The EU and Border Adjustments – Net Zero Meets Zero-Sum

The European Union’s answer to the free-rider problem is taking shape. There is a fear that targeting net zero could hurt industrial producers’ cost-competitiveness against imported goods. In response, the bloc proposes to extend CO2 pricing to imports by 2023 through a carbon border adjustment. However, it will be far from straightforward to balance the demands of local industry, trade partners and the World Trade Organization. This white paper breaks down what the policy might look like, and identifies the hurdles that must be jumped for border adjustments to help European industry decarbonize.

1. Knowns and unknowns

Any evaluation of the implications of a carbon border adjustment mechanism (CBAM) would do well to consider what we do and do not know. Four points can be made with a degree of certainty.

1. The Commission is aiming to present essential details on a CBAM by July 2021 and intends it to be in place by 2023 – this is ambitious, and could involve a pared-down launch as a pilot.

2. The scheme will concern sectors covered by the EU Emissions Trading System, or ETS. That rules out hydrogen, battery materials and hydrocarbons (besides refined oil products).

3. Various design options exist, but an expansion of the EU ETS to imports through a separate pool of allowances is preferred by the EU (as opposed to measures such as an import tariff).

4. The scheme seems to be accelerating discussions between trade partners, and their plans to bolster climate policies – action on carbon pricing mechanisms has been linked to the prospect of an EU CBAM.

And yet the unknowns are at least twice that number. Herein lie details that will be clarified upon release of the awaited policy proposal, as well as several challenges facing the scheme.

1. Whether the European Parliament and member states will approve a meaningful CBAM.

2. How trade partners will react to a CBAM.

3. How watertight the scheme will prove with regard to international trade law.

4. Which ETS sectors and whether, and to what extent, indirect emissions will be covered.

5. The presence of crediting or exemptions for countries where carbon is priced, or that are among the ranks of the least developed.

6. How, in calculating adjustments, the scheme will account for proven emissions beyond default intensity benchmarks.

7. How to phase out the free allocation of EU carbon allowances in order to avoid double protection. What measures might be taken on indirect compensation, or to protect exports.

8. Whether EU industry faces a real risk of carbon leakage – the basis for a CBAM. Plans for a CBAM will likely progress regardless of whether or not this risk is demonstrated, however.

This paper will discuss how the EU’s approach has been passive, allowing trade partners to react forcefully to a policy whose implications are unclear. That is understandable for as long as the policy’s details are being hammered out – getting domestic industry onside presents a challenge of similar proportions. Yet it cannot last. The EU must put an emphasis on reaching out to trade
partners once its proposal is out. In doing so, it should clarify who will be impacted, exempt and – crucially – why the policy is so vital to achieving the group’s climate goals.

2. Fears of carbon leakage

Heavy industry represents a serious challenge for the energy transition. These sectors are typically tough to decarbonize, politically sensitive and exposed to global cost competition. Combined with lighter manufacturing sectors, they accounted for 17% of 2018 EU emissions. The European Commission recently tightened its emission reduction target for 2030, and is looking to ratify a 2050 net-zero emissions goal. That surge in ambition, and the EU’s carbon price, are driving producers to pollute less.

In taking the lead in global climate action, the European Commission is confronting issues that will need to be tackled by many governments wanting to reach net zero or adhere to the Paris Agreement. These stem from a simple tension: cutting emissions may produce a myriad of investment opportunities, but converting industry to cleaner alternatives won’t come cheap. Sectors like steel are already losing market share to producers outside the EU; adding the cost of decarbonizing could tip the scales further still in favor of imports.

Policies that are too onerous could see producers shed market share or relocate to where polluting is cheaper. That relocation, also known as carbon leakage, could drive global emissions up rather than down. Hard evidence for leakage is scarce, but the carbon price has been low and industrials shielded from its impact (see Section 5.2), so that is perhaps not surprising. Yet after years in the doldrums, the EU’s carbon price has sprung to life. In March 2021, BNEF forecast it breaking the 100 euros mark by 2030 (Figure 1). That changes the equation for European industry.

Figure 1: Historical and forecast EUA price

EUR/t, nominal

![Graph showing historical and forecast EUA price]

Source: BloombergNEF.

The European Commission wants to extend carbon pricing to imported goods in order to reduce the disadvantage faced by local producers. It is considering a carbon border adjustment mechanism, or CBAM (“carbon-border adjustment mechanism”). Long in the tooth as a concept initially championed by France, the CBAM was included in the EU’s European Green Deal, a battery of climate policies launched in 2019. A proposal is due in July; it is to come into force by 2023, an ambitious deadline. Debates around the CBAM are intensifying as those dates approach. Their outcome is loaded with implications for the EU’s trade partners.

3. Cross-border emissions

In many developed countries, decarbonization has coincided with a rise in imported goods. The outcome has been a jump in consumption-based emissions (which include imports) compared to those released domestically. In a globalized world, the fact that small, industry-light countries like
Switzerland import more emissions than are produced within their borders may come as no surprise. Yet the same is true of larger economies. Over 1995–2018, France’s territorial emissions fell by 30%, while those linked to goods procured from abroad rose by 78%. Excluding exports, imported emissions have exceeded territorial emissions since 2010 (Figure 6).

France’s consumption-based emissions are relatively low (Figure 2), but less than half were released within the country’s borders (Figure 3). It is far from alone; a similar trend is present in many industrialized economies. As they look to net-zero emissions, several governments are taking a closer look at consumption in gauging their CO2 inventory. The European Commission is clear that carbon leakage (the shifting of production and related emissions), and not cross-border emission flows (the import of carbon-intensive goods), constitutes the CBAM’s raison d’être. Depending on design, the scheme could help rein in consumption-based emissions.

**Figure 2: Greenhouse gas emissions produced and consumed per capita in 2015, selected countries**

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<thead>
<tr>
<th></th>
<th>U.S.</th>
<th>Germany</th>
<th>China</th>
<th>France</th>
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<tr>
<td>tCO2e</td>
<td>33.8</td>
<td>15.7</td>
<td>19.8</td>
<td>12.3</td>
<td>11.7</td>
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<tr>
<td>Direct</td>
<td>18.1</td>
<td>10.4</td>
<td>6.6</td>
<td>5.7</td>
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<tr>
<td>Imported</td>
<td>15.7</td>
<td>9.4</td>
<td>13.2</td>
<td>6.6</td>
<td>4.8</td>
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<td>Source: OECD, BloombergNEF. Note: Production refers to emissions released within France.</td>
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**Figure 3: French greenhouse gas emissions by source**

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<td>MtCO2e</td>
<td>623</td>
<td>694</td>
<td>739</td>
<td>741</td>
<td>731</td>
<td>749</td>
</tr>
<tr>
<td>Direct household emissions</td>
<td>133</td>
<td>137</td>
<td>144</td>
<td>139</td>
<td>124</td>
<td>123</td>
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<tr>
<td>Emissions from domestic production</td>
<td>279</td>
<td>273</td>
<td>268</td>
<td>231</td>
<td>199</td>
<td>201</td>
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<tr>
<td>Import emissions</td>
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<td>284</td>
<td>327</td>
<td>371</td>
<td>408</td>
<td>425</td>
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<tr>
<td>Source: Ministry of Ecology, BloombergNEF.</td>
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4. **Beware the backlash**

For all their promise, plans around a CBAM could yet be hampered by opposition from trading partners. International pushback shut down attempts to expand the EU ETS, sinking an attempt to have it cover international air travel from 2012. The EU could find solace in the growing consensus on climate action: net-zero pledges covered 38% of global emissions as of May 2021. That may ease acceptance of a CBAM, but the scheme is vulnerable to depiction as rich-world protectionism and as potentially misaligned with core principles of the Paris Agreement.

Reactions from certain quarters could have an outsized impact. Russia, China and the U.S. are active in a large share of sectors that are likely to be covered. Chemicals, non-ferrous metals (which includes aluminum), and steel saw over 10 billion euros’ of imports into the EU in 2016 (Figure 4). The value of cement imported into the EU is low in absolute terms, even as the European Commission deems the sector vulnerable to carbon leakage (see Section 6). Factors like total trade volumes (all sectors including exports) and market concentration influence a trade partner’s clout. Chemicals and glass, for instance, are relatively concentrated: in 2016, just five countries were responsible for over 60% of the sector’s trade volume with the EU.

A CBAM could be challenged on several grounds. Trade law is one (see next section). Another is that the risk of carbon leakage – the scheme’s very basis – is hotly contested. Evidence of the phenomenon is patchy. For now, clear signs of leakage are limited to model-based simulations. Nor does teasing out its influence appear straightforward over the years to come. Even as EU
carbon pricing becomes more onerous, investment decisions will continue to be guided by factors such as energy and raw material prices.

Figure 4: Total EU imports, top five trading partners by sector in 2016

The July proposal will inform trade partners as to the EU’s plans. Even in the absence of crucial information such as what sectors will be covered, several partners are defining their stance. The U.K. and Canada have expressed guarded support, but others are less enthused. In a sense, the EU is caught between a rock and a hard place. For as long as it has yet to define what a CBAM will involve, its attention is monopolized by negotiations with member states and producers over the scheme’s design (see Section 6). Pending that, it is vulnerable to criticism from trade partners with whom, absent a detailed plan, it cannot meaningfully engage.

4.1. Early pushback from trade partners

What an EU CBAM might look like is poorly understood by trade partners. Kneejerk reactions have come from Australia. Its Trade Minister, Dan Tehan, threatened retaliation despite the fact that a CBAM’s likely coverage (see Section 6) portends little in the way of impact on Australian exports. The newly industrialized heavyweights of Brazil, South Africa, India and China issued a joint statement expressing their concern in April 2021. Pushback from countries with which relations are already strained is another challenge. Take Turkey, which has yet to issue an official reaction but ranks among the largest sources of EU cement imports.

“*It [an EU CBAM] is deeply concerning. We don’t know how they’re going to make it WTO-compliant.*” – Dan Tehan, Australian Trade and Tourism Minister to Sky News, March 3, 2021

Most worrying are the stirrings of China and the U.S. For their part, Chinese officials have called for more consultation (see quote below). A survey of Chinese stakeholders identified concerns that the EU wouldn’t credit China’s domestic policies as equivalent to its own; equivalence could confer a wholesale rebate to Chinese imports. The scheme’s methodology may indeed end up reducing the obligation faced by certain newer, highly utilized Chinese facilities. For some sectors, these may emit less than the EU average. Be that as it may, most conceivable CBAM designs
see the creation of a new price on imports from even the cleanest facilities, to reflect the carbon cost levied on EU producers. Either way, fears of a trade spat with Europe’s largest trade partner will ensure the Commission treads carefully.

“Will it be good for trading ties among different nations? That takes time and certainly that takes more consultation […] among all the major stakeholders,” Fei Shengchao, Mission of China to the EU to Euractiv, January 28, 2021

Signals from the U.S. are mixed. The Biden administration appears committed to a campaign pledge for a border adjustment of its own, although, absent a federal carbon price, what a U.S. CBAM would involve are unclear. The administration may explore a method of regulating imported goods under a regime of carbon product standards, just as with domestic products. The Commission hopes to capitalize on its alignment with Washington’s climate agenda. But hopes of transatlantic collaboration suffered in March when John Kerry, the U.S. climate envoy, warned the EU to pause plans for a CBAM until year-end. The EU is set to proceed regardless, heralding further tensions as the transatlantic relationship enters a new chapter.

“I think it [a CBAM] is something that’s more of a last resort, when you’ve exhausted the possibilities of emissions reductions and getting some kind of compact.” — John Kerry, U.S. Climate Envoy to the Financial Times, March 12, 2021

5. Overcoming opposition

The EU needs to make a serious effort at engaging with trade partners over coming months and framing the July 2021 proposal in a way that brings international partners onside. The international reaction will largely be determined by what sectors are included, but certain choices could manage tensions. In presenting its plans for a CBAM, the Commission had initially foreseen default benchmarks being applied to covered imports regardless of their emission levels. It now appears that cleaner imports will be able to reduce their obligation by demonstrating actual (lower-than-default) emissions through verified data. Deductions from payments may also be applied if products come from a jurisdiction with a carbon price. Such flexibility may ease acceptance.

Moving beyond default benchmarks could take a several forms. Verifying country or region-specific intensity data would be a challenge — a CBAM that lets producers prove that their facilities are below the default benchmark is more likely. A robust, decentralized accreditation framework would be required. The EU could leverage existing methodologies for verifying emissions to help administer the scheme and enhance acceptability. That could include the EU’s own monitoring legislation and the International Organization for Standardization (ISO) framework.

Even if emissions were proven at a facility level, regional trends will have a bearing on the international response. On average, Chinese steel is more carbon-intensive than the EU’s; this will likely impact the Chinese government’s response (Figure 5). Yet countries may be less opposed to the CBAM if domestic industry is serious about decarbonizing. In January 2021, China’s largest steelmaker, Baowu Steel, committed to achieving net zero by 2050.
Additionally, the EU should forestall accusations of rich-country protectionism. Fully exempting least-developed nations would help – these represent just a small share of CO2 embodied in EU consumption. Lower-middle income countries could be exempt up to a predetermined threshold, and safeguard measures could be designed to respond to a possible surge in imports from an exempt country. However, this does not address a strong cohort of potential critics in middle-income countries.

The EU plans to use the CBAM to raise funding for its Covid-19 recovery package. This would undermine the policy’s environmental credentials, however. The EU’s early-stage estimates see a CBAM bringing in a yearly 5-14 billion euros ($6-17 billion), against 150 billion euros of yearly borrowing under the rescue package. That would make it one of several new schemes to raise “own resources” in a departure from having all tax revenue flow to member state (Figure 6). In November 2020, delegates of the WTO’s Market Access Committee decried recycling CBAM revenues as protectionist. Channeling the proceeds toward least-developed countries would increase the policy’s acceptability.

5.1. Accelerating international climate action

The EU has hinted that exemptions to the CBAM could also apply to imports from jurisdictions with a carbon price. How this would work is unclear, but matching the EU ETS on price and scope could be a prerequisite (Figure 7). Even if this were based on “explicit” carbon prices levied by a
tax or cap-and-trade system, then asymmetric pricing, variations in coverage, and exemptions would complicate matters. Accounting for “implicit” carbon pricing through non-price policies would be trickier yet. No recognized method exists to determine the implicit impact of fossil fuel subsidies, renewables schemes, or other fiscal measures.

Recognizing foreign CO2 pricing could nudge non-EU countries to implement their own schemes. For its part, the bloc has been careful to play down the CBAM’s potential to encourage climate action beyond its borders. The WTO has taken a dim view of attempts to influence the policies of foreign governments when weighing in on previous disputes (such as on U.S. measures targeting turtles and shrimp). Framing the CBAM as encouraging trade partners to bolster their climate policies also sits poorly with the Paris agreement’s emphasis on voluntary commitments. As such, the Commission is unlikely to trumpet the scheme’s coercive potential. Yet it appears to be having just that effect.

In February 2021, Japan’s government was reported to be speeding the implementation of carbon pricing as a response to the EU’s CBAM. Russia’s first major climate law was announced in April 2021 – the draft law foresees the creation of a CO2 offset trading scheme that is framed as a response to the CBAM. In the same month, concerns on the scheme’s impact were reported to have stoked up Turkey’s aspirations to price carbon. That such action is being taken even before a proposal is out, shows how seriously the EU’s plans are being taken.

Figure 7: Select emission trading schemes, 2019

![Emissions covered (%)](chart)

Source: BloombergNEF, World Bank. Note: Differences in sectors covered and allocation methods, exemption and compensation methods should be considered when comparing.

The EU would do well to learn from past successes. Take the events of 1987-90, when France and Norway led a push to authorize the UN to sanction countries for failing to comply with environmental treaties. Creative multilateral solutions were developed, bringing the U.S. and USSR on board and giving rise to the IPCC Working Groups. These, in turn, did much to establish the scientific consensus needed for widespread climate action. Similar bridge-building will be needed to foster acceptance around the CBAM’s implementation.

5.2. Complying with trade law

Designing with a view to getting a CBAM accepted by trade partners will be vital. So will ensuring it is watertight with regard to trade law. The founding treaty of the World Trade Organization (WTO) does not take kindly to protectionism. As contended by Michael Mehling et al, the CBAM could be passed with recourse to Article XX of the General Agreement on Tariffs and Trade. The so-called general exceptions clause allows members to pursue certain policy objectives, including tackling climate change, through actions that impact international trade. Still, these must be applied in a non-discriminatory manner.
Accordingly, trade law will shape how the adjustment is applied. The CBAM is unlikely to take the form of a tariff. To avoid discriminating, it will likely reflect the carbon price imposed on domestic producers, possibly by creating a parallel market for “notional” allowances traded for each ton of emitted CO2. This has the added benefit of circumventing the unanimous approval in the Council (made up of 27 national ministers) that the EU requires for new taxes.

How much the market will resemble the EU’s carbon pricing scheme is uncertain – certificates could be surrendered upon import, or at year’s end as with the ETS. A hedging or secondary market will likely emerge, allowing importers to hedge against price increases by purchasing “real” allowances (or carbon derivatives) before selling in order to buy the notional units required under the CBAM.

Double protection is a concern. Unlike electricity generators, EU industrials deemed vulnerable to carbon leakage receive some allowances free of charge, shielding them from the cost of CO2 pricing. This has dampened the EU ETS’ impact on industrial emissions. For many years, sectors like steel and cement have been oversupplied – receiving more allowances than the sum of their emissions (Figure 8). Free allocation existing in parallel to a border adjustment would effectively amount to protection twice over; this could make the CBAM vulnerable to legal challenges and breed distrust that the scheme is motivated by protectionist goals.

Figure 8: EU cement sector’s emissions and free allocation under EU ETS

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<thead>
<tr>
<th>Year</th>
<th>Emissions</th>
<th>Overallocation</th>
<th>Free allocation</th>
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<tbody>
<tr>
<td>2005</td>
<td>100</td>
<td>50</td>
<td>80</td>
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<td>2006</td>
<td>150</td>
<td>75</td>
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<td>2007</td>
<td>200</td>
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<td>2008</td>
<td>150</td>
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<td>2019</td>
<td>0</td>
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Source: EUTL, BloombergNEF.

Such is the basis of the European Commission’s stated intention to combine the CBAM with phasing out free allocation. This will be tricky. Many industrial associations would prefer a CBAM to support free allocation, and not replace it. Passed by a narrow majority, a European Parliament resolution adopted on March 10, 2021 had its original wording altered. Industry lobbying led to MEPs recognizing that a metric ton of carbon ‘should not be protected twice’, but nix a pledge for a ‘parallel, gradual, rapid, and eventual complete’ phase-out of free allocation. The lead-up to the July proposal will see the EU’s executive face off with member states and producers.

Negotiations with EU industrials will be tough: even day-one proponents of a CBAM, like cement producers, turned skeptical when the removal of free allocations came to the fore. Double protection could be avoided if the CBAM adjusts for the share of a sector’s emissions that is not covered by free allocation. Yet this makes the scheme difficult to justify for oversupplied sectors like steel. Moreover, calculating this “gap” represents yet another administrative barrier. As at the global level, communication and outreach with European producers will be critical.

Less clear even is the fate of indirect compensation, whereby state aid covers increases in power prices – another potential source of double compensation. This is more relevant to power-intensive sectors such as aluminum than to steel and cement. Another unknown concerns EU
producers’ exports. For many, these make up some 15-25% of their revenues, but a CBAM would do little to alleviate climate policy’s impact on their competitiveness. Some form of a rebate might help, but any measures specifically supporting exports are vulnerable to WTO law. That boosts the case for keeping some degree of free allocation, which does not distinguish between domestically consumed and exported products.

6. Sectoral coverage

In its July proposal, the Commission will identify the sectors to which the CBAM will apply. These will have to be covered by the EU’s carbon price for the legal reasons cited above. These would rule out hydrocarbons with the exception of refined oil products (the extraction and refining of which is covered by the EU’s carbon price). What information it has revealed indicates a focus on commodities flagged by the EU ETS’ latest “Carbon Leakage List”. The document is primarily used to determine which sectors get free allocation, prioritizing those with a high exposure to imports and carbon-intensive production. These criteria vary across commodities (Figure 9-11).

Sectors on the leakage list cropped up in a European Parliament resolution adopted in March 2021. MEPs called for the CBAM to extend to ‘the power sector and […] cement, steel, aluminum, oil refinery, paper, glass, chemicals and fertilizers’. These account for the bulk of industrial emissions; each presents its own challenges. For one, determining benchmarks will be easier for sectors with simpler value chains. Cement imports can be easily divided into five categories for which direct emissions are simple to gauge. Meanwhile, chemicals are a jumble of disparate sectors made up of a wide array of basic and intermediate products.

![Figure 9: Trade intensity, selected EU industrial sectors in 2019](image)

![Figure 10: Emission intensity, selected EU industrial sectors in 2019](image)

Source: BloombergNEF, European Commission.

A CBAM favoring just one of several competing commodities could have a distortive effect. Producers of cement, fertilizers and electricity face little in the way of direct competition from other sectors. Yet some products vie for the same markets: aluminum and steel can have similar applications in car manufacturing. Plastics on the one hand, and pulp and paper on the other, are also procured for similar end-uses. The upshot may be to widen a CBAM’s range beyond that initially envisioned, with a broader sectoral coverage countering potential substitution effects.

Industrials considering spending on abatement require clarity on what sectors will be covered. A CBAM may be launched as a pilot scheme before expanding – a likely prospect due to the tight 2023 deadline. If that is the case, the EU should clarify what will ultimately be covered. A lack of visibility could lead to deferred investments, carbon leakage, or locking in a new, carbon-intensive capital stock. Aquora Energiewende found that, as a share of production, 59% of chemical steam crackers, 53% of steel blast furnaces and 30% of cement kilns would need to be replaced over 2020-30. These have lifetimes ranging from 50 to 60 years.
Metals and chemicals will require some coverage of the downstream value chain. Steel and aluminum are, for instance, widely traded as finished and semi-finished products. The purported risk of carbon leakage decreases as the ratio of value-added to carbon-cost rises down the value chain, but deciding where to draw the line will be tough. If not covered, downstream producers that procure basic materials will face higher input costs, reducing their competitiveness.

Yet working out emissions embedded in products further down the value chain raises the policy’s technical hurdle and administrative cost. Semi-finished goods bring an additional challenge: many materials are part of integrated value chains that criss-cross borders. Steel used in automotive manufacturing can, for instance, cross the English Channel five times. Accounting for charges paid will be required to avoid repeatedly imposing adjustments.

What category of emissions will be covered is another undefined area. A CBAM could be limited to Scope 1 direct emissions (released by production processes) or also include Scope 2 indirect emissions (those associated with electricity, steam or heat consumed, but produced off-site). Expanding the CBAM’s emissions scope is beneficial environmentally and in terms of competitiveness, but entails a greater administrative burden. Scope 2 emissions account for a large share of emissions in sectors like aluminum and paper. As such, Scopes 1 and 2 will probably be included. Tracking Scope 3 emissions – those linked to a product’s value chain – is likely to be prohibitively complex.
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