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Corporate Sourcing and indirect CO2 cost compensation

This document, written by Eurometaux, the European non-ferrous metals sector, in partnership with its member companies, looks at on how power prices are set in competitive markets and the pass through of CO2 costs. It provides details on corporate sourcing strategies and gives recommendations with regards how the regulatory framework, particularly the indirect costs compensation rules, should be designed. A particular focus of this paper is the corporate sourcing of renewable electricity. Having signed over 13.4TWh/year in renewable power purchasing agreements in the past 18 months, the authors of this paper bring a technical expertise in the commercial and regulatory challenges in the corporate sourcing of renewable electricity.

1. Our Sector and Corporate Sourcing of Renewable Electricity

With the production of non-ferrous metals, such as aluminium, silicon, zinc, copper, etc., an unavoidably electro-intensive process, electricity costs are key for our sector. In primary production, power represents 30 – 50% of the overall operational costs of our sectors installations with energy costs the main localisation and investment factor. Indeed, a recent study by CEPS concluded that electricity cost for aluminium smelters in Europe is about 38% of production costs[1].

Energy-intensive industries source power for their consumption based on various strategies, normally a portfolio of day-ahead, 1 to 5 years forward hedging on the exchanges and bilateral longer- term contracts of 5 to 30 years (More commonly referred to as PPAs). The chosen portfolio – i.e. the power price risk management strategy – will depend among others on global competitive position, willingness to take pricing position in a long term contract, appetite for fluctuating wholesale prices, expectation of power prices development and many others.

Non-ferrous metals producers are baseload consumers, with predictable update in electricity. This is opposed to the more variable wind energy production profile. However, this obstacle can be overcome and increasingly, we are witnessing the growth of PPAs with a more "variable"[2] carbon free power source.

2. The Commercial & Regulatory Considerations

When sourcing renewable electricity for corporates, the following commercial and regulatory considerations are factored into the equation:

i. The commercial framework

Access to electricity competence for balancing; switching from production profile to consumption profile is necessary to match the industry's base load profile with the wind project production profile. This competence is available in the

[1] The Commission Energy Prices and Costs report 2018 (Com 2019)

[2] "Variable" carbon free power sources usually refer to solar and wind energy. More stable carbon free power sources are hydro and nuclear. As an industry, we have a long history of signing PPAs with the latter but increasingly are seeing a proliferation of PPAs with the former, particularly wind PPAs in the Nordic market.

companies or in the electricity market, however the risk magnitude in entering long term balancing agreements can vary substantially between regions.

Access to financing/ guarantees: Furthermore, providing guarantees is also an important element for long term Renewable PPAs, and often a prerequisite that this credit support is provided by investment grade entities for the entire contract tenor. This can be available in the financial markets in Europe, although for some industrial companies this long term credit support could be a showstopper.

ii. The Regulatory Framework

Compensation for the indirect carbon costs: Even when we purchase renewable electricity, we still face the full indirect carbon costs. This is despite there being no physical carbon in the electricity. In the next section, 'Power price setting in competitive markets and pass-through of CO2 costs', we will explain why this is so.

3. Power price setting in competitive markets and pass-through of CO2 costs

Power markets use marginal cost-based price discovery. The price of all the demand is set by the bid of the last producer needed in the merit order, where for every predefined period the generation bids are aggregated to one supply curve ranked according to increasing price.

Even in regions with a large share of nuclear or renewable power production, the marginal plant is usually bidding at least at coal or gas fired power plant running costs, due to such plants being available in the relevant power market or in interconnected markets.

Similarly, there are regions with a large amount of hydroelectric power from water reservoirs that competes with fossil fuelled power plants, meaning such hydroelectric plants price their power production accordingly.

Renewable power plants have no cost for CO2 allowances but are able to sell power at a price that includes the CO2 allowance income in most of the hours. This is an intended consequence of EU ETS and a way to promote the expansion of renewable energy.

Looking ahead, even with an increasing share of renewable power generation the thermal power influence on prices will not diminish accordingly. In most period renewables cannot cover all demand and thermal power will remain the marginal technology to clear the market (See Annex, 'Achieving an accurate indirect CO2 costs compensation' for more details).

4. Corporate Sourcing of Power

All the power that is (1) contracted after 2005[3], (2) has the potential to be sold in a market that is influenced by CO2 cost and (3) is consumed by an aid beneficiary, should be compensated using the relevant emission factor of the corresponding region (Please see the Annex for more details on regional emission factors) regardless of its contractual source.

[3] All power sourcing contracts entered into before the implementation of the EU ETS should not be influenced by the indirect cost of EU CO2 allowances in the respective power market.

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The Guidelines on certain State aid measures in the context of the greenhouse gas emission allowance trading scheme post-2012 (2012/C158/04) are already aligned with this principle, where they confirm in Annex 4 that "In order to ensure equal treatment of sources of electricity and avoid possible abuses, the same CO2 emission factor applies to all sources of electricity supply (auto generation, electricity supply contracts or grid supply) and to all aid beneficiaries in the Member State concerned".

Similarly, power generation companies can sell power based on different strategies, including short term sales on the day-ahead market or exchanges and long term contracts.

In this context of power sourcing:

a. The scheme should not compensate based on each risk management strategy

Considering the extremely diverse portfolio of sourcing contracts nature (tenors, price structures, financial or physical settlement, etc.) there is a **huge administrative burden** when determining the precise indirect CO2 in each energy-intensive industry power consumption, in most of the cases this will become materially impossible.

The compensation should arrive regardless of the power price risk management strategy decision that each beneficiary has chosen as per the existing methodology, i.e. compensating based on, for the correspondent period, one emission factor for a respective region and one EUA price.

- When addressing carbon leakage in the direct CO2 emissions, the industries can implement multiple sourcing strategies for their allowances needs. Obviously, the free allowances allocation is independent of such "trading" strategy[4] .

b. Any long-term contract reflects a view of the future price of power and should not alter how the compensation is calculated.

As the day-ahead market price is decided by the marginal technology in the merit order, any longer term market price is determined by the expected performance of that price setting methodology for such longer term. Including expected performance for all price drivers: fuel prices, CO2 prices, weather conditions, demand, generation technology and investments, interconnectors and grid constrains, political targets, GDP, currencies and others.

Any longer term market price will, therefore, outturn to be lower or higher than the day-ahead market on the delivery day.

c. A Renewable PPA should not alter how the compensation is calculated

When entering a long term Renewable PPA, both seller and buyer have previously considered the market alternatives.

On the selling side, when the Renewable PPA power has the potential to be sold in a market that is influenced by CO2 cost, an alternative for the seller is to sell that power into such day-ahead market. In such case, the Renewable PPA power will have a CO2 allowance income in most of the hours. This is an intended consequence of EU ETS and a way to promote the growth of renewable energy in Europe.

The incentive for the seller to enter in a long term Renewable PPA power is to secure the power income for such long term – including, inevitably, the indirect CO2 income – typically so that this facilitates the financing of the project. The selling price structure can be very diverse: indexed formulas, fixed nominal prices, various prices for different tenors, caps and floors, a combination of them, etc.

[4] Otherwise, should an installation that has bought their exposure needs at a very cheap price receive less free allowances? And, vice-versa, should an installation that has bought their exposure needs at an expensive price receive more free allowances?

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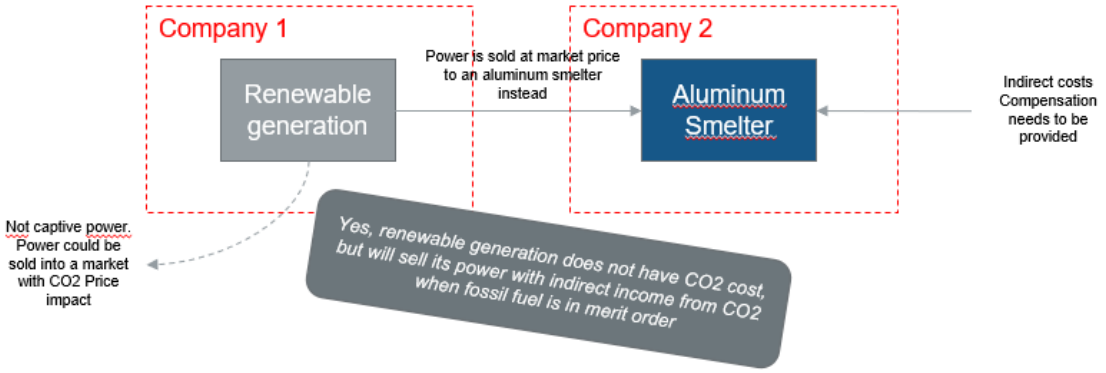
In the same way as any other longer term market price, a Renewable PPA will turn out to be lower or higher than the day-ahead market on the delivery day.

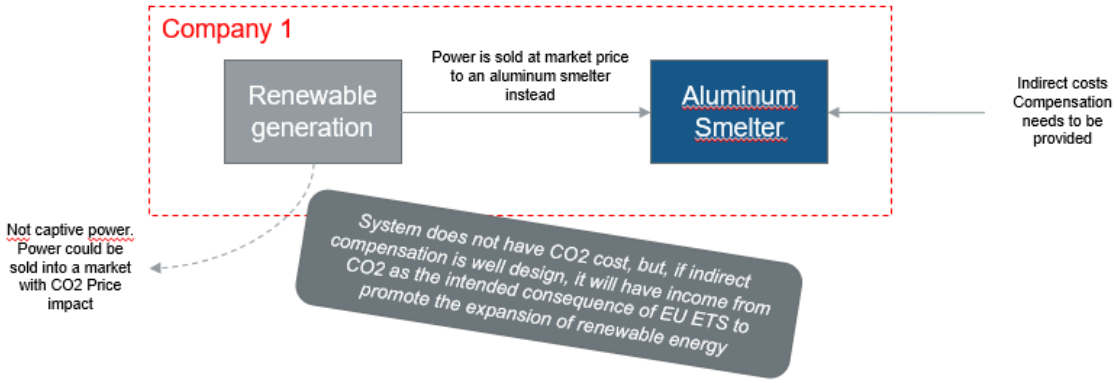


d. An investment in renewable generation by the energy-intensive industry herself should not alter how the compensation is calculated

Any electro intensive industry investments in power generation capacity should be based on market alternatives, in the same way as any power generator does for its investments.

If such "self-generation" has an alternative value in a market that is influenced by CO2 cost (i.e. if that self-generation can be sold into such market), the indirect CO2 compensation should be provided. Otherwise, the incentive for renewable generation existing already as consequence of EU ETS to promote expansion of renewables will not occur in the case of self-generation and this will constitute a market disruption.

Furthermore, in the same way as for the power generators, for an energy intensive industry, it makes no sense to invest in self-generation with potential to be sold in the market and surrender at the same time part of its value (the indirect CO2 income) to subsidize an internal business.



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Annex

I. Regional Emissions Factors

The emission factor

To avoid both under- or over-compensation, the applied emission factor[5] should be as accurate as possible. To achieve this, we strongly recommend applying an emission factor that takes into account the existing price-setting principles, derived with the use of power market models with an accurate representation of all European markets and bottlenecks between them.

The Guidelines on certain State aid measures in the context of the greenhouse gas emission allowance trading scheme post-2012 (2012/C158/04) are already aligned with this principle, where they confirm in Annex 4 that "The method for establishing the maximum aid amount takes into account the CO2 emission factor for electricity supplied by combustion plants in different geographic areas. Such regional differentiation reflects the significance of fossil fuel plants for the final price set on the wholesale market and their role as marginal plants in the merit order".

In order to reflect the changes in the power market over time, calculations of emission factors should be done at pre-specified frequent intervals, for example every five years.

Looking ahead, we expect the emission factor to decline over time, but still be of significant magnitude in the next EU ETS Phase IV.

- As an example, the consultancy company Pöyry has calculated emission factors for the Nordic market using their power market model. According to the study, for the period 2013 to 2017, the emission factor has been slightly higher (0.71) than the corresponding factor in the Guidelines which was 0,67. The factor is expected to decline towards 2030, but still have a significant impact on power prices.

ABOUT EUROMETAUX

Eurometaux is the decisive voice of non-ferrous metals producers and recyclers in Europe. With an annual turnover of €120bn, our members represent an essential industry for European society that businesses in almost every sector depend on. Together, we are leading Europe towards a more circular future through the endlessly recyclable potential of metals.

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[5] Weighted average of the CO2 intensity of electricity (tCO2/Mwh)