



## Limits of carbon pricing in a climate-changing world

*Limites da precificação de carbono num mundo em mudança climática*

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**Abstract**

In the last two decades, carbon pricing has contributed on consolidating a normative consensus of responding to the problem of climate change with economic instruments. The article explores the consensus about carbon pricing and its neoliberal rationality and argues that this turn to economics helps to explain its limited results, as it ties climate policies to private interests, despite of its poor outcomes.

**Keywords:** Carbon pricing; Climate change; Neoliberal rationality.

**Resumo**

Nas duas últimas décadas, consolidou-se um consenso normativo de resposta ao problema das mudanças climáticas por meio de instrumentos econômicos. O artigo relaciona o consenso em torno da precificação do carbono à racionalidade neoliberal e argumenta que esta ênfase na economia ajuda a explicar os resultados limitados da precificação de carbono, uma vez que vincula as políticas climáticas a interesses privados, independentemente de seus efeitos concretos para a redução de emissões.

**Palavras-chave:** Precificação de carbono; Mudança climática; Racionalidade neoliberal.



## Introduction

Carbon pricing is among the main carbon policy instruments nowadays. The Kyoto Protocol to the United Nations Framework Convention on Climate Change (1997) established the basis of the international debate about carbon pricing when it settled economic instruments (the “flexible mechanisms”) as a response to climate change. At the domestic and regional levels, several States have made efforts to design direct or indirect mechanisms to internalize the cost of GHG emission – as the European Union Emission Trading System (EU ETS), one of the most structured carbon pricing policies. Besides the national and subnational carbon market systems, numerous experiences of private mechanisms and voluntary carbon trading markets involving non-state actors have been developed (HAMRICK E GOLDSTEIN, 2016). In Brazil, carbon pricing policies are taken under consideration once in a while: first with the Clean Development Mechanism – one of the flexible mechanisms of the Kyoto Protocol –, then with the possibility of conducting projects related to forestry and reforest and the negotiation of carbon credits under the Brazilian stock exchange. Despite the sporadic domestic debate, no national or regional pricing policy has been instituted in Brazil yet.

However, the diffusion of carbon pricing did not necessarily result in emission reductions. The climate regime – which includes carbon markets and carbon pricing – has been failing to respond to the climate challenge. As the IPCC reports to states, it is necessary to do much more if we want to avoid drastic and dramatic environmental changes (IPCC, 2018). The current Nationally Determined Contributions – representing the Paris Agreement Parties’ commitments – are knowingly insufficient for achieving the goal of a 1.5° to 2° global warming. Notwithstanding the implementation and compliance challenges, the attempt to create carbon markets and carbon pricing pilot projects around the world in the last two decades has contributed consolidating a normative consensus of responding to the problem of climate change with economic instruments (MECKLING, 2011; GREEN, 2013). This consensus about carbon pricing involves assuming that market mechanisms can provide adequate solutions to environmental problems because governments are supposedly inoperative and markets are allegedly efficient – which is the expression of neoliberal rationality.

This article aims to explore this consensus about carbon pricing and its neoliberal rationality. We take the critical literature of the commodification of nature



(BUMPUS AND LIVERMAN, 2008; LIVERMAN, 2009) and the economic rationality to deal with environmental issues (DEMPSEY, 2016) to address the dissonance between the consensual response of carbon pricing and its meager results. Our argument follows the idea that this turn to economics defines the climate regime, and may help to explain its limited results as it ties climate policies to private interests, despite of its poor outcomes. Methodologically, the article is based on a qualitative analysis that involves interpretative analysis of textual data. We take the explanation on carbon pricing proposed by the World Bank – which is recognized as one of the main knowledge-based experts in this debate – in order to interpret carbon pricing rationality according to the critical theory on neoliberalism.

In the next section, we present the two main policy instruments to reduce carbon emissions: *Carbon Tax* and *Cap and Trade*. Then, we approach private instruments of carbon pricing and how they operate. In the second section, we address the main criticisms of carbon pricing and we explore our argument: that the economic rationality limits the climate policy results, despite the climatic urgency. Finally, the perspectives of carbon pricing are pointed out considering the pandemic of Covid-19 and its economic impacts.

## 1. Policy instruments for reducing carbon emissions

The two main policy instruments to control greenhouse gas emissions are Command and Control and also carbon pricing instruments. The Command and Control instruments refer to the establishment of limits for a given activity, with enforcement and sanctions for non-compliance (i.e., regulation that defines the amount of CO<sub>2</sub> allowed to be emitted per km by newly produced cars).

Carbon pricing instruments refer to the establishment of a price in the volume of emissions encouraging polluters to be less dependent on fossil fuel energies (particularly coal, which is the most intensive of the fossils), as it becomes less costly to promote technological innovation than business-as-usual emissions. In this case, the reduction does not result of a defined limit of emissions, but of the cost from emitting carbon. The premise of carbon pricing is that it drives technological innovation, research,



and technological development, making it possible to change industrial processes by less polluting ones (WORLD BANK, 2020a).

The flexibilization mechanisms included in the Kyoto Protocol (1997)<sup>1</sup> have spread carbon pricing logic among the Protocol's Parties, including the ones with no emission reduction obligations. The agreement has aided the path for the creation of the international, regional, domestic and subnational carbon markets. Paterson, Hoffmann, Betsill and Bernstein (2014) refer to the diffusion of markets through networks of individuals and organizations in various governance processes. The authors use the polycentric diffusion approach applied to climate change to analyze the political and social outcomes resulting from networks formed around the carbon market (PATERSON, HOFFMANN, BETSILL AND BERNSTEIN, 2014, p. 423). In applying meso-level analysis to carbon markets, the authors examined the networks of individuals and organizations that collaborate to promote carbon markets around the world, and how these have changed over time (p. 425). Some of the elements that characterize the networks around the carbon market, according to Paterson et. al (2014) are the diffusion of ideas, in the sense of systems of thought concerning economic instruments, especially in the USA and in the EU, and the transnationality of these networks that are formed by fragmented and unrelated experiences.

Another key factor to the structuring of carbon markets was the creation of a metric unit, the carbon equivalent, to match emissions of various greenhouse gases based on their global warming potential, according to indexes released by the Intergovernmental Panel on Climate Change (IPCC). The carbon equivalent unit was essential to enable gas accounting and is present in virtually every carbon pricing system and project in the world<sup>2</sup>.

The main economic instruments for pricing the tone of carbon emitted are carbon tax and cap and trade. According to a 2020 World Bank report, there are 61 initiatives about 46 countries and 32 subnational jurisdictions in developed and developing countries that have or are considering implementing carbon pricing policies (WORLD BANK, 2020b).



## 1.1 Carbon pricing

The carbon tax is a tributary mechanism in which the State sets a price for the emission of the ton of carbon. The government directly controls the amounts involved and, consequently, the results of the policy. Its main obstacle is its political cost, which explains the relatively few countries have introduced the tax. According to the World Bank (2018), carbon taxation in very limited proportions has occurred since the early 1990s in countries such as Denmark, Norway and Sweden, and there is some degree of evidence that carbon taxation leads to emissions below the expected without the mechanism (WORLD BANK, ECOFYS, 2018).

One example of a carbon tax is the British Columbia Carbon Tax (Canada), created in 2008. The guidelines for the tax involve a gradual implementation, to allow the adaptation of people and companies; the protection of poor people through tax credits; as well as the adequacy of other taxes to avoid double taxation. In 2020, it covers 70% of the jurisdiction emissions' share and some of the industry, aviation, transport, and agriculture sectors are excepted (WORLD BANK, 2020). After more than ten years of its implementation, the carbon tax is still part of the political debate (WHERRY, 2019), and British Columbia has fallen short of meeting its emission reduction targets, mainly because of the fossil fuel subsidies (CORKAL, GASS, 2019; KARAPIN, 2020). In 2019, Canada established a federal carbon pollution pricing system on oil, gas, and coal. The idea is to tax burning fossil fuels emissions and to distribute the revenues as rebates for taxpayers. The carbon tax applies to all provinces, although the ones that already have some kind of carbon pricing that meet the federal Act standards can be considered in compliance with the new law (NUCCITELLI, 2019). In 2020, during the pandemic, the Canadian carbon tax has been on the frontline of the election debate (FARAND, 2020), and the Conservative Party platform includes abolishing it, because "A carbon tax is not an Environmental Plan, it is a Tax Plan" (LOURIE, 2020).

The Cap and Trade mechanism is generally structured by an emissions trading system – or scheme –, and it has as core elements: the cap, which will point out the degree of politics' ambition, and a license allocation mechanism. Emission allowances must be distributed for a certain period of compliance. The allocation of these may be due to the political strategy of protection on a specific industrial sector, accountability of more polluting sectors, etc.; and combined with a monitoring, reporting and verification system.



The monitoring system needs to be consistent, transparent, and accurate as it ensures the reliability of the entire system and discourages fraud.

Cap and Trade systems can be designed in different ways, depending on the objectives and desired limits of the measure. Among the differences, we highlight:

- a) Scope: It is possible to define which activities (and sizes) are included or not;
- b) Limit (cap): The total allowable emission limit in the system may be changed provided that it does not equal or exceed the volume of emissions that would occur without the system;
- c) Free licenses: The State can provide free licenses to certain groups, in order to manage any unwanted impacts, or to auction all licenses;
- d) Investment and lending: the system may admit unused allowances to be used in another period or for future licenses to be used at present in the form of loans (OECD, 2013, p.16);
- e) Use of offset credits: some systems allow the use of offset credits, which correspond to proven greenhouse gas emission reductions in places out of the scope of the scheme.

The best-known Cap and Trade system is the European Union Emission Trading System (EU ETS), which was established by the Directive 2003/87/EC of 13 October 2003. The EU ETS was the first Cap and Trade system to operate and the first system to cover more than one State. It is the largest cap and trade system in operation in the world. The EU ETS is part of the European Union's strategy for reducing emissions and encourages actions taken by its Member States, seeking a balance of national, regional, and international actions (EUROPEAN COMMISSION, 2016).

To be effective in reducing emission levels, the total allowances must be less than the emissions level in an uncontrolled situation. Excessive licenses can bring the price of licenses to zero, invalidating the effects of the mechanism. Over almost 20 years of the EU ETS' existence, it has experienced ups and downs, especially considering its scope and the prices of allowances.

According to the European Court of Auditors (2020), free licenses - which should be a transitional method of issuing licenses – still represent more than 40% of the total of licenses available in the EU ETS, and between 2005 and 2012 Almost all allowances were



given to businesses for free. The number of emission allowances allocated was higher than the total needed to cover emissions, particularly after 2008. The Court of Auditors stated that “despite good reasons for their use, better targeting of free allocation would have had multiple benefits for decarbonisation, public finances and the operation of the single market” (ECA, 2020, p. 39).

The 2008 economic crisis in Europe has severely affected the EU ETS, because of the reduced economic activity that has resulted in reduced emissions (MUULS *et al*, 2016). There is the expectation that this could happen again because of the coronavirus recession. For example, the World Bank Report, “State and Trends of Carbon Pricing 2020”, already points out that prices on some ETS fell due to the reduction of economic activity in 2020. Besides, some jurisdictions have delayed carbon pricing deadlines and scope adjustments (WORLD BANK, 2020b).

In Brazil, although a carbon pricing policy was not established yet, it comes up occasionally, since the mid-2000s, as a viable climate policy alternative. The National Climate Change Policy, enacted in 2009 (Federal Act 12187) points as one of its objectives to develop a Brazilian market for emissions reductions. In 2014, Brazil formally joined the “Partnership for Market Readiness”<sup>3</sup>, led by the World Bank, which aims at providing support to countries that seek to implement a carbon pricing mechanism (ETS or carbon tax). In 2019, the Ministry of Economy signaled that an ETS was under consideration<sup>4</sup>. In December 2020, after a series of seminars and workshops that took place between 2019 and 2020, a PMR Final Report was handed to the Ministry of Economy, which has indicated that the mechanism that shall be adopted is an ETS and not a carbon tax (MING, 2020). Until January 2021, the Ministry of Economy has not publicized a formal decision on the issue. It is worth noting that one important private research foundation (*Centro de Estudos em Sustentabilidade* of the *Getulio Vargas Foundation* – FGVces) is developing an ETS simulation<sup>5</sup>, with trading through the Rio de Janeiro Green Stock Exchange (BVRio).

## 1.2 Private mechanisms and voluntary carbon markets

The Kyoto Protocol stimulated the formation of voluntary carbon markets, bringing together various private actors – from the productive and financial sectors, NGOs, consultancies, etc. These actors engaged in diverse private rules and standards to regulate GHG emissions, contributing to the diffusion of the idea of carbon pricing as a





response to climate change mitigation. According to Jessica Green, the Kyoto Protocol has been able to attract private actors as a "coral reef" when predicted economic instruments: "in this case, the reef serves not as a way for activists to organize, but rather for private authority to contribute to an orderly expansion of the regime complex" (GREEN, 2013, p. 2). According to Green's research, the Kyoto Protocol was central to the consolidation of the carbon market, giving overall parameters of procedures and standards, especially with the Clean Development Mechanism (CDM) (GREEN, 2013).

These voluntary actions do not respond directly to any specific regulatory requirement, whether an international agreement with binding obligations or internal rules – and generally use the offset mechanism, and may bring together private and public actors. The Carbon Pricing Leadership Coalition (CPLC), whose secretariat is managed by the World Bank Group, connects leaders from government, business, civil society, and academia to improve the implementation of carbon pricing (CPLC, 2020). In 2016, the CPLC invited Joseph Stiglitz, Nobel Prize in Economics and Lord Nicholas Stern, to chair a new High-Level Commission on Carbon Pricing composed of economists and experts in climate change and energy to analyze carbon pricing (HIGH-LEVEL COMMISSION ON CARBON PRICES, 2017).

The voluntary initiatives usually involve these main types of actors:

a) There are those which define private standards, which are based on methodologies measuring gas emissions from a given activity to define the impact of a given project. They are the center of private markets, as the "quality" of emission reductions is fundamental to the recognition of the validity of shares. Some examples are the Verified Carbon Standard (VCS – formerly Voluntary Carbon Standard), one of the first to create standards and methodologies to ensure the quality of carbon credits; the ISO standards of 14000 series and the Gold Standard (supported by WWF). In Brazil, we highlight the methodologies approved by the Brazilian Association of Technical Standards (ABNT).

b) There are those who implement a project according to the norms and following the methodology created by "a": they are actors who see the possibility of obtaining financial return or even financing improvements in their activity, which has emission reduction potential or carbon capture.

c) There are those who buy credits from the project implemented by "b": they are private actors that aim, among others points, to improve their image, to make their



technological innovation financially and politically viable, to respond to some sector-specific demand, to adapt at a lower cost to the possible later regulation, or even for to glimpsing profits from trading credits in the carbon markets. In short, buyers in voluntary markets are individuals or corporations who want to compensate some of their emissions by offsetting them by investing in projects that stop emitting or capture emitted carbon.

According to Jonas Meckling (2011), among the main actors leading the coalition between NGOs and industry in favor of the carbon market are, for example, major emitters from the fuel and energy sectors, such as BP, Shell, and DuPont, for understanding that it would be better to adapt to some kind of carbon pricing by collaborating on the definition of which type: “advocacy for emissions trading was primarily understood as a risk management strategy. It has been widely assumed in the business community that the regulatory risk of emissions trading is lower than that of a carbon tax” (MECKLING, 2011, p. 174). In addition, it attracted to these companies the voluntary aspect of the projects, which gives them a high degree of autonomy.

d) There are those who create spaces for financial transactions – the markets themselves, such as Stock Exchanges. One of the best-known actors is the Chicago Climate Exchange, which organized one of the largest cap-and-trade programs in North America between 2010 and 2011, and thereafter deactivated the system and launched the Chicago Climate Exchange Offsets Registry program, to record verified emissions reduction based on established standards.

e) There are those who advise transactions and give consultancy among others. In this case, they do not create methodologies, but develop, with “b”, a project using third party methodology (“a”), and then link “b” to “c”. An example in Brazil is Sustainable Carbon – Environmental Projects, which develops, among others, projects whose credits are sold to airlines companies.

The Carbon Disclosure Project (CDP), for example, is a non-profit organization that measures and manages risks and opportunities in climate change, water security and deforestation. It collects, gathers, and publishes governmental and corporate data in order to guide investors and consumers in actions and accounting for their contribution to climate change. The number of companies that reported data to CDP on the incorporation of an internal carbon price into their business strategies increased from 150 in 2014 to over 1,300 in 2018 (CDP, 2020).



These private actors form a network of participants that produce, trade, and advise carbon credit transactions – or that verify and give a degree of confidence to the origin of the credit, ensuring that a specific project comply some methodology and result in emission reductions. One of the main points of private systems – and also their main factor of vulnerability – is the credibility of actors involved and the stated outcomes. Companies buy credits or implement emission reduction projects in search of credibility as well as certifiers and audits seek to check this credibility. The lack of a universal or simplified rule to account for the impact of a given activity on carbon emissions and the complexity of what is being measured (carbon equivalent emissions) makes the process quite fragile and susceptible to fraud.

The private mechanisms and voluntary markets have an important role in spreading carbon pricing worldwide. These actors aimed at promoting carbon markets, by setting the standards, creating incentives to institutional commitments, and sometimes by financing pilot projects. They have contributed to the development of voluntary initiatives over the last decades, with periods of more or less enthusiasm and involvement, despite criticism of their real effectiveness, that is, their ability to mitigate emissions and not be limited to greenwashing.

## 2. Carbon pricing falls short of the climate challenge

Carbon pricing experiences have been detaching from the climate regime over the past two decades, being negotiated and developed beyond the scope of the Conferences of Parties of the climate regime, due to the difficulties in negotiations. One example of these difficulties is the debates over the Article 6 of the Paris Agreement, which have lasted for more than 5 years. Article 6 creates three mechanisms to achieve climate goals, two based on market approaches and a third on non-market approaches. The discussions around the overall mitigation of global emissions, the ways to avoid double counting, the definition of a predictable and adequate share of the revenue for the resources of the adaptation fund, and the safeguards of human and indigenous rights remained for 2020 negotiations' round – which are now postponed because of the Covid-19 pandemic. As discussed above, this has not prevented national, subnational, and private actors from becoming involved in building mandatory and private carbon trading instruments. However, despite the



number of projects and actors involved, carbon pricing falls short of the climate challenge. The criticisms on carbon pricing are both theoretical and based on the analysis of implemented projects, pointing to its limited results.

In the following section, we explore the argument that carbon pricing is a neoliberal response, based on the premise that market solutions are capable of solving the problem of climate emergence – with or without the States involvement. We argue that, from a neoliberal point of view, the best way to protect the environment is to price nature within a market that can be legally shielded. The attempts to form carbon markets are part of this logic. Then, in 2.2, we assert that because it is a neoliberal response to an environmental issue, it is a limited response: as it prioritizes the economics instead of the environmental results, it is susceptible to exceptions to specific sectors, flexibilization of scope, free allocation of allowances and implementation plans that diminish the potential environmental benefits of the measures.

### 2.1 Carbon pricing as a neoliberal response to climate change

The consensus on carbon pricing as the most effective way of dealing with climate change is an expression of an ideology – the centrality of economics – presented as a technical answer – a “cost-effective” solution to deal with carbon emissions. The logic involved in this consensus is that climate change is a challenge, but also an opportunity, as it creates new goods, markets and demands. In this sense, the Stern Review states that “the world does not have to choose between preventing climate change and promoting growth and development” and that combating climate change is a “long-term strategy for the benefit of growth” (STERN *et al.*, 2006, p. iii).

Concepts like “green economy” and “low carbon economy” are inserted in this rationale that bets on the conciliation between economic growth and environmental sustainability, and they are the base to mechanisms that seek to instrumentalize capitalism in favor of the decarbonization of the economy, which Parr (2013) summarizes as “climatic capitalism”. It is believed that market mechanisms can provide adequate solutions to environmental problems because there is an understanding that governments are inoperative and markets are efficient. According to this rationality, a condition for a sustainable future is the market’s recognition of its responsibility as producers of externalities. As claimed by Bello, this is a fetishistic expression:



This reliance on the market to deal with the most threatening problem of our time is incongruous, given the massive market failures of the last decade, in international finance, in dealing with poverty, in promoting development (...) the fact that the ideological fetishism of the market is one of the greatest obstacles to coming up with a viable global strategy to deal with global warming (BELLO, 2009).

Since the 1980s, this logic gains increasingly neoliberal contours. The neoliberal response to the environmental crisis was marked by an expansion in global environmental financing, with a rapid increase in the involvement of private companies. At the same time, market mechanisms were implemented as instruments of environmental governance at various scales, implying a certain level of regulatory power at the supranational level and of non-national state markets and actors, but also a continuous emphasis on the management of carbon by states (WHILE *et. al.*, 2009).

Carbon markets are part of this neoliberal logic and may be considered one of the most significant cases of neoliberal governance, due to their scale and geographical reach. Bumpus and Liverman (2008) classify investments in carbon markets as a strategy of “accumulation by decarbonization”, in an expression that comes from David Harvey’s (2005) concept of “accumulation by spoliation”. The accumulation by spoliation of neoliberalism is characterized by four characteristics, which can be identified in carbon markets: the commodification of resources, financialization of resources through their incorporation into international markets, crisis management according to the interest of the private sector, and States functioning as agents of redistribution and market regulation (HARVEY, 2005). Bumpus and Liverman (2008) identify a case of neoliberal governance in carbon markets because the management of the environmental problem is partly transferred to the market or to an individual, and it is up to the State to establish the operating rules in which the markets operate.

Regarding the rationality involved in carbon pricing, an empirical study by Blum (2019) based on interviews and participant observation in events parallel to international climate change conferences concluded that, among his interviewees, the legitimacy conferred to the carbon markets has been closely linked to political confidence in fulfilling the expectations of the respective public. The delegitimation discourse of carbon markets highlights institutional, logical, and ethical problems perceived in the structures, procedures, and results. The legitimation narrative emphasizes results achieved, potential benefits for implementing the Paris Agreement, and possible institutional reforms. Regardless of their efficiency or effectiveness, confidence in these mechanisms remains



strong and correlates with the actors' acceptance not only of carbon markets but of market mechanisms in general (LANSING, 2013; BLUM, 2020).

Despite two decades of its proliferation, carbon markets' objectives have not been achieved. And even though economic mechanisms have not yet shown effectiveness in tackling climate change (for example Kollmuss et al, 2015, and Simonet et al, 2014), global climate governance continues to bet on the market to reduce greenhouse gas emissions. One example of this defense of carbon pricing as a technical solution despite the results obtained so far is the World Bank Report (2019):

In 2018 and 2019, the number of carbon pricing initiatives worldwide increased and existing systems were strengthened as jurisdictions assessed their policies to better align with their climate goals. But we are still a long way from where we need to be to fulfill the objectives of the Paris Agreement. The coverage and price levels of carbon pricing initiatives are still insufficient. It is crucial that jurisdictions take action now to increase the breadth and depth of carbon prices. (WORLD BANK, 2019, p.8).

In the context of neoliberalization, the solution to market failures is found in the intensification of the market itself, as the problems are understood as a result of the insufficient application of its mechanisms (FLETCHER, 2014). For Eric Swyngedouw (2010), this is a post-political discourse, as it presents a vision of the inevitability of capitalism and the market economy as an organizational structure of the social order. The assessment shares the premises of the criticism of the "green economy" in general, with a focus on political, ethical, and moral aspects (PAGE, 2013) and based on notions such as justice and equity. The market-narrative was used to establish this new commodity, which quickly became a form of investment that some critics consider of questionable value to the poor in the developing world, while it became a new arena for capital investment and speculation (LIVERMAN, 2009).

Carbon pricing, to its critics, has among its worst effects the false impression that we are solving the problem (SPASH, 2009). Turning carbon into a commodity that could be priced and traded would be incompatible and inconsistent with environmental preservation in a broader sense. For there to be certain materiality in this trade, a series of abstractions are necessary to define both what is the "carbon" to be priced and traded, and the markets to trade it in what Larry Lohmann calls "endless algebra of carbon markets" (LOHMANN, 2011; LANE AND NEWELL, 2016). Moreno, Chassé and Fuhr make an interesting critique of reducing the complex environmental problems generated by climate change to the amount of carbon that can be measured (carbon metric) and traded



(2016). According to the authors, the problem is limited to the “carbon” reductionist approach, regardless of its social and environmental consequences. The focus on carbon ends up capturing other efforts, such as preserving biodiversity concerning the carbon metric, despite its real impacts.

(...) carbon metrics support some very odd reasoning. The world can continue to produce emissions, as long as there is a way to «offset» them. So, if you have emissions in one place, and carbon sequestration (or «avoided» emissions) elsewhere, is it possible to consider the former neutral, or to have a «net zero» result? Then, instead of embarking on a radical emissions-reduction trajectory, we can continue to emit massive amounts of CO<sub>2</sub> – and even build new coal-fired power plants? (MORENO, CHASSÉ AND FUHR, 2016, p. 42).

Because it is a neoliberal response to the climate challenge, carbon pricing has spread across the globe as a technical and best-optimal solution to deal with climate change. The economic instrument promotes the commodification of nature, which becomes reduced to its potential capacity of carbon stock. It leads to the international financialization of nature (i.e., forests’ carbon credits) and reduces the role of the State as an agent of market regulation instead of a climate policy.

In a research on the legitimacy of carbon markets, Blum (2019) interviewed project developers, auditors, lobbying organizations, researchers, consultants, NGO representatives, employees of international organizations, market intermediaries, among others. At the two poles, regarding the acceptance and rejection of carbon markets, are the lobbying organizations and the critical NGOs. In between, there is contestation, but also the understanding that markets can work if there are commitments and reforms involved. Carbon market advocates have minimized criticism and labeled it as ideological and non-constructive (BLUM, 2019). They showed optimism and understood climate change as a problem of transnational governance, with lobbying organizations blaming states for taking insufficient measures under the Paris Agreement. The narrative highlights that the establishment of rules is essential for a reliable market, which would include certification schemes, independent auditors and processes for validation, verification, and issuance. They present the market structures as functional, manageable, and subject to reform (BLUM, 2019).

However, despite the pretensions of technical neutrality sustained by the neoliberal rationality, the choice of one instrument over another is always political: “Different policy instruments favor different constituencies, thereby reflecting and



entrenching uneven social power” (FELLI, 2015, p. 6). Felli also recalls that the reasons why specific actors choose some type of instrument instead of another to implement a specific policy usually consider interests and preferences, pre-existing institutions, and possible coalitions and oppositions<sup>6</sup>.

## 2.2 The limits of carbon pricing are unbearable in a climate changing world

Despite the efforts of some actors (as the World Bank) to get carbon pricing (mandatory and voluntary) off the ground, there are innumerable projects "under consideration", pilot projects, and programs that, even though consolidated, have meager results. This illustrates the difficulties of implementing this climate policy, and it raises the question: If there is a normative consensus of carbon pricing as a best-optimal solution, why carbon pricing has not taken off? Because the results of carbon pricing are dependent of strong political commitment involving a climate policy and an emission reduction plan, and the negotiations involving its implementations usually results on concessions that diminish the climate impact of the instrument (as exceptions to specific sectors, flexibilization of scope, free allocation of allowances, etc.).

The Carbon pricing instruments coverage, usually, except sectors according to a strong lobby from the largest sectors and companies, as well the ones that are considered strategic (as mentioned in the case of EU ETS and the Canadian Carbon Tax), weakening the climate commitment. In this sense, the argument that carbon markets are technical instruments hides interests and power relationships between those involved. Hereupon, Felli (2015) stress that depoliticization is an inherent part of emissions trading, regardless of the economic instrument involved. Felli defines depoliticization, regarding this case, as “the power of non-decision, the capacity for more powerful actors to ensure that some issues are not subjected to debate and authoritative decision-making, especially under the realm of the state” (FELLI, 2015, p. 8).

The result of lobbies and weak climate political commitments in different contexts have had similar results: low prices of carbon credits, and no significant emissions curb changes, with very few exceptions. In order to achieve Paris Agreement’s goals, carbon prices would have to have reached between 40 and 80 dollars per metric ton by 2020 and between 50 and 100 dollars by 2030, according to the High-Level Commission on Carbon Prices (2017). However, only 1% costs at least \$40 or above, and





75% cost less than \$10 (BALL, 2018). According to Ball, carbon pricing has brought some results in sectors as fossil-fuel-intensive industries – such as energy and heating, which have technologies available to reduce energy use and cannot be easily reallocated (BALL, 2018). Ball points out that, in theory, pricing the carbon makes sense because it encourages the shift to low carbon technologies. In practice, however, pricing has not brought results on climate change.

Pearse and Böhm (2014) highlight the carbon markets' inefficiency, as they failed to remain stable and effectively boost emission reductions, and they were susceptible to fraud – as it occurred, for example, in the case of EU ETS (FUNK, 2015). In addition, the mechanisms have resulted in environmental and social impacts, with projects of a quite questionable merit, reinforcing inequalities between developed and developing countries (ERVINE, 2013; BÖHM AND DABHI, 2009; BOYD, 2009; PEARSE AND BÖHM, 2014). Carbon markets, as designed, may end up rewarding the polluting sectors with the distribution of free permits, characterizing themselves as a kind of fossil subsidy (PEARSE AND BÖHM, 2014). In a different sense, Bayer and Aklin (2020) have found evidence that the EU ETS was responsible for the reduction of accumulated emissions by about 1.2 billion tons of CO<sub>2</sub> from 2008 to 2016, or approximately 3.8% in relation to the total emissions over those years. The authors argue that, despite the low prices, carbon markets can help to reduce emissions, however, for this to happen, companies under regulation need to perceive carbon markets as a credible regulatory policy for the future.

In several of the ETS experiences of implementation, the social pressure for the adoption of some climate policy was essential to its occurrence, so was the pressure over the industrial sectors. Between tribute and a Cap and Trade system, for example, such actors are more favorable to the latter, in that it allows for greater flexibility and more influence. Carbon pricing is therefore in the way of *doing nothing* and *being forced to act*. This helps to explain why, although supported by relevant international forums (UNFCCC, IPCC, OECD, WTO, IMF, etc.), currently only 20% of global GHG emissions are covered by carbon pricing and, according to the World Bank, less than 5% of these are quoted at levels consistent with the Paris Agreement targets (WORLD BANK, 2019).

Lobbies, lack of political engagement, and insufficient social pressure are factors that explain the choice of economic mechanisms in which public and private actors do not need to carry out major structural changes – or that can be carried out gradually. According to Ball (2018), if carbon markets are effective, a series of political, economic,



and environmental gains could be achieved. Perhaps therefore it is difficult to give up this bet and the belief that only more technical adjustments, more organization and control are needed. It is 15 years since the Kyoto Protocol came into force and few results can be presented as satisfactory when it comes to carbon markets. Meanwhile, the urgency to act is more and more pressuring and the possible answers seem to be the consensus of the carbon markets. "The result is that a policy prescription widely billed as a panacea is acting as a narcotic. It's giving politicians and the public the warm feeling that they're fighting climate change even as the problem continues to grow" (BALL, 2018).

In a post-pandemic scenario, the global economic crisis may put the brakes on environmental investments, as countries seek ways to quickly minimize the effects of falling economic growth. Then, the clear and strong political commitment to climate policies – that is precondition for carbon pricing – could become even more distant. While some States and organizations sustain the need to include decarbonization in the economic recovery plans (VIVID ECONOMICS, 2020), it is not yet clear how this will be done.

At the beginning of April 2020, because of the Coronavirus lockdown measures and economic restrictions, there was a 17% reduction in daily carbon emissions in the world compared to 2019. However, in June 2020 (therefore still during the pandemic), emissions were only 5% lower on average than in the same period of 2019 (LE QUÉRÉ *et al*, 2020). The prices of carbon credits, after falling sharply at the beginning of the pandemic, rose again after announcements made by the European Union of a billion-dollar investment programme for green recovery, energy transition and decarbonization (MATHIS, 2020). The mood of the carbon market, as well as other financial markets, is moving as the political winds get organized beyond it, and it is not clear where it goes.

While some States and organizations sustain the need to include decarbonization in the economic recovery plans (VIVID ECONOMICS, 2020), it is not yet clear how this will be done. The economic recovery packages announced by governments express some private sector lobbies. Industrial segments such as fossil fuels, plastics, airlines, and automobiles have sought – and taken – a large share of the incentives destined for post-pandemic recovery (CARRINGTON, 2020). One of the industries that have received the most incentives is oil and gas. The corporate lobby is getting billions of dollars in public resources and includes tax changes, exemptions in royalties paid by



companies for oil exploration or mining on public lands (CARRINGTON, 2020; GARDINER, 2020; FOE, 2020; ROSS, 2020; THE ECONOMIST, 2020).

The measures that are been taken and announced on behalf of the economic recovery may end up promoting more deregulation and flexibilization of carbon emissions reductions plans, with the perception of crises been used as a strategy to facilitate them (FLETCHER, 2012) – and the disorientation and confusion of natural or social crises been used as a means of expanding free-market policies (KLEIN, 2008). It is still unclear how carbon markets will develop in this context. In order to have any impact on carbon emissions, carbon market needs a clear climate policy and commitment, robust actions to reduce emissions, eliminate free allocation and strengthen the reserve that absorbs excess licenses (CARBON MARKET WATCH, 2020). These measures, however, come up against various attempts by the industry to use the pandemic as a pretext to weaken international and domestic climate legislation.

### 3. Concluding remarks

Presented as a technical best-optimal solution, carbon pricing has spread around the world with the incentive of different actors, such as the World Bank. The consensus about carbon pricing expresses the neoliberal rationality of assuming that market mechanisms can provide better adequate solutions to environmental problems than governments and their command and control regulations. Carbon pricing economic rationality limits the climate policy results, in a moment that governments should be strengthening their climate commitments. Because it is dependent on a clear political commitment to carbon regulation, the success of carbon markets depends on the State's commitment to climate policies.

Exceptions to some specific sectors, flexibilization of the scope, free allocation of allowances and implementation plans that diminish the potential environmental benefits of the measures, are factors that diminish carbon pricing results. But these factors are not flaws to be corrected. They are the result of neoliberal rationality that creates carbon pricing.

The perspectives of carbon pricing considering the pandemic of Covid-19 and its economic impacts are not clear. In a post-pandemic scenario, the global economic crisis



may put the brakes on environmental investments, as countries seek ways to quickly minimize the effects of falling economic growth. Then, the clear and strong political commitment to climate policies - that is a precondition for carbon pricing to succeed - could become even more distant.

#### 4. References

BALL, J. Why Carbon Pricing Isn't Working – Good idea in theory, failing in practice. **Foreign Affairs**. July-August 2020.

Available at [https://www.foreignaffairs.com/articles/world/2018-06-14/why-carbon-pricing-isnt-working?cid=otr-author-why\\_carbon\\_pricing\\_isnt\\_working-061418](https://www.foreignaffairs.com/articles/world/2018-06-14/why-carbon-pricing-isnt-working?cid=otr-author-why_carbon_pricing_isnt_working-061418).

Retrieved on September 26, 2020.

BAYER, P. and AKLIN, M. The European Union emissions trading system reduced CO2 emissions despite low prices. **Proceedings of the National Academy of Sciences**, 117 (16). pp. 8804-8812. 2020.

BELLO, W. Foreword Carbon Markets: A Fatal Illusion. In **Upsetting the Offset. The Political Economy of Carbon Markets**. London: May Fly. 2009.

BLUM, M. The legitimization of contested carbon markets after Paris – empirical insights from market stakeholders. **Journal of Environmental Policy & Planning**, 1–13. doi:10.1080/1523908x.2019.1697658. 2019.

BÖHM, S.; DABHI, S. (orgs). **Upsetting the Offset: The Political Economy of Carbon Markets**. London: MayFlyBooks/Ephemera. 2009.

BOYD, E. Governing the Clean Development Mechanism: Global Rhetoric versus Local Realities in Carbon Sequestration Projects. **Environment and Planning A** 41 (10): 2380–95. 2009. doi:10.1068/a41341.

BUMPUS, A. G.; LIVERMAN, D. M. Accumulation by decarbonisation and the governance of carbon offsets. **Economic Geography**, v. 84, p. 127-56, 2008.

CARBON MARKET WATCH. Never Wasting a Crisis - Industry Climate Lobbying During The Covid-19 Pandemic Exposed. **Carbon Market Watch Briefing**. May. 2020. Available at <https://carbonmarketwatch.org/wp-content/uploads/2020/05/Never-wasting-a-crisis-1.pdf>. Retrieved on September 4, 2020.

CARRINGTON, D. Polluter bailouts and lobbying during Covid-19 pandemic. **The Guardian**. April 17. 2020. Available at <https://www.theguardian.com/environment/2020/apr/17/polluter-bailouts-and-lobbying-during-covid-19-pandemic>. Retrieved on September 24, 2020.

CDP. Carbon Pricing: CDP Disclosure Best Practice. **Carbon Disclosure Practice**. 2020. Available at <http://b8f65cb373b1b7b15feb>



c70d8ead6ced550b4d987d7c03fcdd1d.r81.cf3.rackcdn.com/cms/guidance\_docs/pdfs/00/001/567/original/CDP-technical-note-carbon-pricing.pdf?1523952114. Retrieved on September 26, 2020.

CPLC. Who We Are. **Carbon Pricing Leadership Coalition (CPLC)**. 2020. Available at <https://www.carbonpricingleadership.org/who-we-are>. Retrieved on September 26, 2020.

CORKAL, V.; GASS, P. Locked in and Losing Out: British Columbia's fossil fuel subsidies. **International Institute for Sustainable Development**. November. 2019. Available at <https://www.iisd.org/system/files/publications/locked-in-losing-out.pdf>. Retrieved on September 20, 2020.

DEMPSEY, J. **Enterprising nature: economics, markets, and finance in global biodiversity politics**. Wiley Blackwell. 2016.

ECA. Special Report - The EU's Emissions Trading System: free allocation of allowances needed better targeting. **European Court of Auditor**. Luxembourg. 2020. Available at [https://www.eca.europa.eu/Lists/ECADocuments/SR20\\_18/SR\\_EU-ETS\\_EN.pdf](https://www.eca.europa.eu/Lists/ECADocuments/SR20_18/SR_EU-ETS_EN.pdf). Retrieved on September 5, 2020.

ERVINE, K. Carbon Markets, Debt and Uneven Development. **Third World Quarterly** 34 (4): 653–70. 2013. doi:10.1080/01436597.2013.786288.

EUROPEAN COMMISSION. The EU Emissions Trading System (EU ETS). **Climate Action - European Commission**. November 23. 2016. Available at [https://ec.europa.eu/clima/policies/ets\\_en](https://ec.europa.eu/clima/policies/ets_en). Retrieved on September 5, 2020.

FARAND, C. Prospect of snap election reanimates Canada's carbon tax battle. **Climate Home News**. August 25. 2020. Available at <https://www.climatechangenews.com/2020/08/25/prospect-snap-election-reanimates-canadas-carbon-tax-battle/>. Retrieved on September 5, 2020.

FELLI, R. Environment, not Planning: The Neoliberal Depoliticisation of Environmental Policy by means of Emissions Trading. **Environmental Politics**. 24(5), 641–660. 2015.

FLETCHER, R. Capitalizing on chaos: Climate change and disaster capitalism. **Ephemera: theory & politics in organization**. vol 12(1/2): 97-112. 2012.

FLETCHER, R. Orchestrating Consent: Post-politics and Intensification of Nature Inc. at the 2012 World Conservation Congress. **Conservation and Society** 12, no. 3: 329-42, 2014. [www.jstor.org/stable/26393167](http://www.jstor.org/stable/26393167).

FOE. **The Big Oil Money Pit: How \$750 Billion In New Stimulus Spending Could Prop Up Failing Polluters**. Friends of the Earth. 2020. Available at <https://1bps6437gg8c169i0y1drtgz-wpengine.netdna-ssl.com/wp-content/uploads/2020/04/Big-Oils-Lifeline.pdf>. Retrieved on September 4, 2020.



FUNK, M. The Hack That Warmed the World. **Foreign Policy**, Jan. 30. 2015. <https://foreignpolicy.com/2015/01/30/climate-change-hack-carbon-credit-black-dragon/>.

GARDINER, B. Pandemia deve ser, no fim das contas, prejudicial ao meio ambiente. **National Geographic**, June 30. 2020. Available at <https://www.nationalgeographicbrasil.com/ciencia/2020/06/pandemia-coronavirus-covid-19-prejudicial-meio-ambiente-mudancas-climaticas>. Retrieved on September 14, 2020.

GREEN, J. F. Order out of Chaos: Public and Private Rules for Managing Carbon. **Global Environmental Politics** 13. (2): 1–25. 2013. doi:10.1162/GLEP\_a\_00164.

HAMRICK, K.; GOLDSTEIN, A. Raising Ambition - State of the Voluntary Carbon Markets 2016. **Ecosystem Marketplace**. Washington DC: Ecosystem Marketplace Forest Trends. 2016. Available at: <http://www.forest-trends.org/documents/files/do>. Retrieved on September 5, 2020.

HARVEY, D. **O Neoliberalismo: história e implicações**. Edições Loyola. São Paulo, 2005.

HIGH-LEVEL COMMISSION ON CARBON PRICES. **Report of the High-Level Commission on Carbon Prices**. Washington, DC: World Bank. 2017. Available at [https://static1.squarespace.com/static/54ff9c5ce4b0a53deccfb4c/t/59b7f2409f8dce5316811916/1505227332748/CarbonPricing\\_FullReport.pdf](https://static1.squarespace.com/static/54ff9c5ce4b0a53deccfb4c/t/59b7f2409f8dce5316811916/1505227332748/CarbonPricing_FullReport.pdf). Retrieved on September 13, 2020.

IPCC. **Global Warming of 1.5°C**. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. Intergovernmental Panel on Climate Change. 2018. Available at [https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15\\_Full\\_Report\\_High\\_Res.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf). Retrieved on September 26, 2020.

KARAPIN, R. The Political Viability of Carbon Pricing: Policy Design and Framing in British Columbia and California. **Review of Policy Research**, v. 37, n. 2, p. 140–173, 2020.

KLEIN, N. **A Doutrina de Choque: Ascensão do Capitalismo de Desastre**. Nova Fronteira: Rio de Janeiro, 2008.

KOLLMUSS, A.; SCHNEIDER, L.; ZHEZHERIN, V. Has Joint Implementation reduced GHG emissions? Lessons learned for the design of carbon market mechanisms. **Working Paper 2015-07**. Stockholm Environment Institute. 2015.

LANE, R.; NEWELL, P. The Political Economy of Carbon Markets. In the **Palgrave Handbook of the International Political Economy of Energy**. London: Palgrave Macmillan. 2016. Doi: 10.1057/978-1-137-55631-8\_10.



LANSING, D. M. Not all baselines are created equal: A Q methodology analysis of stakeholder perspectives of additionality in a carbon forestry offset project in Costa Rica. **Global Environmental Change**, 23(3), 654–663. 2013. doi:10.1016/j.gloenvcha.2013.02.005

LE QUÉRÉ, C.; JACKSON, R.B.; JONES, M.W. *et al.* Temporary reduction in daily global CO<sub>2</sub> emissions during the COVID-19 forced confinement. **Nat. Clim. Chang.** 10, 647–653. 2020. <https://doi.org/10.1038/s41558-020-0797-x>

LIVERMAN, D. M. Conventions of Climate Change: Constructions of Danger and the Dispossession of the Atmosphere. **Journal of Historical Geography** 35, p. 279-296, 2009.

LOHMANN, L. The Endless Algebra of Climate Markets. **Capitalism Nature Socialism**, 22:4, 93-116. 2011.

LOURIE, B. O'Toole's climate plan has a carbon price — just don't call it a tax. **Canada's National Observer**. August 26. 2020. Available at <https://www.nationalobserver.com/2020/08/26/opinion/otooles-climate-plan-has-carbon-price-just-dont-call-it-tax>. Retrieved on September 26, 2020.

MATHIS, W. Carbon Market Boosts Cost of Pollution to 14-Year High in Europe. **Bloomberg Green**. July 13. 2020. Available at <https://www.bloomberg.com/news/articles/2020-07-13/eu-carbon-emission-permits-hit-14-year-high-as-bloc-goes-green>. Retrieved on September 26, 2020.

MECKLING, J. **Carbon coalitions: business, climate politics, and the rise of emissions trading**. Cambridge: MIT Press. 2011.

MING, Celso. O que está em jogo no crédito de carbono. **O Estado de São Paulo**, Nov. 27, 2020. Available at: <https://economia.estadao.com.br/noticias/geral,o-que-esta-em-jogo-no-credito-de-carbono,70003531323>. Retrieved on February 03, 2021.

MORENO, C.; CHASSÉ, D. S.; FUHR, L. *Carbon Metrics – Global abstractions and ecological epistemicide*. **Series Ecology** Vol 42. Heinrich Böll Foundation. 2ed. 2016. Available at [https://www.boell.de/sites/default/files/20161108\\_carbon\\_metrics\\_2.\\_auflage.pdf](https://www.boell.de/sites/default/files/20161108_carbon_metrics_2._auflage.pdf). Retrieved on September 26, 2020.

MUULS, M.; COLMER, J.; MARTIN, R.; WAGNER, U. J. Evaluating the EU Emissions Trading System: Take it or leave it? An assessment of the data after ten years. **Grantham Institute Briefing Papers**. No 21. Imperial College London. October. 2016. Available at [https://www.imperial.ac.uk/media/imperial-college/grantham-institute/public/publications/briefing-papers/Evaluating-the-EU-emissions-trading-system\\_Grantham-BP-21\\_web.pdf](https://www.imperial.ac.uk/media/imperial-college/grantham-institute/public/publications/briefing-papers/Evaluating-the-EU-emissions-trading-system_Grantham-BP-21_web.pdf). Retrieved at September 26, 2020.

NUCCITELLI, D. Canada passed a carbon tax that will give most Canadians more money. **The Guardian**. October 26. 2018. Available at <https://www.theguardian.com/environment/climate-consensus-97-per-cent/2018/oct/26/canada-passed-a-carbon-tax-that-will-give-most-canadians-more->



none. Retrieved on September 4, 2020.

OECD. Climate and Carbon. **OECD Environment Policy Papers**. Paris: Organisation for Economic Co-operation and Development. 2013. Available in: <http://www.oecd-ilibrary.org/content/workingpaper/5k3z11hjpg6r7-en>. Retrieved on September 5, 2020.

PAGE, E. A. The Ethics of Emissions Trading. **Wiley Interdisciplinary Reviews: Climate Change** 4 (4): 233–43. 2013. doi:10.1002/wcc.222.

PARR, A. **The Wrath of Capital: Neoliberalism and Climate Change Politics**. Columbia University Press, New Iorque, 2013.

PATERSON, M.; HOFFMANN, M.; BETSILL, M.; BERNSTEIN, S. The Micro Foundations of Policy Diffusion Toward Complex Global Governance: An Analysis of the Transnational Carbon Emission Trading Network. **Comparative Political Studies** 47 (3): 420–49. 2014. doi:10.1177/0010414013509575.

PEARSE, R.; BÖHM, S. Ten reasons why carbon markets will not bring about radical emissions reduction. **Carbon Management** 5 (4): 325–37. 2014. doi:10.1080/17583004.2014.990679.

ROSS, L. Cashing in on COVID: Tax Breaks, Royalties and Stimulus Loans. **Friends of the Earth**. 2020. Available at <http://foe.org/wp-content/uploads/2020/05/CashingInOnCOVID-4.pdf>. Retrieved on September 14, 2020.

SIMONET, G.; KARSENTY, Al.; NEWTON, P.; PERTHUIS, C. de; SCHAAP, Brian; SEYLLER, Coline (2015). REDD+ projects in 2014: an overview based on a new database and typology. **Les Cahiers de la Chaire Economie du Climat**. N 32, July. 2015.

SPASH, C. L. The Brave New World of Carbon Trading. **MPRA Paper**. University Library of Munich, Germany. 2009. Available at <https://ideas.repec.org/p/pramprapa/19114.html>. Retrieved on September 5, 2020.

STERN, N. *et al.* **Stern review: The economics of climate change**. London: Her, 2006.

SWYNGEDOUW, E. Apocalypse Forever? Post-political Populism and the Spectre of Climate Change. **Theory, Culture & Society**, 27(2-3), 213-232. 2010.

THE ECONOMIST. Airlines blame covid-19 for rowing back climate commitments. **The Economist**, July 4<sup>th</sup>. 2020. Available at <https://www.economist.com/business/2020/07/04/airlines-blame-covid-19-for-rowing-back-climate-commitments>. Retrieved on August 26, 2020

VIVID ECONOMICS. **Green Stimulus Index**. Vivid Economics. 2020. Available at [https://www.vivideconomics.com/wp-content/uploads/2020/08/200820-GreenStimulusIndex\\_web.pdf](https://www.vivideconomics.com/wp-content/uploads/2020/08/200820-GreenStimulusIndex_web.pdf). Retrieved on September 6, 2020.

WHERRY, A. Scheer says British Columbia's carbon tax hasn't worked. Expert studies say it has. **CBC News**. October 02. 2019. Available at





<https://www.cbc.ca/news/politics/scheer-british-columbia-carbon-tax-analysis-wherry-1.5304364>. Retrieved on September 10, 2020.

WHILE, A.; JONAS, A. E. G; GIBBS, D.. From sustainable development to carbon control: Eco-State restructuring and the politics of urban and regional development. *Trans Inst Br Geogr*, NS 2009, p. 1- 19, 2009.

WORLD BANK; ECOFYS. **State and Trends of Carbon Pricing 2018**. Washington, DC: World Bank. 2018. Available at <https://openknowledge.worldbank.org/bitstream/handle/10986/29687/9781464812927.pdf?sequence=5&isAllowed=y>. Retrieved on September 26, 2020.

WORLD BANK. **State and Trends of Carbon Pricing 2019 (June)**. World Bank, Washington, DC. 2019. Doi: 10.1596/978-1-4648-1435-8. Available at <http://documents1.worldbank.org/curated/en/191801559846379845/pdf/State-and-Trends-of-Carbon-Pricing-2019.pdf>. Retrieved on September 26, 2020.

WORLD BANK. **Carbon Pricing Leadership Report 2019/20**. World Bank, Washington, DC. 2020a. Available at [https://static1.squarespace.com/static/54ff9c5ce4b0a53deccfb4c/t/5efc9e5662444571ed8d810e/1593613924859/CPLC+Carbon+Pricing+Report+2020\\_Digital\\_spreads.pdf](https://static1.squarespace.com/static/54ff9c5ce4b0a53deccfb4c/t/5efc9e5662444571ed8d810e/1593613924859/CPLC+Carbon+Pricing+Report+2020_Digital_spreads.pdf). Retrieved on September 6, 2020.

WORLD BANK. **State and Trends of Carbon Pricing 2020 (May)**. World Bank, Washington, DC. 2020b. Doi: 10.1596/978-1-4648-1586-7.

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