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FORTUM'S VIEWS ON CARBON BORDER ADJUSTMENT IN THE POWER SECTOR

Key messages:

- Cross-border power imports from third countries to EU member states and related carbon emissions are expected to increase. This imported electricity is not subject to comparable climate policies and carbon pricing as in the EU, thus there is a risk of increasing carbon leakage.
- The primary solution to preventing carbon leakage is more global carbon pricing. However, currently only 20% of global emissions are subject to any kind of carbon pricing, and having an extensive global pricing system in the near future is unlikely.
- In the absence of global carbon pricing, the EU's increasing climate ambition necessitates the establishment of a carbon border adjustment (CBA) in the power sector. Such a mechanism could restore the integrity of EU climate policy and ensure that the price of power imports reflects its carbon content. In addition, it could incentivise the decarbonisation of electricity production and the introduction of carbon pricing in third countries.
- The import of power differs from the importation of industrial goods; hence also the solutions for CBA in the power sector should differ from solutions in industrial sectors. The flows of electricity are transparent and the relatively simple production chain allows better tracking of carbon emissions.
- The most suitable mechanism to tackle carbon leakage in the power sector would be a guarantee of origin (GoO) system combined with either an obligation for the electricity exporter to purchase and surrender EU emission allowances (EUA) or with a carbon border tariff. These options should be further investigated. CBA requires thorough consideration of its costs and benefits as well as of compliance with the WTO rules.

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Carbon leakage has traditionally been recognised as a challenge for industrial sectors. European industry competes globally and is subject to the EU climate targets and carbon price (EU emissions allowances), whereas its competitors outside the EU do not have corresponding climate ambitions and pricing. Although there hasn't been any real evidence of carbon leakage so far, nor of relocation of industry due to EU climate policy, concern relating to the competitiveness of European industry continues to be an issue. Carbon border adjustment is one of the issues that President of the European Commission Ursula von der Leyen promised to deal with at the beginning of her mandate. According to the Communication for the European Green Deal, the Commission will table a proposal for a Carbon Border Adjustment Mechanism during 2021.

Power imports results in real carbon leakage

Recently, carbon leakage has been increasingly discussed in the context of cross-border power trading between EU member states and third countries. More than 80% of electricity imported to the EU originates from three regions: Russia, Ukraine and Western Balkans. In total, 13 EU countries are physically connected with 11 non-EU countries.¹ Imports have been 25-35 TWh² in recent years and net imports 3-21 TWh¹. In 2019 alone, 33 TWh³ of electricity was imported to the EU ETS region. The largest net importers are Finland, Lithuania, Greece and Hungary¹.

Emissions related to electricity imports are significant: emissions of electricity production for exports in third countries are estimated to be 26 million tonnes annually and about 10 million tonnes more than if the same electricity had been generated in the EU.²

EU power generators pay a carbon price that is reflected in the market price of electricity. The imported electricity is not subject to comparable climate policies and carbon pricing. Of the 11 connected non-EU countries, only Ukraine has some form of carbon pricing applicable to electricity production. In practice, the imported electricity carries no cost of carbon.

Up to 57 GW¹ of new coal-fired power capacity is being planned or constructed in countries that are or will be connected to the EU power grids. This could mean an over 50% increase in coal capacity in connected countries as a whole. The increase of interconnection capacity would further expose EU power markets to imports and, consequently, to increasing carbon leakage.

As a reference, the power sector is subject to border adjustments in California and Quebec, the only major example of carbon border adjustments to date. The Californian carbon border adjustment system is based on an obligation to surrender emissions allowances.

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Primary solution to mitigate carbon leakage is global carbon pricing

Various measures can be used to mitigate carbon leakage, but the primary solution is to promote global regulation that guarantees fair and equitable competition for businesses. Above all, a more global carbon pricing and market is key to preventing carbon leakage. However, a unified global carbon pricing scheme seems very unlikely in the near future. Currently only about 20% of global greenhouse gas emissions are subject to some kind of carbon pricing.

Carbon border adjustment in the power sector is more straightforward than in industry

The import of electricity differs from the importation of goods; hence also the solutions for carbon border adjustment in the power sector should differ from solutions in industrial sectors. Applying this mechanism for electricity is easier than for other internationally traded products, as flows of electricity are transparent and the relatively simple production chain allows better tracking of carbon emissions. As electricity is not subject to free allocation in the EU ETS, carbon border adjustment will not be an overlapping measure.

Carbon border adjustment measures in the power sector would be applied for third countries that do not have in place carbon pricing corresponding to the EU's emission allowance price. In such cases, electricity imports to the EU would be classified as an emitting activity.

Some general requirements should apply in the potential carbon border adjustment in the power sector:

- The solution should be European-wide and market-based and applied uniformly in all external borders of the EU
- The carbon content of imported electricity has to be proved reliably
- It should enhance the effectiveness of the EU ETS by preventing carbon leakage
- It should raise decarbonisation efforts outside Europe and provide incentives for the third countries exporting electricity to the EU to introduce carbon pricing and so to capture the revenue for themselves
- It should maintain full compliance with WTO and Energy Charter treaty principles

In order to promote market-based, competitive and transparent solutions, an additional prerequisite should be that all imported electricity is sold through power exchanges instead of bilateral contracts. This also ensures that the origin of electricity can be reliably traced.

Guarantee of origin is needed to prove the origin of imported electricity

In Fortum's opinion, the most obvious instrument to tackle carbon leakage in the power sector would be a guarantee of origin (GoO) system, which would be combined either with an obligation for the electricity supplier to purchase and surrender EU

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emission allowances (EUA) or with a carbon border tariff that would apply to electricity imported from third countries to the EU.

The origin of imported electricity for the purpose of carbon border adjustment can be reliably proved using a guarantee of origin (GoO). An additional benefit would be that imported electricity produced from renewable energy sources outside the EU could count towards the importing member state's renewable energy share.

Setting a requirement for establishing a GoO system in a third country may, however, require an agreement between the EU and the third country. This has been specified in Article 19 para 11 of the REDII Directive:

“Member States shall not recognise guarantees of origins issued by a third country except where the Union has concluded an agreement with that third country on mutual recognition of guarantees of origin issued in the Union and compatible guarantees of origin systems established in that third country, and only where there is direct import or export of energy.”

For example, Russia has indicated interest in establishing a tracking mechanism for renewable electricity. The Russian Market Council has asked for offers from system providers and drafting of the legislation is expected to be done in 2020.

Carbon intensity of imported electricity is the basis for carbon border adjustment

When the seller of electricity proves with a GoO that electricity is from CO₂-free energy sources (renewables, nuclear), there would not be any emissions embedded in the electricity and, consequently, no carbon cost for the sold electricity.

When electricity is from CO₂ emitting sources, the seller of electricity has to prove the share of various energy sources with the GoO and calculate the corresponding CO₂ emissions.

The carbon intensity of electricity production varies significantly from hour to hour. A fair mechanism would measure the carbon intensity of imports in near real-time. However, for simplicity, a more averaged approach may be necessary.

If the electricity supplier cannot prove the origin of electricity with a GoO, the supplier has to calculate the CO₂ emissions by using, for example, the emissions of the average thermal generation in the country or a grid average emissions factor (or corresponding to the carbon intensity of the marginal generating unit).

Two options for CBA in the power sector: surrender of allowances or carbon border tariff

Carbon border adjustment in the power sector could be imposed in the form of an obligation placed on the electricity importer to surrender EUAs to cover the embedded carbon of electricity. The advantage of this would be that the obligations on EU producers and importers are closely matched. This solution would require a revision of the EU Emissions Trading Directive.

Carbon border adjustment in the power sector could alternatively be imposed in the form of a tariff based on the embedded carbon. The tariff could be calculated based on the average emissions intensity of power generation in the third country and on average EUA prices over a year (or some other period).

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A decision on an EU-level border tariff would not require unanimity, because trade policy is in the exclusive competence of the EU and subject to ordinary legislative procedure. A border tariff may be simpler than the obligation to surrender allowances, as it does not require importers to participate in the EU ETS. However, the border tariff would entail practically no incentive to invest in CO₂-free power generation in third countries, as the incremental effect on average CO₂ intensity would likely be too marginal to provide a measurable return.

In the case of power imports from third countries with carbon pricing, carbon border adjustment has to be modified if a carbon price has already been paid on emissions during production.

Conclusions

The EU has to ensure the competitiveness of European companies exposed to global competition. This does not concern only industry, but also the power sector. Cross-border power trading between EU member states and third countries is expected to increase and potentially result in increasing carbon leakage.

The primary solution to prevent carbon leakage is more global carbon pricing. The EU should collaborate with other regions in order to promote and implement ambitious climate policies and especially develop international carbon markets.

At the same time, various options to establish a carbon border adjustment mechanism for the power sector should be investigated. Such a mechanism would restore the integrity of EU climate policy as well as incentivise low-carbon electricity generation in neighbouring countries and the spread of carbon pricing.

A CBA mechanism for the power sector would be more straightforward than for industry. Carbon content of imported electricity is measurable, and the EU ETS provides an explicit carbon price at which the imports can be charged.

The most suitable instrument for tackling carbon leakage in the power sector would be a guarantee of origin (GoO) system either combined with an obligation for the electricity supplier to purchase and surrender EU emission allowances (EUA) or with a carbon border tariff. These options should be further investigated. CBA requires thorough consideration of its costs and benefits as well as of compliance with the WTO rules.

References

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