones.

What is certain is that if the Commission itself recognizes the danger of carbon leakage as real and current, it is well aware of the competitive asymmetry¹⁶ existing between the EU industry and that located elsewhere and to solve this problem it distributes free quotas. Perhaps it is here that an overview is lacking, not yet being exhaustive the ETS of a long list of environmental costs that European companies are called to support.

The particular attention that has been given to the revision of the system of assignments of allowances free of charge that will lead to allocation to the companies about 6.3 million allowances, in fifty sectors that are deemed to be at high risk of transferring their production outside the EU.

Particularly complex is the parameterization (Article 10. a) of the free allowances to be assigned to the manufacturing sectors: without prejudice to the adoption by the European Commission, through delegated acts, of the determination of the new benchmark values, it must be taken into account the following:

- a) *“For the period from 2021 to 2025, the benchmark values shall be determined on the basis of information submitted pursuant to Article 11 for the years 2016-2017. On the basis of a comparison of the benchmark values based on this information with the benchmark value contained in Commission Decision 2011/278, as adopted on 27 April 2011, the Commission shall determine the annual reduction rate for each benchmark and apply it to the benchmark values applicable in the period 2013-2020 in respect of each year between 2008 and 2023 to determine the benchmark values for the years 2021-2025.*
- b) *Where the annual reduction rate exceeds 1,6% or is below 0,2%, the benchmark values for 2021-2025 shall be the benchmark values applicable in the period 2013 to 2020 reduced by the relevant one of these two percentage rates in respect of each year between 2008 and 2023.*
- c) *For the period from 2026 to 2030, the benchmark values shall be determined in the same manner on the basis of information submitted pursuant to Article 11 for the years 2021-2022 and with the annual reduction rate applying in respect of each year between 2008 and 2028.”*

¹³ Whereas 7 of the EU ETS recast Directive.

¹⁴ Whereas 7 e 10 of the EU ETS recast Directive.

¹⁵ Whereas 11 of the EU ETS recast Directive.

¹⁶ Senate of the Italian Republic, XVII Legislature (Doc. XXIV n. 79) Resolution of the meeting Committees 10th (Industry, commerce, tourism) 13th (Territory, environment, environmental assets) on the initiative of the Senators Dalla Zuana and Scalia, approved on August 1st, 2017.

Therefore, for the purpose of defining the benchmarks for the next ETS phase, Member States will collect manufacturing plant production data twice:

- a) For the period 2021 - 2025, the benchmark calculations will be based on 2016-2017 data. The resulting benchmark values will be compared with those adopted for the current ETS phase. After this comparison, the Commission will apply an annual reduction rate (to be defined) for each benchmark between 2008 and 2023, except when the deviation is not between 1.6% - 0.2%;
- b) For the phase 2026 -2030, the procedure is the same but the data collection will cover the years 2021 - 2022 with the application of the annual rate between 2008 and 2028

Thus, it is clear that the number of allowances to be allocated for free for the whole 10-year period, will not be fixed but dynamic. On the one hand, the benchmarks will be flexible, i.e. reduced annually, and on the other hand the level of free allocations to plants whose activity has increased or decreased will be assessed on the basis of a two-year moving average to check if it exceeds 15% of the level initially used to determine this free allocation for the respective two sub-periods (Article 10a, paragraph 20¹⁷).

Besides being complex, these calculations will increase administrative costs for the Member States, and therefore for those subject covers by the ETS which, together with the emissions, will also have to provide documentation on the productivity of the plants on an annual basis. A control that starts from the economic data to impose an environmental obligation but that has nothing to do with a desired environmental taxation.

The paradox¹⁸ is that the price failures of the previous regulated ETS periods have made the Commission more confident in the ETS instrument, outlining it more aggressively and deeply. So deeply that this regulation seems to completely empty the concept of “CO₂ market”. The Commission seems to be saying that, by hook or by crook, a price level deemed useful for decarbonising the European industrial economy will have to be achieved.

In fact, in order to respect the auctioning quota referred to in Article 10, in each year in which the sum of the free allowances does not reach the maximum level that respects the auctioned share of the Member State, the remaining allowances up to this level are used to prevent or limit the reduction of free allocations to meet the share of Member States’ auctions in subsequent years. However, if the maximum level is reached, the free allocations must be adjusted accordingly.

Any adaptation of this type must be done in a uniform manner and therefore a uniform trans-sectorial correction factor will be applied.

The new directive allows Member States to adopt financial measures for sectors or sub-sectors that are exposed to genuine risk of delocalization due to significant indirect costs actually incurred by emissions commitments; these measures must obviously comply with Community law on State aid¹⁹ rules and competition in the internal market. In the event that these financial measures exceed 25% of the revenue generated from auctioning of allowances, the Member State should justify this exposure.

The benchmarks for indirect CO₂ emissions per unit of production for a given sector or sub-sector at risk of carbon leakage are calculated ex ante as the product of electricity consumption per unit of production in relation to the most efficient technologies available and according to CO₂ emissions of the European electricity production mix. In other words, this is an analysis of how clean the products of the factories located on European territory are; that is, with these parameters it will be evaluated

¹⁷ Up to 200 million allowances set aside that are not allocated over the period from 2021 to 2030 shall be returned to the market stability reserve at the end of that period.

¹⁸ F. Scalia “L’accordo di Parigi e i “paradossi” delle politiche del Europa sul clima ed energia”. *Diritto e giurisprudenza agraria alimentare e dell’ambiente*, Numero 6 – 2016.

¹⁹ Communication from the Commission “Guidelines on State aid for environmental protection and energy 2014-2020 (2014/C 200/01).

how much CO₂ has been emitted for the manufacture of a single product according to the energy mix consumed and the machinery used.

Such a bright intuition²⁰ of the Commission could in future become the basis for a comparison between similar products sold on the same European market but produced by factories intra and extra EU. It can become a starting point for a real comparison between production costs related to energy use and environmental commitments.

Risk of carbon leakage - To establish whether a sector or subsector was exposed to a significant risk of carbon leakage based on directive 2009/29/CE, based on Article 10 a) par. 15 e 16, two criteria were taken into account: "A sector or subsector shall be deemed to be exposed to a significant risk of carbon leakage if:

(a) the sum of direct and indirect additional costs induced by the implementation of this Directive would lead to a substantial increase of production costs, calculated as a proportion of the gross value added, of at least 5 %; and

(b) the intensity of trade with third countries, defined as the ratio between the total value of exports to third countries plus the value of imports from third countries and the total market size for the Community (annual turnover plus total imports from third countries), is above 10 %.

Notwithstanding paragraph 15, a sector or subsector is also deemed to be exposed to a significant risk of carbon leakage if: (a) the sum of direct and indirect additional costs induced by the implementation of this Directive would lead to a particularly high increase of production costs, calculated as a proportion of the gross value added, of at least 30 %; or

(b) the intensity of trade with third countries, defined as the ratio between the total value of exports to third countries plus the value of imports from third countries and the total market size for the Community (annual turnover plus total imports from third countries), is above 30 %.

With the new directive, Articles 10.b and 10.c have been replaced by a single Article 10 b "Transitional measures to support certain energy intensive industries in the event of carbon leakage".

The Commission's awareness of the globalized market is also contextualized in the new definition of which sectors and sub-sectors are at risk of carbon leakage and, therefore, will be assigned free allowances for the period by 2030 the 100% of the benchmark (Article 10a). The parameter consists precisely in the fact of having an industrial comparison with industries in third countries.

Less brilliant, if not bizarre, appears the formula adopted by the Commission which defines that these sectors are at risk if "the product exceeds 0,2 from multiplying their intensity of trade with third countries, defined as the ratio between the total value of exports to third countries plus the value of imports from third countries and the total market size for the European Economic Area (annual turnover plus total imports from third countries), by their emission intensity, measured in kgCO₂ divided by their gross value added (in euro)".

Unlike the other sectors and sub-sectors, as mentioned above, which are considered to be able to transfer on the price of the product and therefore on final consumers a percentage of the cost of the allowances, will receive only 30% of the quantity determined according to the article 10. a. Unless otherwise decided in the review pursuant to Article 30, free allocations to other sectors and sub-sectors, with the exception of district heating, will decrease by the same amount after 2026 so as to reach zero of allowances given free of charge in 2030.

Through the introduction of these paragraphs the Commission aims to reduce the number of allowances allocated free of charge as the latter are always linked to the level of the benchmark. Instead, this provision aims to act on the "demand" side. As mentioned, there are about 50 industrial

²⁰Senate of the Italian Republic, Legislature 17 Atto di Sindacato Ispettivo n ° 1-00593. Act No. 1-00593, Published June 21, 2016, in session no. 641.

sectors indicated in the carbon leakage list²¹ compared to the current 177. Analysts estimate that the sectors of the carbon leakage list would still represent over 90% of EU industrial emissions, albeit down from the current 97%. The reduction in the value of the benchmark translates into a reduction in the consumption of energy used and therefore a claim to greater efficiency. Any remaining (saved) allowances could then be sold on the market in the typical view of this instrument

The abrogation of the last part of paragraph 11 of Article 10. a. of the previous directive 2009/29/EC is clear: “*Subject to Article 10b, the amount of allowances allocated free of charge under paragraphs 4 to 7 of this Article in 2013 shall be 80 % of the quantity determined in accordance with the measures referred to in paragraph 1. Thereafter the free allocation shall decrease each year by equal amounts resulting in 30 % free allocation in 2020, with a view to reaching no free allocation in 2027.*”

A clear turnaround appears, an awareness that will have an important role in the future debate: The Commission has realized that eliminating all the part of free allowances for companies at risk of carbon leakage entails a high risk of bankruptcies and delocalization in the involved sectors.

Establishment of funds – Lastly, another aspect remains to be emphasized on the allowances to be auctioned because the new directive is pervaded by the creation of new funds of various kinds that use the revenues from CO₂ allowances. In fact, with the Article 10. par.2 (market stability reserve) and par.3 b the auction incomes can even contribute to the achievement of the renewable sources target by 2030, Article 10 a (6 - 8), Article 10 c and 10 d foreseen the creation of funds to be used in the context of renewable energy projects or for the modernization of energy systems etc. For example, according to Article 10 c “*Option for transitional free allocation for the modernisation of the energy sector*” competitive tender procedures will be organized for projects implementation, which will take place in one or more rounds between 2021 and 2030, for projects with a total investment amount of more than 12.5 million euros to select the investments to be financed with free allocation. This process recalls the Carbon Dioxide Capture and Storage Project that had to be financed with the CO₂ allowances but their price was constantly low so, the investment was not sufficient to remunerate the CCS.

The 2% of the total amount of allowances between 2021 and 2030 will be auctioned to establish a fund to improve energy efficiency and modernize the energy systems of some Member States referred to in Article 10.d of the new Directive the so-called modernization fund. A 10% instead goes to Member States for reasons of solidarity and increased interconnection capacity within the EU.

c) Linking EU ETS & China ETS

China announced its own ETS market at the end of December 2017, which should be the main instrument through which Beijing plans to diminish emissions growth by 2030. The Chinese ETS, which should be operational within a year, will include 1,700 plants in the electricity sector responsible for 33.9% of the CO₂ produced in the country and the exchange will be about 3.5 billion tons of CO₂/year, therefore becoming the world’s first market.

Adopted as trial mechanism in some provinces of China in 2011, the Chinese national ETS, just like the European one, suffered of a weak CO₂ price, around € 4 (30 yuan).

The European Commission has announced²² through the Commissioner for Energy and Climate, Miguel Arias Cañete, to start negotiations to link its ETS with that of the Asian country.

We observe, quietly, that the marginal cost to reduce a ton of CO₂ for an inefficient Chinese industry will clearly be much lower than the cost for an efficient European industry to diminish its emissions for the equivalent tone of CO₂. In other words, if for an industry that consumes electricity produced by 70-80% by burning coal, wants to reduce emissions, the cost will, initially, be rather limited differently if an industry that already supplies 40% from renewable sources, for another 40% is

²¹ The new carbon leakage list is expected to include sectors such as steel, aluminium, chemicals, paper, fertilisers, lime and glass. “Post-2020 reform of the EU Emissions Trading System”
[http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/595926/EPRS_BRI\(2017\)595926_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/595926/EPRS_BRI(2017)595926_EN.pdf)

²² https://ec.europa.eu/clima/news/eu-welcomes-launch-chinas-carbon-market_en

fuelled by natural gas and has an industrial process characterized by recent and very efficient machineries, to further improve its production efficiency will necessarily have to face much higher costs.

Therefore, the cost of emission titles on the two markets, the European and the Chinese, cannot be the same. They will not be able to be exchanged, the two markets cannot be linked, worth an immediate devaluation of the Europeans emission titles, those that the European Commission hopes they could reach € 35/tonCO₂, because all European industrialists would then buy Chinese²³ emission titles to fulfil their EUETS obligations.

Moreover, the most recent estimate on allowance prices in the next regulatory period 2021-2030 Thomson Reuters²⁴ has predicted that prices will increase up to € 24/tonCO₂ by 2030: that is below the desired forecast. It seems unlikely that a non-mandatory market such as the Chinese CO₂ market will help to raise the price of European allowances.

Conclusions

The ETS has - at least until now - failed its objective. This result is commonly attributed to the too low price of the CO₂ allowances, which does not encourage investments in low-carbon technologies. Due to this, the National²⁵ Energy Strategy (SEN) adopted with Ministerial Decree of 10th November 2017, in defining the scenarios at the European level of the energy system, emphasizes that “Renewable growth would be substantially displacing mainly gas production, since the ETS would not be able to determine the lower convenience of coal”.

Indeed, the price of CO₂ allowances is currently still low, around 5-7 €/ton CO₂, despite all the measures implemented so far by the European Union to raise it (especially with back loading²⁶). Such a low price level does not encourage the transition from fossil fuels to less emissive or renewable sources; on the contrary, it causes the opposite effect.

This is what happened and it was described in a *Nomisma Energia* study of November 2016²⁷ as “the European environmental paradox”: Europe has invested so much in the development of production from renewable sources, but the growth of these has occurred at the expense of combined cycle gas power plants rather than coal or lignite. This phenomenon has reduced by more than half the benefits that could have been obtained: if, in fact, the share of gas in the energy mix would had remain stable (to the detriment of coal), emissions would have decreased by 180 tons yearly, against of 70 tons occurred. Not only that, but emissions of other pollutants, such as air emissions, sulphur and nitrogen oxides²⁸, have increased.

In order to influence the price of allowances, in an attempt to make it constantly useful to incentivize the use of low-carbon technologies, the Commission has established the market stability reserve²⁹. This mechanism will come into force from 2019 and should ensure the management of the existing emissions allowances surplus on the ETS market, ensuring structurally the balance between supply

²³ Of course, these considerations apply to a free market. Otherwise if the price of European and Chinese CO₂ titles becomes de facto an “administered” price, things change. Only one wonders why in an administered system one should exchange titles with a value of about 35 euros with other titles having the same value.

²⁴ EU carbon price to average €23/t CO₂ between 2021 and 2030: Thomson Reuters assess the future. <https://blogs.thomsonreuters.com/financial-risk/commodities/eu-carbon-price-average-e23t-2021-2030-thomson-reuters-assess-future/>

²⁵ It refers to the Italian Energy Strategy.

²⁶ Measure adopted with Regulation no. 176/2014/EU. Within this provision a portion of emission allowances for the three-year period 2014-2016 (400 in 2014, 300 in 2015 and 200 in 2016), to be then auctioned in the two-year period 2019-2020. This measure did not affect the price of allowances, either because the CO₂ permits provisionally removed from the market did not eliminate the surplus of supply, and because the forecast of their reintroduction in the two-year period 2019-2020 operates as a negative signal on the price CO₂.

²⁷ *Cambiare il mercato della CO₂ per decarbonizzare l'Europa e aumentare la competitività del sistema Italia*, November 2016.

²⁸ The European coal power plants in 2013 were responsible for 52% of the SO₂ overall emission, for 40% of NO_x, for 37% of air pollution (particulate) and for 43% of mercury. See. F. Valezano, *In Europa il carbone uccide, ma la normativa lo permette*, in *QualEnergia.it*.

²⁹ Decision (EU) 2015/1814 above mentioned.

and demand. But, notwithstanding from the considerations on the effectiveness of this instrument³⁰, the differential between coal and gas prices would lead to favouring the first fuel at the expense of the latter, even in presence of CO₂ prices far higher than those commonly considered as incentives for low carbon technologies (25-30 €/ton CO₂). In fact, the SEN 2017 also notes that the price of CO₂ in the European scenarios by 2030, depending on the energy efficiency target assumed as hypotheses (from 27% to the maximum hypothesis of 40%), varies from € 42 to € 14/ton. Well, the same scenarios - with the different prices of CO₂ - foreshadow an energy mix in which the power coal generation remains almost constant (from 13.8% with the price of CO₂ up to 42 €, and 15.1% with the price to 14 €), while the share of natural gas drops dramatically (from 15.1% to 9.2%). Moreover, the increase in price of CO₂ allowances would make European production even less competitive on the market giving an advantage to those who use the most emissive energy sources. The possible consequence is the delocalization of energy-intensive industries to non-EU countries and the greater competitiveness in the same European market of the productions coming from those countries.

The reason for the ineffectiveness of the ETS is that it is an artificial³¹ market limited to the territory of only one of the industrial powers of the planet. If the price of emission allowances increases - and when the allocations free of charge will be definitively abandoned - the system will act as an incentive to cross those borders and delocalize productions where it is possible to use high emissive energy sources, but less expensive, without having to pay a pledge. Moreover, non-EU productions will be increasingly competitive in the same European market, which will not have to face the most virtuous energy mix costs, with the consequence that European consumers will finance the most emissive productions³².

This evidence should lead - as suggested in the consultation document of the SEN 2017 - to re-discuss the ETS in the European context “also taking into consideration measures of carbon pricing” (sentence, however, dismissed in the final text).

The scientific literature has proposed different environmental tax solutions, not necessarily alternative to the ETS, which could even be complementary to the same, correcting the distortions. Among the countries that have moved towards these solutions stands out the United Kingdom, which has introduced a minimum price of CO₂ with increasing trajectory and a maximum emission level for KWh electricity produced (Emission Performance Standard - EPS) of 450grCO₂/KWh for new plants. This has stimulated the transition from coal to gas in electricity generation and drastically reduced CO₂ emissions.

Another possible solution is making the European market - today the world's leading importer market - and its competition, an incentive to adopt low-carbon technologies³³. This would be the case if Europe adopted a *Charge on Emissions*³⁴, i.e. applied to the good, wherever it is produced, on the

³⁰ See on this issue M. Pellegrino, *EU ETS: riforme in corso e potenziali rischi*, in *Newsletter del GME* n. 109 November 2017. The author considers that: the external intervention in the management of the quantities offered may generate greater uncertainty on the market, especially as the Commission's publication of the surplus value is close: the published figure refers to the final balance recorded the two previous years to that of application of the measure, with possible consequences on the range of expectations that the various operators will accrue on the effectiveness of the intervention, assessments that usually translate into an increase in the short-term volatility and the volumes traded.

³¹ Regarding the definition see M. Cafagno, *Principi e strumenti di tutela dell'ambiente. Come sistema complesso, adattivo, comune*, Torino, 2007, from page 425.

³² Today the impact of the overall EU ETS is equivalent to a decrease of about 0.4 percent of global emissions, which, however, continue to grow - business as usual - by more than 2% per year.

³³ Recalling to what has been defined the “environmental protection through the market”. See on this point, M. Clarich, *La tutela dell'ambiente attraverso il mercato*, in *Dir. pubbl.* n. 1/2017, from page 219.

³⁴ For this solution, see A. Gerbeti, “A Symphony for Energy” Milano 2015; “CO₂ nei beni e competitività industriale europea”, Milano, 2014 *passim*. The proposal is based on the analysis of the product life cycle, which takes into account the energy costs in terms of emissions and environmental impact of a given good and the related production processes: the various production phases from the extraction of raw materials and their refining until the disposal of the good at the end of the life cycle. It consists in the modulation of the Value Added Tax (V.A.T.) - a charge on consumption - by reasons of the carbon intensity of individual products. See also T. Fanelli, “L'emissione in affanno”, in *QualEnergia*, no 2, 2014.

basis of its carbon content. The advantage of this *Charge* is that, unlike the classic carbon tax, it does not weigh on production (it is therefore not limited to the companies of the impository country, with the effect of delocalization and competitive asymmetry mentioned above), but on consumption. In essence, if the European Union were to apply this *Charge*, the goods placed on its market - wherever produced - would pay a *Charge* that will vary due to the carbon content. The *Charge*, therefore, would render the goods produced with the least amount of emissions more competitive on the market, giving an advantage to the more efficient industry and encouraging the more emissive industry to improve its environmental performance, worth the loss of market³⁵ shares. Moreover, the *Charge on Emissions*, precisely because it relates to an asset (carbon) contained in the product and not discriminating according to the producer country, would be compatible with art. II of the GATT/WTO³⁶.

The European Commission has foreseen the definition and approval by the end of 2018 of the National Energy and Climate Plans of each Member States, in order to make consistent objectives on emissions reduction and those for energy efficiency and renewable sources with the commitments undertaken under the Paris agreement.

The year we are living in is therefore, crucial for the adoption of measures to overcome the paradoxes that - even with the best intentions - have characterized European environmental policies.

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³⁵ P. Krugman. *The climate dominion*, in www.nytimes.com, affirms that a carbon tariff would stimulate the decarbonisation process of China.

³⁶This proposal has been the subject of a Resolution by the Italian Parliament: Doc. XXIV, n. 79 of the Senate Meeting Committees Production Activities and the Environment.

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