CARBON PRICING LEADERSHIP REPORT 2020/21

CARBON PRICING LEADERSHIP COALITION

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ABOUT THIS REPORT

The fifth Carbon Pricing Leadership Report highlights examples of leadership in the field of carbon pricing in 2020/21. It also covers the activities of the Carbon Pricing Leadership Coalition during the year.

Our intention is to inspire governments, business leaders, and other relevant stakeholders from around the world to use carbon pricing as a tool for effective climate action in support of sustainable development.

Contents

LEADERSHIP IN ACTION

LOOKING AHEAD

ACRONYMS AND ABBREVIATIONS

CO_2e	Carbon dioxide equivalent
CPLC	Carbon Pricing Leadership Coalition
ETS	Emissions trading system
EU	European Union
ICIA	International Climate Income Alliance
ICPF	International carbon price floor
GCC	Gulf Cooperation Council
GHG	Greenhouse gas
NDC	Nationally determined contribution
REDD+	Reducing Emissions from Deforestation and Degradation
SBTi	Science-based Targets Initiative
UK	United Kingdom
US	United States

Mari Pangestu, Managing Director of Development Policy and Partnerships, World Bank

This year's Carbon Pricing Leadership Report comes as much of the world continues to grapple with the global COVID-19 crisis that has ravaged communities, overwhelmed health care systems, closed borders, and brought economies to a near halt over the past year. As future generations look back at this time, they will see this pandemic as one of humanity's greatest tragedies, but they will also see our resilience. Through collaboration and collective action, we now need to focus on building back better and set a path toward green, resilient, and inclusive development in the long term.

Like COVID-19, the climate crisis does not stop at borders, and we need the same level of urgent and decisive action. Despite the global health crisis, 2020 saw the largest alliance of countries and corporations committing to achieving net-zero carbon emissions by 2050 as part of the United Nations Race to Zero campaign. These commitments now cover at least 68% of the global economy, 56% of the global population (over 4.2 billion people), and 61% of global greenhouse gas emissions. Our job now is to mobilize this surge of commitment and turn it into action to meet the enormous task at hand.

Over the last decade, the number of national and subnational jurisdictions with explicit carbon pricing systems has roughly tripled. Collectively, they price about one-quarter of global carbon emissions. But the current levels fall well short of achieving national and international climate objectives. Carbon pricing often encounters political challenges, and the current average explicit carbon price in the world economy is estimated at just $2 per ton of CO_2. The 2017 Stern-Stiglitz Commission on Carbon Pricing found that carbon prices should rise to between $50 and $100 per ton of CO_2 by 2030, to meet the Paris Agreement targets cost-effectively.

We are at a unique moment at which putting a price on carbon can power a resilient, inclusive, and sustainable post-pandemic recovery and help set countries on a low-carbon growth path. Through the combination of macro-fiscal, sectoral, and technical expertise, along with our convening power, the World Bank is uniquely placed to support the development and implementation of carbon pricing. The Partnership for Market Readiness helped 23 countries introduce carbon pricing; its

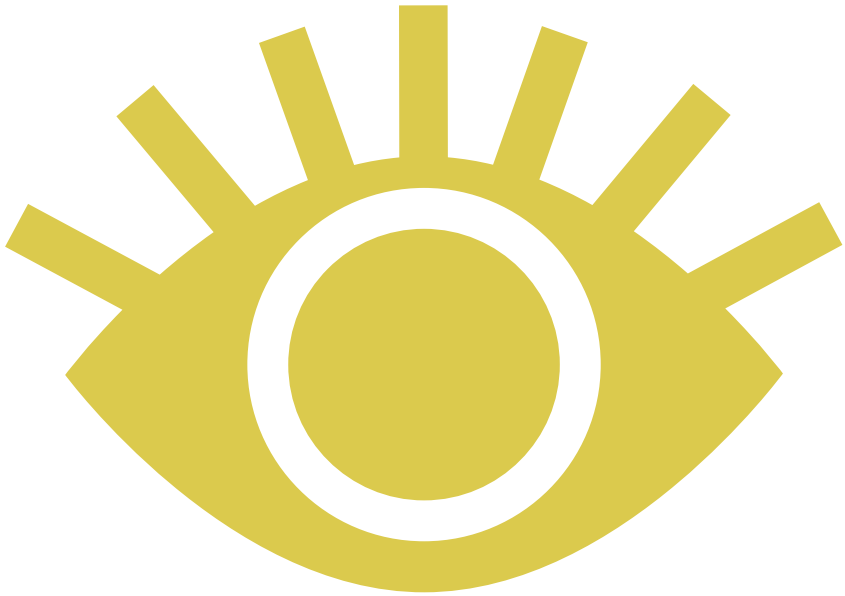
successor facility, the Partnership for Market Implementation, is gearing up to support more than 30 countries. The Energy Subsidy Reform Facility supports country programs to reduce negative carbon prices through fuel subsidy reforms.

The Carbon Pricing Leadership Coalition (CPLC) provides a powerful platform to convene the private sector, governments, and civil society on carbon pricing to harness public-private collaboration to advance climate action and achieve sustainable development. For five years, the CPLC's platform has provided an opportunity for a broad range of countries, the private sector, and stakeholders to share their best practices, disseminate essential research, amplify their leadership, and inspire others to follow suit.

Over the last 12 months, the CPLC has engaged stakeholders through high-level dialogues and regional workshops in Asia, the Middle East, Africa, and the Americas, to examine how carbon pricing can contribute to strategies for sustainable recovery, enhanced nationally determined contributions (NDCs), as well as the achievement of net-zero. The coalition has a growing number of new partners and continues to mobilize engagement, focusing on developing countries. I am happy to note that the CPLC recently convened a net-zero expert task force to further the understanding of how putting a price on carbon can help achieve the growing ambition to reach net-zero by mid-century. I look forward to the release of the coalition's report ahead of COP26 to build momentum to reach the Paris Agreement targets.

The decarbonization shift is under way. Green recovery is a win-win solution that can trigger much-needed investment for a transition to a low-carbon economy and a net-zero future, but much more action on a broader scale is needed to realize inclusive and resilient recovery. The CPLC marked its fifth year of operation in 2020/21. This year's leadership report takes stock of progress made, emerging trends, developments, and challenges in the global carbon pricing landscape. It also showcases leadership action from its partners, highlights public and private sector carbon pricing mechanisms that drive sustainable growth and build resilience, and shares insights from thought leaders. I hope the perspectives shared in the report inspire and encourage decision-makers to incorporate carbon pricing into economic decision-making, take near-term action, and aim for a net-zero future.

THE CPLC IN 2020/21



Who we are

The CPLC was launched in 2015 to firmly place carbon pricing on the global agenda, with the support of 21 governments and more than 90 businesses and strategic civil society partners. Since then, 306 national and subnational jurisdictions, businesses, and civil society organizations have joined us.

The CPLC is a voluntary initiative that brings together leaders from government, business, civil society, and academia to enhance global understanding of carbon pricing as a tool for accelerating and financing effective climate action.

We provide a platform for our partners to learn about carbon pricing, stay up to date with new developments and research in the field, and share experiences relating to the challenges involved with implementing carbon pricing mechanisms.

Our mission

We convene leaders from government, business, civil society, and academia across all regions of the world to advocate for and catalyze action toward the successful implementation of carbon pricing to address climate change and contribute to sustainable development.

Our approach

- **We foster stakeholder engagement** to encourage knowledge sharing and unlock opportunities for collaboration
- **We mobilize businesses** to put an internal price on carbon
- **We expand the knowledge base** to support effective and evidence-based carbon pricing policies
- **We effectively communicate** to encourage the adoption of carbon pricing

Our leadership

The CPLC Secretariat is administered by the World Bank Group. It is governed by the High-Level Assembly Co-Chairs and a 23-member Advisory Group, composed of government, business, and strategic partners. The CPLC's High-Level Assembly meets bi-monthly to provide vision and strategic direction for the coalition's activities.

THE CPLC SECRETARIAT

From left to right: Mercedita Garcia Cano, Jichong Wu, Liberty Ramirez Espiritu, Shamini Selvaratnam, Jeannette Ramirez, Michael McCormick, Angela Churie Kallhauge

Not in picture: Isabel Saldarriaga Arango, Pola Seongeun Shim, Suneira Rana, Marissa Santikarn

HIGH-LEVEL ASSEMBLY CO-CHAIRS

Juan Carlos Jobet, Minister of Energy, Minister of Mining, Chile
Rt Hon Lord Barker of Battle PC, Executive Chairman of the En+ Group board

ADVISORY GROUP

To strengthen the CPLC as it moves into the next phase of its work, a new Advisory Group, which replaces the previous Steering Committee, was welcomed in May 2021. This group will serve as an expert advisory body, providing guidance and insights on carbon pricing developments and opportunities to harness leadership and grow the coalition's reach.

Government

Felipe De León Denegri, Costa Rica
Neil Dobson, British Columbia
Syeda Hadika Jamshaid, Pakistan
Juan Pedro Searle, Chile
Chris Shipley, UK

Private sector

Anirban Ghosh, Mahindra Group
Shilpa Gulrajani, BNP Paribas
Thomas-Olivier Leautier, Electricité de France
Chris Leeds, Standard Chartered Bank
Cédric de Meeûs, LafargeHolcim
Jason Mitchell, Man Group
Emmanuel Normant, Saint-Gobain
Susan Shannon, Shell

Strategic partners and civil society

Emily Farnworth, University of Cambridge
Bianca Gichangi, East African Carbon Market Alliance
Michael Green, Climate XChange
Marina Mattar, Perspectivas
Sophie Punte, We Mean Business
Joseph Robertson, Citizens' Climate Lobby
Ousmane Sarr, West Africa Carbon Market Alliance
Katie Sullivan, International Emissions Trading Association (IETA)

Other

Mauricio Cardenas, Co-Chair of Task Force on Net Zero Goals and Carbon Pricing
Helen Mountford, Co-Chair of Task Force on Net Zero Goals and Carbon Pricing

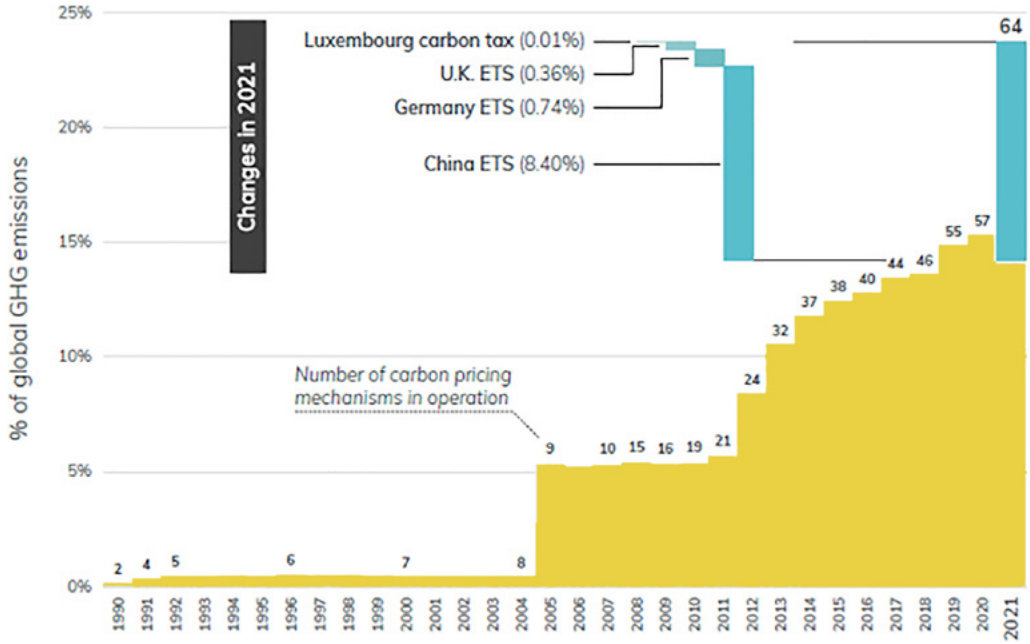
CARBON PRICING CHAMPIONS

Feike Sibjesma, Royal DSM
Mahendra Singhi, Dalmia Cement (Bharat) Ltd

Global developments in carbon pricing

Between 2020 and 2021, global greenhouse-gas (GHG) emissions covered by carbon pricing instruments in operation increased from 15.1% to 21.4%, largely due to the launch of China's national emissions trading system (ETS).

GHG EMISSIONS COVERAGE OF CARBON TAXES AND ETSs OVER TIME



The share of annual global GHG emissions for 1990 – 2015 is based on data from the Emission Database for Global Atmospheric Research (EDGAR) version 5.0 including biofuels emissions. From 2015 onward, the share of global GHG emissions is based on 2015 emissions from EDGAR.

Source: adapted from State and Trends of Carbon Pricing 2021, World Bank

QUICK FACTS

121 countries,
24 regions,
708 cities,
2,360 businesses,
624 organizations, and **163** investors
pledged to reach net-zero carbon emissions by **2050***

GHG

64 carbon pricing initiatives implemented

$53 billion in revenue generated from carbon pricing instruments in 2020

*as of April 2021
Sources: Race to Zero Campaign, UNFCCC
State and Trends of Carbon Pricing 2021, World Bank

Our activities in 2020/21

Fifteen new partners joined the CPLC between June 2020 and May 2021, and four new partners joined CPLC Singapore. We continue to mobilize further engagement, particularly in regions that have been previously underrepresented in the carbon pricing discourse.

WORKSHOPS

MAY 2020

Distributional Impacts of Carbon Pricing: Optimizing Impacts with Climate Dividend Frameworks

In partnership with the International Climate Dividends Alliance

JUNE 2020

Carbon Markets & Removals for Ambition: Examining the "Net" in Net Zero

In partnership with IETA and EDF

JULY 2020

Regional Carbon Pricing & Markets Virtual Workshop Series: Africa Edition

SEPT 2020

Carbon Pricing in the EU and GCC [Gulf Cooperation Council]

In partnership with the EU-GCC Clean Energy Technology Network

SEPT 2020

Regional Carbon Pricing & Markets Virtual Workshop Series: North America Edition

OCT 2020

Carbon Pricing in Africa: Opportunities for Action at Sub-National Level

DEC 2020

Regional Carbon Pricing & Markets Virtual Workshop Series: Asia Pacific

JAN 2021

Regional Carbon Pricing & Markets Virtual Workshop Series: Middle East and North Africa

JAN 2021

The Synergy of Innovative Technologies and Carbon Market Developments in Achieving Net Zero Carbon in the GCC Region

In partnership with the Dubai Carbon Centre of Excellence, the Clean Energy Business Council, the EU-GCC Clean Energy Technology Network, and ENGIE

WORKING GROUP CALLS

MAY 2020
CPLC Africa Working Group Call

JUNE 2020
CPLC Asia Working Group Call

MARCH 2021
CPLC Asia Working Group Call

APRIL 2021
CPLC Americas Working Group Call

APRIL 2021
CPLC All Partners Call

HIGH-LEVEL DIALOGUE

JUNE 2020

CPLC High-Level Dialogue:
Realizing the Full Potential of Carbon Pricing in a Sustainable Recovery

The CPLC, in partnership with the Coalition of Finance Ministers for Climate Action, convened thought leaders to explore how the public and private sector can realize the full potential of carbon pricing as part of a sustainable recovery following the COVID-19 pandemic

CPLC 2.0: Focusing on the future

2020/21 marked the CPLC's fifth year of operation, giving the team an opportunity to reflect on its achievements and refine its goals for the next five years.

After five successful years of driving action through high-level and technical dialogues, knowledge sharing, private sector engagement, and strategic communications, the CPLC is in a strong position to refine its approach to global advocacy. In the next five years, we aim to align our work with development realities and help advance collective global action on carbon pricing.

PRIORITIES

Role of carbon pricing in achieving 2050 net zero targets

Carbon pricing and global trade

Ensuring a just transition to a low-carbon economy

The CPLC will continue to:

- Mobilize and highlight examples of demonstrated leadership on carbon pricing, and build the case for others to take action.
- Identify critical constraints to carbon pricing, foster common understanding of solutions, and identify opportunities to enhance the use of carbon pricing policies and measures.
- Deepen advocacy efforts with the private sector and civil society to foster collective action.
- Strengthen the knowledge base by effectively communicating unbiased, rigorous, and objective information on key issues.
- Broaden advocacy and engagement in regions that are not well represented in the CPLC.

THE CPLC TASK FORCE ON NET ZERO GOALS AND CARBON PRICING

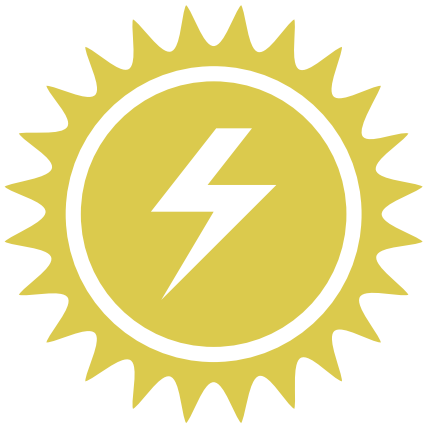
In November 2020, the CPLC launched a Task Force on Net Zero Goals and Carbon Pricing to contribute to a deeper, common understanding of what net-zero means and how it can be achieved.

The task force is co-chaired by Helen Mountford, Vice President for Climate and Economics, World Resources Institute, and Dr. Mauricio Cárdenas, Senior Research Scholar, Center on Global Energy Policy, Columbia University. It comprises 24 leaders from the public and private sectors and civil society.

"Net-zero pathways must be tailored to an individual country's needs, its resources, and circumstances. It is also important that this is a fair transition that contributes to sustainable economic growth. That's why the work of this task force will be so pivotal in the coming months. It will be an essential resource to help governments think through how they can achieve this goal, how they can involve the private sector or market-based instruments, and deliver on climate and development objectives."

– Bernice van Bronkhorst, Global Director of the Climate Change Group at the World Bank

LEADERSHIP IN ACTION



NET ZERO

Carbon pricing: Practical means to a Net Zero end

Carbon pricing is becoming increasingly recognized as an essential tool in the policy mix for pursuing net carbon neutrality.

Collective action is needed to reach the Paris Agreement target of reducing global warming to 1.5°C by 2050. Adopting a net-zero approach can support these efforts and ensure company targets are aligned with national and international goals. Carbon pricing is a practical means of driving the path to carbon neutrality.

More than 70 countries have committed to working toward net-zero emissions by 2050, and to strengthening these commitments as detailed under the Paris Agreement. At the same time, a growing number of companies have committed to net-zero targets, while incorporating carbon pricing mechanisms to support these efforts.

However, net-zero is understood differently by different stakeholders, which makes it difficult for stakeholders to compare targets and assess what is needed to meet global climate goals. This understanding often varies across a range of emission sources and activities, timelines, and the means by which companies intend to achieve their targets.[2]

To contribute to a common understanding of—and commitment to—net-zero emissions across all sectors, the CPLC established a Task Force on Net Zero Goals and Carbon Pricing in November 2020.

The task force brings together perspectives from governments, industry investors, and civil society. It focuses on three key areas, namely clarifying the underlying concepts that define the path to net-zero, outlining how corporate targets and national country targets align with the global net-zero goal, and harnessing carbon pricing policies and measures as integral strategies to enable the achievement of actions in line with net-zero pathways by 2050. Given the global nature of the task force, a pertinent issue is that of enabling a socially fair, equitable, and just transition within countries and across regions.

"If we believe that science is not negotiable, then attaining net-zero is not negotiable."[3]

– Juan Carlos Jobet, Chilean Minister of Energy and CPLC High-Level Assembly Co-Chair, speaking at the launch of the CPLC Task Force on Net Zero Goals and Carbon Pricing

[2] https://sciencebasedtargets.org/resources/files/foundations-for-net-zero-full-paper.pdf
[3] https://www.carbonpricingleadership.org/news/2020/11/17/carbon-pricing-leadership-coalitionnbsplaunchesnbsptasknbspforce-on-net-zero-goalsnbspand-carbon-pricingnbsp

NET ZERO

The task force is expected to present a draft report of its findings at the CPLC high-level plenary titled "The Transition to Zero—How Can We Harness the Power of Carbon Pricing" in May 2021 and produce its final report in advance of COP26.

A NEW VIEW ON COUNTRY-LEVEL EMISSION PRICING

CPLC strategic partner the Cleantech21 foundation is advocating for a different approach to emission pricing. It has founded the International Climate Income Alliance (ICIA), in collaboration with Citizens' Climate Education. While most people agree that the pricing of GHG emissions must form part of any net-zero strategy, the ICIA argues that current approaches fail to cover the full spectrum of emissions, are too complex, and insufficiently address a just transition. The first approach, carbon tax, refers to a fee charged and collected by government, while another approach, emissions trading systems, set caps for emissions, which are then auctioned as permits and traded through markets. The third approach to pricing is that of climate income systems—an incentive fee/redistribution model.

In most cases, the revenue from emission pricing accrues to the national fiscus, where it is typically used to fund investments in greening initiatives such as renewable energy projects. The climate income approach (which is sometimes also referred to as "climate dividends" or "carbon fee and dividend") specifies from the outset that the revenue from emission pricing should be fully disbursed to citizens. It proposes a pricing system similar to what is in place in Switzerland regarding heating fuels, and in Canada in the form of the federal carbon pricing backstop. In the ICIA's view, government should collect a fee on all GHG emissions, upstream. All revenue is then disbursed to households in equal amounts, monthly and electronically. Given the much larger emission footprints of high-income households, the system results in net-positive cash flows (more purchasing power) for the majority of households. Climate income systems can thus set an ambitious price on emissions, while still assuring a just transition.

According to Nick Beglinger, founder of Cleantech21 and one of the authors of a comparative study on the quality of emission pricing instruments conducted by the ICIA, simplicity, fairness, and effectiveness are the three key quality factors of any emission pricing system: "They work together, and all three are critical for meaningful pricing efforts, and political feasibility, i.e. support by the different stakeholders," says Beglinger. "For youth, pricing instruments need to primarily be effective, and thus assure that we stay below 1.5°C. For workers and other low-income groups, they mainly need to be fair and ascertain a just transition, month by month. For politicians, citizens, and businesses, they first and foremost need to be simple, as this makes them understandable, easily communicated, transparent, unbureaucratic, and swiftly implemented. Rapid implementation today should be regarded as the biggest climate action challenge we are facing. Hence, implementation feasibility should be a key consideration when deciding on a pricing strategy. We have found that not all pricing instruments are created equal!"

NET ZERO

DRIVING CARBON NEUTRALITY IN THE PRIVATE SECTOR

At company level, companies can use internal carbon pricing (and shadow internal pricing, which uses the same calculations but does not necessarily involve the exchange of funds) to drive the internal shifts required to achieve science-based emissions reduction targets.

A growing number of CPLC partners from the private sector have demonstrated their commitment to climate action by signing up to the Science-based Targets Initiative (SBTi),[4] setting science-based targets, and using carbon pricing as a tool to drive the internal shifts required to achieve these targets. According to the CDP, in 2020 over 2,000 companies stated that they either use or anticipate using carbon pricing in the next two years.[5] This is likely to further increase in the future.

Most companies use internal carbon prices to drive internal efficiencies and guide investment decisions. Pioneering companies that are already doing so include CPLC partners, whose approaches to carbon pricing are discussed in greater detail below.

SIEMENS

Siemens is committed to becoming net-zero in its own operations by 2030 and has achieved its interim target in 2020, with a 54% reduction compared to its 2014 baseline. Now, the company is determined to follow an even more ambitious physical reduction path with its newly released 1.5°C science-based target and commitments to renewable energy (RE100), electric vehicles (EV100), and energy productivity (EP100), while supporting its customers to do the same—and it is using internal carbon pricing to do so. "We use internal carbon pricing as one of the tools in some of our country organizations to help us get to net-zero," says Volker Hessel, Sustainability Manager at Siemens AG.

Siemens has implemented internal carbon pricing in its operations in Brazil, the United Kingdom (UK), and the United States. In the UK, it created an investment fund for emissions reduction, initially charging business units £13 per metric ton of carbon dioxide equivalent (CO_2e). The price has since been increased to £31 per metric ton of CO_2e, in line with the 2017 CPLC Report of the High-Level Commission on Carbon Prices and in order to generate more seed money for climate-related projects.

As part of Siemens' wider net-zero strategy, it is focusing on improving energy efficiency. It is actively demonstrating this through projects such as a solar installation on an existing Siemens factory roof in Kalwa, India; the construction of its new corporate headquarters, which has the highest national-level certification from the German Sustainable Building Council (DGNB) and an international certification from the US LEED (Leadership in Energy and Environmental Design) system; and the creation of an advanced Microgrid Research and Demonstration Lab at Princeton.

MOTT MACDONALD

Mott MacDonald became carbon neutral in 2020. Understanding that its ultimate goal of net-zero means going beyond company emissions to encompass global emissions (including its clients), it has developed a three-pillar plan to focus on:

- Addressing corporate emissions.
- Addressing the company's impact on projects, while strengthening client relationships and their understanding of climate change.
- Advocating for industry and government change, including carbon pricing.

It has also outlined a series of practical steps to achieve net-zero. This includes its work on developing a UK water routemap for net-zero and a masterplan for a multi-modal hydrogen transport hub. Mott MacDonald believes that carbon pricing is an essential component in driving the behavior of decision-makers and ensuring predictable net-zero pathways.

Mark Crouch, Global Carbon Management Discipline Lead, takes a holistic view of net-zero:
"Mott MacDonald became the first major company in our sector to be certified carbon neutral last year, but for us being a net-zero organization means going much further than this. Through advocacy, leadership, and collaboration we strive to improve the infrastructure industry, and we also recognize that for our company, the greatest impact we can have is through the projects we deliver and the client relationships we develop."

[4] SBTi is a coalition of United Nations agencies and business and industry leaders that provides sector-specific guidance for setting science-based emissions targets.
[5] https://www.cdp.net/en/reports/downloads/5651

NET ZERO

SAINT-GOBAIN

In the construction industry, Saint-Gobain's approach to achieving carbon neutrality focuses on research and development, and capital expenditure, with financial decisions supported by internal carbon pricing. "Manufacturing companies have an essential role to provide solutions in solving climate issues, provided that governments support them, especially through carbon pricing. The carbon prices that we have implemented internally are powerful tools," notes Emmanuel Normant, Vice President for Sustainable Development. "At Saint-Gobain, we have two separate prices: one at €50 per ton for capital expenditure and one at €150 per ton for research and development projects, which allow us to make accurate decisions based on a longer-term horizon."

LAFARGEHOLCIM

LafargeHolcim is exploring the idea of a circular economy by increasing its waste-derived fuels. The company has an SBTi roadmap that has been validated until 2030 and it is working on the next phase to 2050. It intends to construct a net-zero cement factory in the next 10 years and is looking at carbon capture technology, with over 20 carbon capture, use, and storage pilot projects around the world. LafargeHolcim uses an internal carbon price that was calculated through integrated profit and loss at $34 per ton. It believes that carbon pricing is vital to sustain a net-zero transition and considers carbon pricing in its risk management process, which is used to influence its short- and mid-term strategy and financial planning.

MAHINDRA

Mahindra and Mahindra Ltd. has been exploring new avenues to achieve net-zero. The company adopted internal carbon pricing in 2016 and intends to be carbon neutral by 2040, with validated science-based targets. Mahindra's approach focuses on increasing energy efficiency, installing renewable energy, reducing waste, and improving water security, which it finances through its internal carbon pricing mechanisms. It has now risen to new heights by becoming the first certified Net Zero Carbon Formula E outfit.

SPOT SURVEY OF CPLC PARTNERS

78%

have or are considering a net-zero target

59%

introduced carbon pricing or improved their carbon pricing levels between June 2020 and May 2021

*Based on 46 respondents

"Carbon pricing keeps all our decision-makers and stakeholders aware of the importance of being a part of fighting climate change and being socially responsible. It is no longer a financial decision. We are small compared to many of the other partners, but hope to instill the value of the CPLC to those who would not have considered, or are just starting to understand, the importance of carbon pricing and the CPLC."

– Survey respondent

"A well-designed carbon price should ensure that all businesses play by the same rules and avoid simply moving emissions into jurisdictions without carbon pricing."

– Survey respondent

NET ZERO

Anirban Ghosh, Chief Sustainability Officer, states: "A low-carbon trajectory is a must to achieve climate goals and all businesses must follow the path. Internal carbon pricing can nudge decisions towards low-carbon alternatives, which are less risky in the long run. It prepares the business to be more competitive in a world where carbon levies become normal."

BP

bp is keen to play its part in helping the world to achieve the Paris Agreement goals. To this end, company activities include producing a set of general carbon pricing principles, which were released alongside its 2020 Sustainability Report. These principles support bp's aim to advocate for policies that support net-zero, including carbon pricing, which it says "makes energy efficiency more attractive and makes low-carbon solutions, such as renewables and carbon capture, use, and storage, more cost-competitive".

Helge Lund, bp's Chairman, believes carbon pricing is an appropriate response to a global challenge. "A well-designed carbon pricing system harnesses the power of the market to incentivize lower-carbon choices," says Lund. "That makes it one of the most powerful and comprehensive tools to reduce carbon emissions. As more countries implement low-carbon policies and carbon pricing systems, we would like for these systems to be connected over time so that carbon pricing becomes a global policy response to a global challenge."

In the Rapid and Net Zero scenarios of its 2020 Energy Outlook, bp includes long-term price assumptions of carbon prices of $250 per ton by 2050 in developed countries and $175 in emerging economies. bp has also revised its 2030 carbon price assumptions to $100 per ton, which is factored into its investment decisions. It is in favor of economy-wide carbon pricing schemes.

FORTUM

Finnish energy company Fortum has set a target of becoming carbon neutral within the European Union (EU) by 2035 at the latest, with a 50% reduction in emissions by 2030. In its global operations, including Russia and India, it intends to achieve carbon neutrality by 2050. To achieve this, Fortum aims to:

- Phase out the use of coal.
- De-carbonize gas-fired power generation and transition to clean gas such as hydrogen.
- Increase investments in renewable energies.

As part of its efforts to reduce emissions, Fortum has committed to carbon-neutral district heating for the city of Espoo, Finland, by 2030. The project will replace fossil fuels with a variety of solutions, including excess heat utilization, renewable electricity, geothermal energy, and bioenergy. It will also use artificial intelligence to complement these operations. As such, the project also contributes to other Sustainable Development Goals beyond climate change, such as sustainable infrastructure.

For Fortum, carbon pricing has been the most important tool for ensuring a transition. It uses an internal carbon price to assess the sensitivity of investments and no longer pursues developments in coal. Kari Kankaanpää, Head of Public Affairs Finland, states: "Carbon pricing will play a vital role in global efforts to address climate change and to realize the transition to a low-carbon energy system in the most cost-efficient way for the global society."

EN+ GROUP

One of the hardest-to-abate sectors is the aluminum industry. Here the En+ Group has released ambitious targets to become net-zero by 2050, covering aluminum production within the En+ Group's metals segment as well as heat and electricity production in the power segment. The pathway will be sent to the SBTi in August 2021. The En+ Group is not only looking at a low-carbon hydropower transition, but also exploring innovative approaches to aluminum smelting that use inert anodes made from platinum or graphite rather than carbon. These do not degrade and, more importantly, oxygen is created as a by-product rather than carbon dioxide, enabling the production of zero-carbon aluminum for the first time in history. En+ has been applying an internal carbon price to its metals segment and evaluates the potential impact of GHG emissions on its overall financial performance, which it uses to make investment decisions.

EMBRAPA

The Brazilian Agricultural Research Corporation (EMBRAPA) has been carrying out research and development projects

NET ZERO

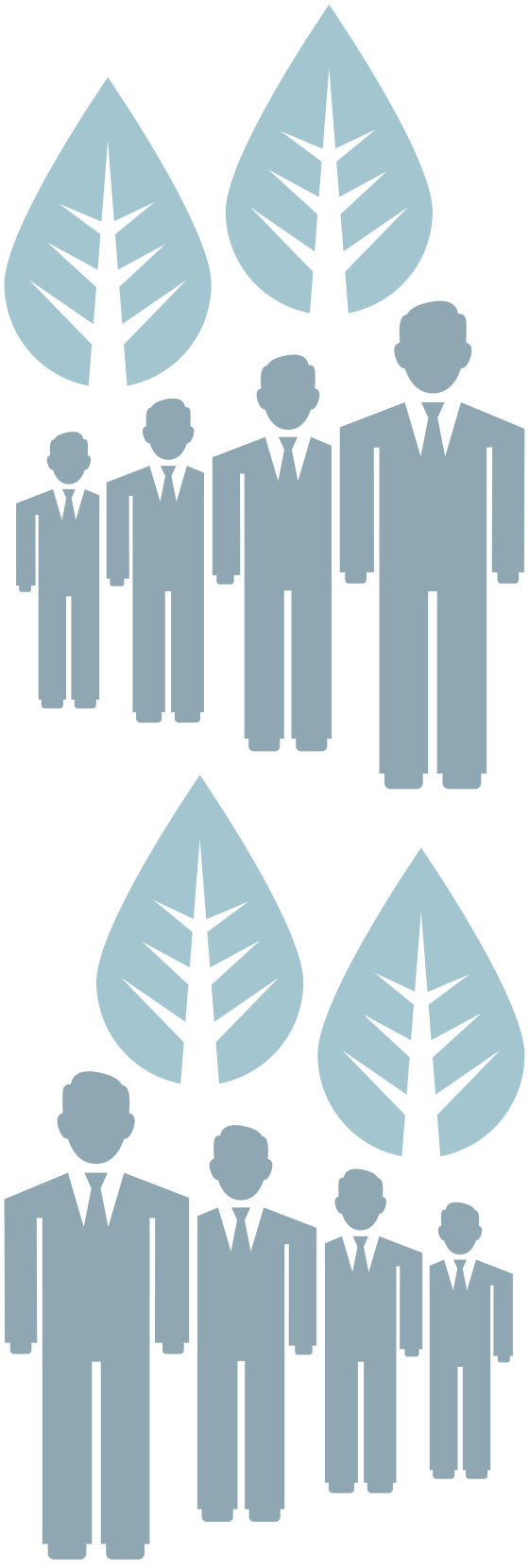
that look at reducing the carbon footprint in agriculture and agro-industrial processes in Brazil. It has created a Life Cycle Assessment Plan to increase the use of sustainable agriculture technologies, and has developed the AgriCarbono project, which will use CO_2 to support the controlled release of agrochemicals. Carbon pricing has facilitated a move toward such technologies. Brazil has adopted a National Biofuels Policy (RenovaBio) to increase the share of bio-energy in the Brazilian energy matrix. The country's Decarbonization Credit is a means of achieving this. Credits for biofuel producers and importers are certified, while for fossil fuel distributors, acquiring these credits is the only way for them to achieve their annual decarbonization targets. In this way, the Decarbonization Credit can be viewed as a carbon trading mechanism.

INFOSYS

Infosys, a multinational IT company headquartered in India, has been a pioneer in the climate action space since 2008, when it made a voluntary commitment to become carbon neutral. Just over a decade later, in 2020, Infosys achieved net-zero. It has achieved this through three transition pathways. In terms of energy efficiency, it has decreased its per capita electricity demand by more than 55%. In terms of renewable energy, it has increased its usage to 43.3%. In terms of the third transition pathway, Infosys not only relies on buying offsets, but has also created its own offset projects, reaching more than 100,000 families living in rural areas.

In 2017, a year after becoming a CPLC partner, Infosys announced its first internal carbon price. In 2019, it updated this price to $14.25 per metric ton of CO_2e. Bose Verghese, Head of Green Initiatives at Infosys, believes that carbon pricing plays a central role in the company's sustainability commitments: "The carbon price is perhaps the most potent weapon in our armory to fight climate change. It can bring an altogether different meaning to paying a price for climate change—it is a fair price to be paid by the responsible populations."

As demonstrated by the work of CPLC partners, there are many pathways to achieving net-zero or carbon neutrality. Carbon pricing can provide a guiding light for environmental decision-making on this journey, an incentive for behavioral change, and a signal to redirect investment. Beyond this, it enables companies to assess future risk, thereby guiding their investment decisions in the future.



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THOUGHT PIECE

A proposal for an international carbon price floor

By Simon Black, Ian Parry, and James Roaf
International Monetary Fund

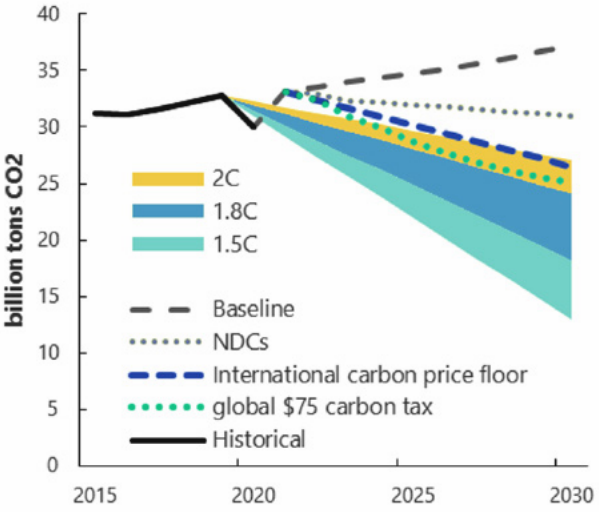
The window of opportunity for limiting global warming to below 2°C is closing rapidly. Under the Paris Agreement, countries are increasingly submitting emissions neutrality targets for 2050. But sharp, near-term cuts in emissions are essential. According to the Intergovernmental Panel on Climate Change, global GHG emissions need to be cut by between 25% and 50% below current levels by 2030 to limit global warming to 1.5°C to 2°C by 2100. But current national targets, if implemented, would only keep emissions broadly flat, and revised targets submitted to the United Nations Framework Convention on Climate Change remain well below what is needed.

Additional approaches for scaling up ambition and converting this ambition into policy action are needed. Policymakers should consider reinforcing the Paris Agreement with an international carbon price floor (ICPF). This would set a minimum price for carbon emissions among participant countries and would provide a concrete way to deliver most of the near-term emissions reductions needed (see the figure on right).

The ICPF would have two key elements. First is a focus on a small number of key emitting countries to facilitate negotiation. Potential participants might include China, India, and the United States (who alone account for nearly 60% of future emissions), the EU, the UK (as chair of COP26), and perhaps other large economies with robust carbon pricing (such as Canada and the Republic of Korea). Second is a focus on the minimum carbon price that participants should impose, as carbon pricing is easily measured and understood. Simultaneously scaling up carbon pricing among large emitters would also address concerns about international competitiveness.

Floor prices in the ICPF might be lower for developing countries to recognize differentiated responsibilities. And different forms of carbon pricing (carbon taxes, ETS, tradable emission rate standards) or equivalent measures might be accommodated. These pragmatic design features may enhance the acceptability and effectiveness of the arrangement compared with a pure price floor where all participants must adopt carbon pricing and meet the same floor. Dialogue on international coordination mechanisms is likely to intensify in coming years as countries develop and strengthen their mitigation strategies.

GLOBAL CO_2 PROJECTIONS AND PATHWAYS FOR WARMING TARGETS



Source: IMF staff estimates using UNEP (2020) & IEA (2020)
Note. carbon tax starts at $10/$15/$20, rising steadily therafter 2022-2030. Warming pathways assume CO_2 emissions are reduced in proportion to total GHG emissions.

CARBON PRICING AND GREEN RECOVERY

Green recovery: A defining moment for carbon pricing

The world's post-pandemic recovery presents a turning point on the path to a greener future. Carbon pricing has an important role to play as countries work to build back better.

As countries take steps to normalize their economies in the wake of COVID-19-induced lockdowns, it is important that policymakers consider the long-term trajectory rather than weakening climate legislation to spur economic development. In December 2020, the United Nations Secretary-General Antonio Guterres highlighted the importance of "green recovery," while pointing to concerning results of the State of Global Climate report by the World Meteorological Organization, which highlights "how close we are to climate catastrophe."[6] This has been followed by similar calls from the governments of Austria, Germany, Switzerland, the UK, and others. The EU has subsequently dedicated about 30% of its stimulus plan to climate-friendly investments.[7] Moreover, US President Biden's climate summit in April 2021 resulted in commitments to reduce GHG emissions from countries such as Brazil, Canada, and Japan, in addition to the United States' aim of reducing its emissions by at least 50% by 2030.

Green recovery has become a widely adopted name for developing environmental, regulatory, and fiscal reforms to sustainably restore economies after the COVID-19 pandemic.

COVID-19 has had a monumental impact across the world, raising the need for governments and development finance institutions to divert funds to health responses. However, the biggest long-term threat humanity faces—one that will affect health as well as other human development measures such as access to safe drinking water, effective sanitation, and nutritious food—remains climate change. The need to mitigate its effects by decarbonizing economies should be reflected in long-term budgeting plans.

In some countries, investments have been made across different areas of green recovery. For example, Nigeria's COVID-19 stimulus plan intends to install solar systems in 5 million homes. France has made a bail-out deal with Air France, which stipulates that it must reduce emissions by 50% and at least 2% of its fuel should be renewable by 2030. Canada has requested companies with revenues over $300 million that have received loans from bail-out programs to disclose their climate-related financial risks and how their operations will affect environmental sustainability and national climate goals in future. Moreover, Japan has launched the Platform for Redesign 2020 in collaboration with the United Nations Framework Convention on Climate Change, which allows governments to share their plans and best practices for integrating climate action into recovery.[8]

*The World Bank advocates for a **green, resilient, and inclusive development approach** to recovery and is well positioned to assist countries in achieving this through its convening power, global reach, and capacity to mobilize technical and financial assistance.*

[6] https://www.un.org/sg/en/content/sg/speeches/2020-12-02/address-columbia-university-the-state-of-the-planet
[7] https://www.wri.org/blog/2020/09/coronavirus-green-economic-recovery
[8] https://platform2020redesign.org/

CARBON PRICING AND GREEN RECOVERY

Carbon pricing can be part of this solution. In recovering from COVID-19, countries can use it as a tool to guide investment decisions. Carbon pricing can also be an effective way to raise revenues and promote a green economic recovery by enabling clean energy technologies to compete with carbon-intensive options.[9]

Governments are looking for diversified revenue streams and greater social safety nets, as the already destabilized supply and demand of fossil fuels presents only moderate opportunities for economic growth. Carbon tax revenues can be used for pro-poor redistribution policies to build back more equitably.[10] Carbon pricing can be a means of raising revenues to ensure a more sustainable, inclusive, and resilient recovery. The proceeds of general tax may be more open to political influence, while a substantial carbon price could specifically influence the transition toward a zero-carbon economy.[11] Carbon pricing can, therefore, offer a unique opportunity to generate forward-thinking solutions that offer long-term sustainability, accelerate investment, and create economies of scale. Conversely, a failure to introduce carbon pricing could represent a missed opportunity to accelerate a green transition.

In the UK, the Zero Carbon Commission, a CPLC partner, conducted research that showed that 64% of the British public support imposing a tax on big polluters and understand the positive impacts this could have. However, they believe that tax increases should be fair and cushion lower-income households. The Commission has proposed a new approach to the UK's carbon pricing along three lines: economic recovery (calling for a fair and green recovery from COVID-19); a path to net-zero (a carbon charge to assist this path, along with other policies); and public consent and estimates that up to £27 billion could be raised for green recovery in the UK by 2030.[12] It also advocates for a rise in the domestic carbon price and the introduction of a border carbon adjustment measure to address the challenge of carbon leakage.[13]

According to Hannah Dillon, Head of the Zero Carbon Campaign, for pathways to net-zero to be achieved, there must also be a shift in consumer behavior: "Carbon pricing is not a silver bullet in the battle against climate change, but it is a vital component of the package of measures required to facilitate an equitable low-carbon transition. Public appetite for action to tackle the climate and ecological crisis is at its highest ever point, and ensuring polluters pay for the damage they do is at the top of the agenda. Policymakers should no longer shy away from engaging with this issue and working collaboratively to drive global ambition on carbon pricing."

In March 2021, the UK set out its Industrial Decarbonization Strategy, where it specifies how it will align its ETS with 2050 net-zero targets by 2024. To achieve this, it will consult on a zero emissions cap, review free allowances, and expand the system to cover other sectors of the economy, while also considering how to link this to international schemes. It will consider government funding mechanisms to support technologies such as carbon capture, use, and storage, and low-carbon hydrogen production. The UK also intends to consider its approach to mitigating carbon leakage.

"As we build a new, more resilient, economy out of the COVID-19 crisis, we need to harness the entrepreneurial spirit of the private sector globally to find the most efficient answers to the climate crisis.

Carbon pricing that reflects the true climate impact of business activities is essential for aligning the public and private sector behind one mission —a resilient low-carbon economy that delivers for both people and planet."

– Lord Barker, Executive Chairman of En+ Group and former UK Energy and Climate Change Minister

[9] https://www.oecd.org/coronavirus/policy-responses/green-budgeting-and-tax-policy-tools-to-support-a-green-recovery-bd02ea23/
[10] https://pure.iiasa.ac.at/id/eprint/16826/
[11] https://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2020/05/Pricing-carbon-during-the-recovery-from-the-COVID-19-pandemic.pdf
[12] https://www.wemeanbusinesscoalition.org/blog/zero-carbon-transition-latest-signals-of-change-05-03-21/
[13] Border carbon adjustments tax imported goods based on their carbon footprint to limit emissions leakage.

GREEN RECOVERY IN THE PRIVATE SECTOR

If green recovery is to be achieved globally, it is vital that governments work with the private sector to generate incentives. As the International Finance Corporation argues in its 2021 report Ctrl-Alt-Delete: A Green Reboot for Emerging Markets, "With 85 percent of worldwide CO_2 emissions operating outside of a carbon pricing scheme, companies are unlikely to invest in the upfront research or installation costs of carbon capture, utilization, and storage technology without government support or concessional financing."[14]

CPLC partner Iberdrola is one company advocating for the "great reset" post-COVID-19.[15] In Iberdrola's view, this requires creating stakeholder capitalism (working for the common good rather than profits); developing a more resilient, equitable, and sustainable system; and harnessing innovations. The company has set a target of reaching carbon neutrality by 2050 globally and has had its targets approved by the SBTi. Iberdrola has also launched a €75 billion investment program for 2020 to 2025 that aims to anticipate the opportunities of the energy revolution. It recently increased the program funds to €150 billion to 2030. The company strongly believes it is imperative that carbon pricing is used to send the right signal by covering all sectors of the economy and at the right levels.

Marta Martínez, who focuses on Climate Change and Alliances at Iberdrola, notes: "We are today at a crossroads that will determine the path for the decades to come. As the world is designing its economic recovery and we are seeing new commitments to net-zero, it is more important than ever to make environmental taxation and carbon pricing a meaningful tool to level the playing field, send a robust and efficient economic signal, and generate funds. Carbon pricing is needed to eliminate existing distortions across energy carriers and technologies, which otherwise can slow down decarbonization pathways."

Key to strengthening green recovery will be the use of public procurement and tenders that speak to clean energy solutions, the development of technology and infrastructure for a green transition, and collaboration on these technologies, including the different aspects of carbon capture, utilization, and storage. Carbon pricing efforts can also facilitate change. Thus, the COVID-19 pandemic should be seen as an opportunity, rather than a roadblock, to strengthening climate change in the future.

[14] https://www.ifc.org/wps/wcm/connect/26f79a1b-c191-494b-b2d9-c891e138bb37/IFC_GreenReport_FINAL_web_1-14-21.pdf?MOD=AJPERES&CVID=ns1JVaR
[15] https://www.iberdrola.com/innovation/great-reset

THOUGHT PIECE

Fighting climate change in Québec: 2030 and beyond

By Jean-Yves Benoit and Thomas Duchaine
With contributions from Denis Boutin, Catherine Gauthier, and Frédéric Julien
Ministry of Environment and Fight Against Climate Change, Québec

Achieving carbon neutrality in the second half of the century to keep global warming well below 2°C and pursue efforts to limit it to 1.5°C, as set out in the Paris Agreement, requires commitment. Québec has set an ambitious GHG emission reduction goal for 2030: 37.5% below 1990 levels, with a public commitment in late 2020 to aim for carbon neutrality by 2050.

Québec has a unique energy structure: nearly 100% of its electricity is produced from renewable sources and close to 50% of its total energy consumption comes from renewables. We have the lowest per capita GHG emissions in Canada at 9.6 metric tons of CO_2e in 2018—nearly 50% lower than the Canadian average.

Québec's largest fossil fuel consumer, and biggest emitter, is the transportation sector, which accounted for 45% of provincial GHG emissions in 2018. Greening this sector will be an important step in becoming carbon neutral.

AN INTEGRATED APPROACH WITH A FOCUS: ELECTRIFICATION

To achieve its ambitious carbon commitments, Québec has developed an integrated approach built on two pillars: a carbon market and a portfolio of complementary policies.

Québec's carbon market, which has been linked with California's since 2014, sends price signals to the economy to foster behavioral change and reduce GHG emissions through the declining caps it imposes. The market is being continuously optimized to increase the speed at which it induces industry's transition toward a greener economy while protecting its competitiveness. This tool will continue to add value beyond 2030.

The carbon market also provides substantial revenues that are reinvested in the fight against climate change. It is in this space that the complementary policies come into play. One of our central policy focuses is the electrification of the economy, especially in the transportation sector. As Québec imports all of the hydrocarbons it consumes, electrifying its transport using locally produced renewable energy is highly beneficial.

More than 10 years ago, Québec introduced incentives to increase the number of zero-emission vehicles, as well as several programs that support intermodal transport, including maritime, air, and rail transportation. Combined with other policies, including a standard for zero-emission vehicles, these programs have allowed Québec to obtain significant results. For example, the number of electric vehicles has increased by 70% in the last five years, and by 318% since the implementation of the zero-emission vehicle standard in 2018. About 45% of all electric vehicles on Canadian roads are in Québec, with the province accounting for just 23% of the Canadian population.

With the 2030 Plan for a Green Economy, which was launched in November 2020, the government reinforced measures that, in addition to fostering the electrification of the economy, also focus on energy efficiency and sustainable management of resources, supporting industries and companies in developing new sectors, creating jobs for the future, strengthening competitiveness, and adapting to the impacts of climate change.

INTERNATIONAL COLLABORATION IS KEY

In these uncertain times, it is important to maintain our environmental commitments and keep public support. The health crisis we are going through, and the economic recovery that follows, offer a unique opportunity to implement environmentally friendly economic strategies and investments that should benefit us all.

It is also critical for governments all around the world to keep working together. Fighting climate change requires everybody to join in. The Paris Agreement is important, but so is the direct transfer of knowledge and resources. Thus, Québec is active in international forums such as the CPLC, the International Carbon Action Partnership, the Partnership for Market Readiness, and Carbon Pricing in the Americas, among others, and it supports many governments in their carbon pricing activities.

Québec government is convinced that fighting climate change is an opportunity to position its economy in the 21st century. Our ambitious targets and approach to the carbon market, along with a comprehensive mix of companion policies, are clear signals of this conviction. Québec is striving for high ideals and believes in collaboration so that no one is left behind.

Further reading:
2030 Plan for a Green Economy | Gouvernement du Québec (quebec.ca)

"With its 2030 Plan for a Green Economy focused on electrification, Québec strengthened its commitment to the global effort while setting the course to reach its 2030 GHG emission target and aiming for carbon neutrality by 2050. Québec's carbon market is one of the keys to our success."

– M. Benoit Charette,
Québec Minister of the Environment
and the Fight Against Climate Change

CARBON MARKETS

Toward a global, interconnected carbon market

Carbon markets can act as huge incentives for businesses to adopt clean energies and vehicles for investment. But for these markets to be used meaningfully, global expansion is critical.

Why do we need carbon markets?

Carbon markets are useful tools for promoting a clean energy transition. They set limits on emissions and allow for the trading of emission units, which in turn enables trading entities to reduce emissions at a lower cost, being paid to do so by high-cost emitters.

Carbon markets often work through cap-and-trade schemes (also known as emissions trading systems, or ETS), or through baseline-and-credit mechanisms. In the latter, traded emission reductions have already occurred, whereas an ETS allows companies to trade permits in the future.

An ETS can have several advantages. It is easier to implement than regulations or controversial carbon taxes, and can speed a painless transition to a decarbonized world. At the same time, regional cap-and-trade schemes need to be linked globally if they wish to be effective, since there is a need to limit the right to emit in order for it to be traded—otherwise it is not seen as a scarce commodity. It is also unlikely that there will be a meaningful scaling of carbon capture technologies without a radical increase in carbon pricing.

The International Carbon Action Partnership's **2021 Status report** notes that "experience has shown that well-designed ETS are resilient to economic shocks and that policymakers can be more confident in developing and expanding their systems through more ambitious caps and broader scope coverage." This is being achieved by the expansion of ETS in new sectors and new jurisdictions.

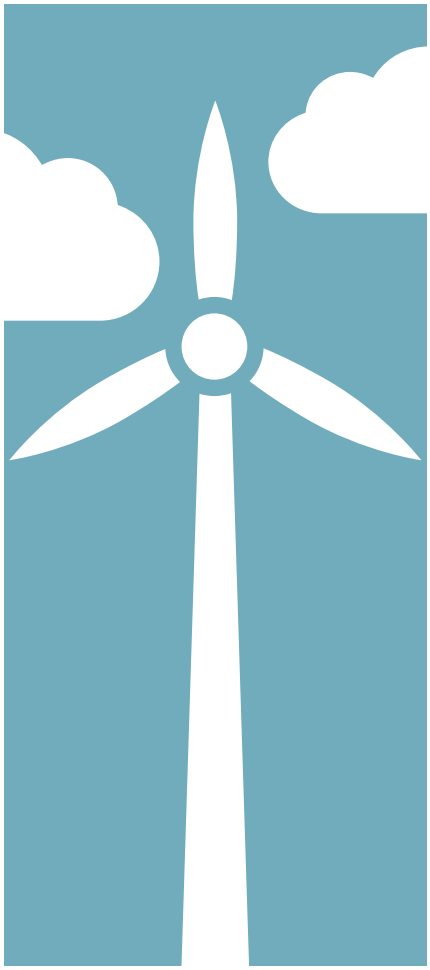
CPLC members, including Siemens, Royal DSM, Mahindra, and bp, recently contributed to the development of the Taskforce on Scaling Voluntary Carbon Markets' blueprint to support the growth of voluntary carbon markets and the global transition to net-zero. The blueprint, which was published in January 2021, outlines 17 recommendations, spanning six topics, to scale voluntary carbon markets. These recommendations examine ways of improving the quality of markets, such as developing core carbon principles, the setting of minimum criteria for carbon off-setting, and establishing trade infrastructure.

The blueprint could contribute to expanding the market coverage of GHG, which is currently limited and largely excludes developing countries. About 90% of "practical" natural capital sits in the global south while 90% of offset commitments today originate from companies with headquarters in the global north. But for the market to succeed and global market coverage to be achieved, the voluntary market should comply with the rules of the Paris Agreement and Article 6. Failure to clarify and align the Article 6 rules may hinder the growth of voluntary carbon markets. Only a clearly articulated, workable, and credible resolution will provide assurance to the full range of voluntary carbon credit buyers.

CARBON MARKETS

Scaling up carbon markets can help support financial flows to developing countries, since activities and projects in these countries will be most effective in reducing carbon emissions. For example, CPLC partner Eskom, South Africa's energy parastatal, is considering how carbon markets could help it achieve its transition. It has adopted a net-zero strategy and aims to balance decarbonization with a just energy approach that ensures an increase in sustainable jobs. South Africa's energy usage is currently 88% reliant on coal, which means that the transition pathway will require a significant shift in business—with a huge social impact. Eskom has, therefore, taken a step-by-step approach, initially conducting impact assessments on a transition pathway using quantitative socioeconomic data complemented by house-to-house surveys. Part of the modeling strategy looks at reducing emissions in terms of accessibility and cost, such as the use of renewables, and carbon markets would make clean energy options more accessible.

CPLC partner the Rainforest Coalition advocates for the Reducing Emissions from Deforestation and Degradation (REDD+) mechanism, which offers incentives for developing countries to reduce emissions from forests through payments from multilateral banks and intergovernmental organizations, or through carbon credits. The initiative opens the door for expanding carbon markets on a global scale in new areas. For example, Blackstone Energy Services, also a CPLC partner and Canada's leading energy services company, announced in April 2021 that it had made the first commercial purchase of the REDD+ forestry carbon credits, issued by the government of Papua New Guinea. The purchase amounted to 6,106 metric tons of carbon credits, which will be used to offset historical emissions and estimated emissions until 2030. The company further intends to issue carbon credits from rainforest nations to its North American clients.



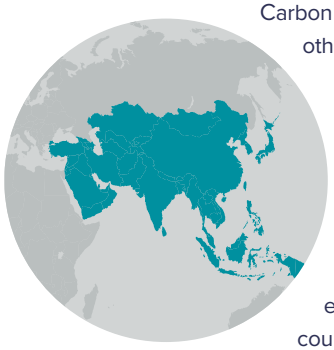
UPDATE ON ARTICLE 6

Although the COVID-19 pandemic had led to a massive dip in global greenhouse emissions, it also led to the postponement of COP26 until 2021. This also means the delay in finalizing the negotiations related to Article 6 of the Paris Agreement. However, new Article 6 piloting activities have continued to emerge over the past year. At the time of writing, 69% of parties that had already communicated a new or updated NDC indicated their intention to use, or the possibility of using, cooperative approaches under Article 6.2 of the Paris Agreement.[16] Resolving the issue of Article 6 will be critical to ensuring that carbon markets play a role in supporting countries in their climate ambitions.

[16] This analysis includes 48 new or updated NDCs, relating to 75 parties. UNFCCC. Nationally Determined Contributions under the Paris Agreement: Synthesis Report by the Secretariat, February 2021, https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs/ndc-synthesis-report.

CARBON MARKETS

Asia's promising new markets



Carbon markets are gaining momentum in Asia. This may in turn provide incentives for others to adopt similar positions and learn from these experiences.

In February 2021, China launched the world's largest carbon market for the thermal power industry, which accounts for about 40% of its total emissions. Actual transactions are expected to begin in June 2021. At this stage, only CO_2e is covered, and both direct and indirect emissions from electricity and heat are considered. No country as large as China—which is the world's largest emitter—has ever initiated such efforts. China has vowed to become net-zero by 2060, and establishing a carbon market is one of the ways it aims to achieve this. Such efforts could inspire the development of other national, or even regional, carbon markets.

"China's national carbon market is going to start operating in the near future and reasonable expectations should be established for this debut considering the many limitations facing the market's design. From a longer-term point of view, the market design should be continuously improved to ensure an appropriate carbon price that could contribute to the achievement of China's carbon peaking and neutrality targets."

– Professor Maosheng Duan, Tsinghua University

Unlike the EU's ETS, China's market does not put a cap on emissions but rather imposes carbon intensity limits. Those below the benchmark can sell their carbon allowances, while those that go beyond it can buy additional quotas. China now intends to broaden its scheme to include all industrial sectors. As China's economy rebounds, this initiative may enable it to gather the momentum needed to make deeper and earlier carbon reductions. This in turn may encourage other countries in the region to take up such initiatives.

"China's new '30&60' vision has set long-term goals for climate action. Under President Xi's leadership, China is now stepping up its efforts across the whole country and all levels from central to even county body to make strategic action-oriented plans and foster concrete policies to stimulate the peak process and lay foundations for carbon neutrality. As one of the keystone policy instruments, China's national carbon market is now closely coming to operational stage and electricity industries are preparing the adaptive infrastructure and capacity to embrace the historic reform targeting carbon emissions."

– Xinxin Bi, Executive Director, Center for Sustainable Development China Low-Carbon Network

Already, Singapore introduced a carbon tax on January 1, 2019. It is currently set at a rate of $5 per metric ton of CO_2e from 2019 to 2023. Singapore will review the carbon tax rate by 2023, with plans to increase it to between $10 and $15 per metric ton of GHG emissions by 2030. The tax is applied to all direct emissions equal to or above 25,000 metric tons of CO_2e. Indonesia is also considering introducing a carbon market.

NaxRo has been working to promote carbon pricing in Bangladesh and emphasizes the importance of a carbon pricing strategy. Mohammad Shariar Nafees, Focal Person of NaxRo and a strategic partner of the CPLC in Bangladesh, says: "Let's work together to save the environment for the future in this changing situation. Broadening the use of carbon pricing around the world can bring hope for sustainable development in business and human rights."

CARBON MARKETS

In the past year, carbon pricing has gained momentum, with some countries in Europe aiming to use carbon pricing for sectors not previously included. Germany launched its national fuel ETS in January 2021 at a fixed price of €25, covering all fuel emissions not regulated under the EU ETS (mainly heating and road transport). These emissions stem from various sources such as heating oil, natural gas, petrol, and diesel. Some fuels, such as coal and waste, will be subsequently phased out in 2023. The fixed price will continue to rise and, from 2027 onwards, allowance prices will be set by the market (unless the government proposes a new price corridor in 2025). Revenues will be used for a variety of measures, such as supporting decarbonization, lowering electricity rates for consumers, and deducting transport costs from income taxes for commuters.

In North America, Canada's federal carbon pricing approach has driven new activities and existing initiatives are growing, with many provinces and territories adopting this approach. Canada also has a federal backstop system, which includes an ETS and fuel charge, which is imposed on provinces and territories that do not opt into the system. At the same time, the United States has witnessed the growth of a regional carbon market in the power sector across northeastern states through the Regional Greenhouse Gas Initiative. There have also been efforts to establish carbon markets in new sectors.

At the same time, other countries across the globe, such as Chile, Iceland, and New Zealand, are lowering thresholds to regulate more companies.

But existing markets have not been without challenges.

The EU's ETS is the first and largest carbon market in the world. It operates across the EU and covers 40% of the region's GHG emissions. The EU ETS is now launching its fourth phase, which specifies that sectors covered by the system must reduce their emissions by 43% compared to 2005 levels. During the first and second phase, allocation was decentralized and relied mainly on freely allocated allowances, but since the third phase the total volume of emission allowances is determined at EU level. The EU's leaders are now proposing to expand the scope of the ETS in order to achieve a climate-neutral EU by 2050, by including new sectors such as maritime and possibly road transport, and placing a tighter cap on the number of permits in the carbon market. Its European Green Deal, presented in September 2020, proposes turning the European Climate Law into a legal obligation rather than a political commitment and also intends to provide financial support and technical assistance, through the Just Transition Mechanism, to those most affected by the transition to a greener economy.

CPLC partner ICF International understands the complexities of carbon markets and has worked with the EU and Chinese emissions trading systems to understand the challenges of carbon pricing from a central regulator and industry perspective. It holds seminars for knowledge sharing as part of its International Carbon Action Partnership program. In setting an example, it was the first professional service company to achieve carbon neutrality in 2006. It has committed to a net-zero pathway and set science-based targets within the company. Its 2019 corporate citizenship report sets out how it intends to achieve this, including broadening its focus from buying carbon offsets to reducing the environmental impact of its operations.

In addition, efforts like the Call on Carbon campaign, which was initiated by CPLC partners the Haga Initiative and the Climate Leadership Coalition—and includes CPLC partner Fortum as a signatory—are increasingly urging governments to back their net-zero targets with effective, robust, reliable, and fit-for-purpose carbon pricing instruments; to align carbon pricing instruments where possible to ensure a stable and predictable investment environment; and to finalize the Article 6 rules. In the UK, the Zero Carbon Commission—another CPLC partner—has also called for higher carbon prices and border adjustment mechanisms.

The Stockholm Environmental Institute, which serves as the secretariat for the Leadership Group for Industry Transition (Leadit), has stressed the importance of creating lead markets for green industrial products and for raising these discussions on the global agenda. The institute therefore advocates for a carbon contracts for difference policy that reduces the price volatility in ETS by using government guarantees for a fixed carbon price for the length of a project, as well as a carbon border adjustment to avoid harming firms' global competitiveness.

CARBON MARKETS

THE ROLE OF COMMUNICATION AND EDUCATION

Monetizing carbon has to be part of the solution for addressing climate change, but it is important to unpack how carbon markets can be used in a meaningful way. There are differing views on what carbon pricing means and how it is used, meaning that education and communication are essential.

According to Aurora Winslade, Sustainability Director for Swarthmore College:
"Higher education plays a critical role in helping further advance the conversation on the importance of carbon pricing. Part of why we are still lacking political will in the United States for a federal price on carbon is the lack of understanding among the public of the power of pricing carbon to keep fossil fuels in the ground in a way that is just and can stimulate the economy."

For Climate Focus, an international advisory think tank, communication on carbon pricing is key. As such, under the Partnership for Market Readiness program, it has supported the development of the Colombia Emissions Training Academy, which is a comprehensive capacity-building course for Colombian policymakers, private sector representatives, and academia/civil society, to assist in the development of the Colombian ETS. The company has also developed a communication stakeholder engagement and capacity-building strategy for Mexico. Climate Focus has been a steering committee and technical member of the CPLC strategic partner West African Alliance on Carbon Markets and Climate Finance, which consists of 16 West African countries that are working to promote subregional cooperation and to build institutional capacity for long-term engagement with carbon markets. It also published the Voluntary Carbon Market Dashboard—distinct from the World Bank's Carbon Pricing Dashboard—where up-to-date information can be found on key metrics, and developed an e-course on carbon taxation.

Darragh Conway, Climate Focus Lead Legal Consultant, argues: "Building public support for carbon prices is key to their success. This means integrating them as part of a compelling vision for a low-carbon future built on clean energy, healthy air, and reliable public transport. Research shows that this is a future people are willing to pay for."

However, the global spread of carbon markets is not without risks: Carbon Market Watch, for example, argues that the Clean Development Mechanism, where rich countries can buy emissions reductions from developing countries through carbon credits, in some cases led to an increase in emissions as some countries relied on these credits to replace other emission reduction efforts.[17] As such, it calls for a shift in focus away from offsetting, toward financing climate projects that drive the zero-carbon transition. Monitoring, reporting, and verification are also critical to ensure that operators are addressing emissions in a consistent and comparable manner, while defining rules for how monitoring and reporting should be defined. Ensuring the reliability, credibility, and accuracy of monitoring systems remains an ongoing challenge.

Nevertheless, carbon markets are a critical stepping stone to a carbon-neutral world. For them to become widely accepted there is a need for higher carbon prices and clear regulatory signals and frameworks under which they operate. Global carbon markets need to be expanded and, in the interim, border adjustment mechanisms can address leakage issues. In the long term, international collaboration will be critical if real climate action is to be taken.

[17] https://carbonmarketwatch.org/wp/wp-content/uploads/2019/06/CMW-CARBON-MARKETS-101-THE-ULTIMATE-GUIDE-TO-MARKET-BASED-CLIMATE-MECHANISMS-WEB-FINAL-SINGLE.pdf

CARBON MARKETS

THOUGHT PIECE

US policy update: Charting a new course with ambitious commitments

By Michael Green
Executive Director at Climate XChange

While there has been an obvious and dramatic change in US policy leadership at the federal level this year, state policy continued to gain momentum as well.

The new administration, under President Biden, showed a clear shift in priorities from the first week. By announcing several executive orders, the President kept his campaign promises by stopping the controversial Keystone XL pipeline and halting the leasing of federal lands for oil and gas exploration.

Within the first 100 days in office, the Biden administration re-entered and doubled the US commitment to the Paris Agreement. The cornerstone to its new pledge is a reduction of between 50% and 52% of emissions by 2030, as well as a commitment to net-zero emissions from the electricity sector by 2035. These ramped-up commitments were rolled out as a part of the President's Climate Leadership Summit and signal the most ambitious US plan put forward to date. While there is still progress to be made to become compatible with a 1.5°C pathway, the new intermediate goal sets momentum back in the right direction.

A key element of the administration's new strategy on climate policy has been bringing together several new and recognizable officials into key roles. Former Secretary of State, John Kerry, and former Environmental Protection Agency Secretary, Gina McCarthy, have been given powerful roles in the administration as part of a new high-level climate envoy. Long-time carbon pricing supporters are joined by Janet Yellen as Secretary of the Treasury—a position where she hopes to make climate change a new priority.

Beyond the new NDC and executive orders, President Biden called for the introduction of the American Jobs Act, which would put thousands of people back to work in programs that focus on renewable energy deployment and remediation of old fossil fuel infrastructure, and spend billions of dollars on climate tech research and development. Supporters of carbon pricing are already looking to include it as part of the congressional act and as a potential funding mechanism for the ambitious infrastructure legislation.

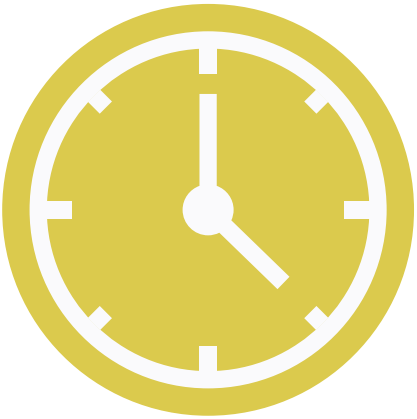
The Biden administration is calling for an "all of government approach," which will heavily rely on state policy and commitments. With the previous administration's court challenges to the linkage between the California and Québec carbon markets a thing of the past, more states (and provinces) are looking to join the Western Climate Initiative. The state of Washington's fifth attempt to move forward with a cap-and-invest policy was successful when the Senate passed the bill into law in April 2021. This could create an opportunity for other states to follow suit, as similar legislation in both Hawaii and Oregon is already gaining momentum.

The northeastern states that make up the Regional Greenhouse Gas Initiative have added Pennsylvania as the 11th partner state in the electricity ETS. Joining Virginia, the prior most recent state added, Pennsylvania will add an additional 75.15 million metric tons of CO_2e to the regional cap-and-trade market. Pennsylvania's power sector is the fifth-largest emitter of carbon pollution in the United States, making it one of the most significant sources of carbon emissions in the country.

The northeast region is also moving forward with a transport-focused carbon market in 2021. The draft rule, which was issued at the start of the year and endorsed by Connecticut, the District of Columbia, Massachusetts, and Rhode Island, aims to gain traction in neighboring states. Nationally, transport emissions are the largest contributor of carbon emissions. In the region, this percentage has become even greater as emissions drop from the electricity sector due to the increased supply of renewable energy and decommission of coal power plants.

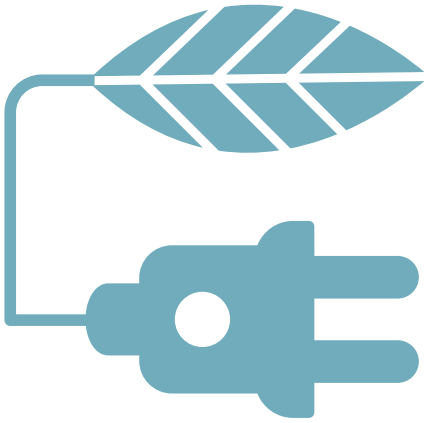
LOOKING AHEAD

Strengthening collective responses to carbon pricing: The time is now!

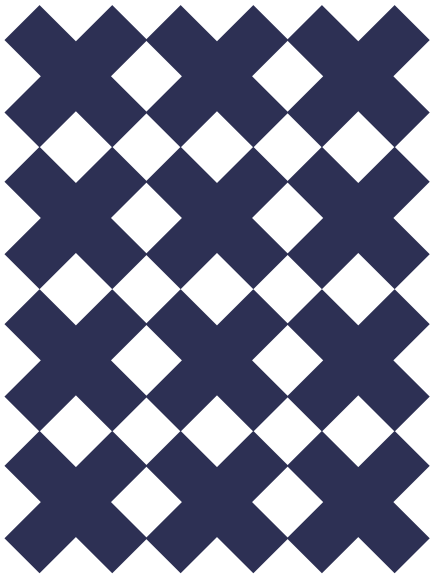


By Angela Churie Kallhauge
Head of the CPLC Secretariat

If the COVID-19 pandemic has taught us one thing, it is that international collaboration is more important than ever. The virus may have reduced global emissions temporarily, but this does not mean we should lose sight of the long term. In fact, more than ever, we need a coordinated global response to climate change if we are to meet the Paris Agreement's ambition. We need to not only harness the policies at hand to avoid risks in the future, but also embrace innovation, share experiences, and broaden our engagement.

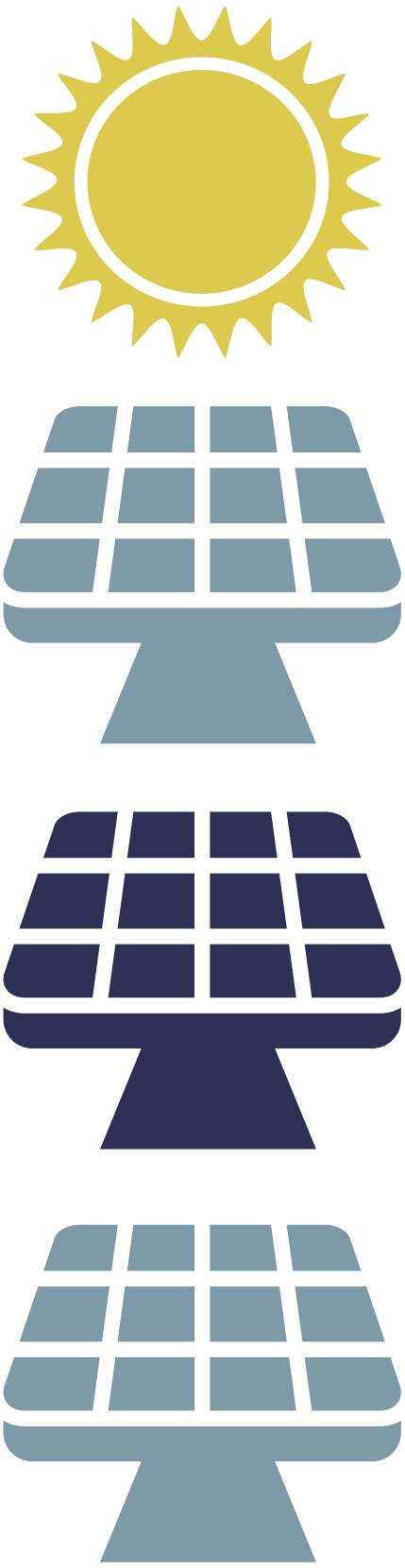


This year has been one of reflection. Over its five years of operation, the CPLC has used its convening power to drive global advocacy and collective action on carbon pricing. We do this through knowledge sharing, public-private engagement, and high-level discussion. As shown in this report, CPLC partners are pursuing a wide range of options to enable their transition to net-zero, including the adoption of science-based targets, use of nature-based solutions, and the development and use of new technologies including those for carbon capture. In all of these efforts, the role of a price on carbon can be a critical element to provide the necessary impetus to act at scale and with the needed urgency.



Moving forward into the next few years, the CPLC will include a specific focus on three thematic areas in its work program to catalyze action toward the goals of decarbonization and sustainable development. These are: the role of carbon pricing in achieving the 2050 net-zero targets; carbon pricing and global trade; and how carbon pricing policies and measures can be designed and implemented to contribute to a socially fair, inclusive, and just transition to a low-carbon economy.

As a start, we have established a Task Force on Net Zero Goals and Carbon Pricing to begin the work. The task force will provide clarity on what net-zero means and how carbon pricing can be used to achieve these aims, while looking to strengthen and align commitments of stakeholders across different sectors and regions to enable the achievement of net-zero in line with global emission trajectories. The interim findings will be presented at the CPLC high-level dialogue in 2021 and will provide valuable inputs for COP26.



In addition to the focused engagement, we will continue our efforts to broaden, deepen, and align efforts on carbon pricing globally, including:

- **Strengthening advocacy actions that build on the CPLC's leadership base.** CPLC partners have a variety of experiences in transitioning to net-zero and in adopting different approaches to facilitate their transition. These concrete initiatives provide important lessons on the challenges and opportunities of implementation, including on the use of carbon pricing, which can help direct our advocacy.

- **Expanding the partner base to include emerging and developing economies that want to engage on the price of carbon.** The use of carbon pricing policies and measures, including markets, has expanded in certain parts of the world, but for these to become globally accepted and meet their full potential, there is a need to expand outreach to countries that have not yet engaged on carbon pricing, in regions such as parts of Asia, the Middle East, and Africa. Carbon pricing provides opportunities for these economies to become less emissions-intensive, generate revenues, and direct investments toward low-carbon and resilient activities, including those for a green and just recovery.

- **Promoting the business, political, and social case for carbon pricing and net-zero pathways.** CPLC partners continue to demonstrate how carbon pricing is helping to achieve company and government climate change targets. These leadership voices and experiences have proven to be valuable when advocating for more ambition in regulation, carbon pricing policies, and other mechanisms to address issues that will advance climate action and sustainable development.

While the past year has been dominated by the COVID-19 pandemic, revealing our fragility, it has at the same time shown our resilience and the power of cooperation. It is therefore important that we harness all the opportunities to unlock and strengthen efforts to jointly plan, prepare, and action our efforts on climate change. The CPLC and its partners have paved the way and we look forward to building further on our leadership to inform, inspire, and involve stakeholders around the world to join us in putting a price on carbon for climate action and sustainable development.

Our partners

15 new members joined the carbon pricing conversation in 2020/21, bringing the total number of CPLC partners to 306.

34 NATIONAL/ SUBNATIONAL GOVERNMENTS AND STATE-OWNED ENTITIES

Alberta
Belgium
British Columbia
California
Canada
Chile
Colombia
Costa Rica
Côte d'Ivoire
Delhi Metro Rail Corporation Ltd.
Denmark
Ethiopia
Finland
France
Germany
Indian Railways
Italy
Japan
Kazakhstan
Mexico
Morocco
The Netherlands
New Zealand
Northwest Territories
Norway
Ontario
Panama
Portugal
Quebec
Singapore
Spain
Sweden
Switzerland
United Kingdom

172 PRIVATE SECTOR ORGANIZATIONS

Abengoa
Acciona
ACT Financial Solutions
AECOM
AGL Energy
Aimia
Air Canada
Alessandri
ALLCOT Group
Allied Crowds
AMATA
Anglo American
AP4
Arvind
Atmoterra
Atos SE
AXA
B12
Baker McKenzie
Bank Australia
Barco NV
Barrick Gold Corporation
Bearfeldt GmbH
BG Group
BHP Billiton
Blackstone Energy Services Inc.
BMO Financial Group
BNP Paribas
BP
Braskem
Broad Group
BT Group
Cálidda
Canadian Tire Corporation
Carbon Engineering
Carrefour
Catalyst Paper Corporation
Cement Association of Canada
Cemex
Cenovus Energy Inc.
CIBC
Climate Focus
Coca-Cola HBC AG
Colbún
CommerzBank
COPENOR
Coway
CPFL Energia
DAI Global
Dalmia Cement
Danfoss
Daniels Power Corporation
DAO Integral Platform for Climate Initiatives
Desjardins Group
DNV GL
Drax Group
EcoAct Inc.
Ecofrotas
ECOTIERRA
Électricité de France
EDP - Energias de Portugal S.A.
Ekbd Consult
EKI Energy Services Ltd.
EllisDon
En+ Group
Enaex
Enagás
Enbridge
Enel
Engie
Eni
EnvironmentFirst Energy Services Private Limited (EESPL)
Equinor (formerly Statoil)
Eskom
EY

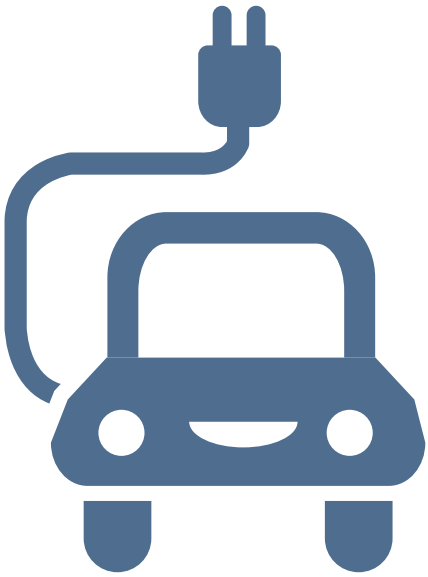
Our partners continued

Ferrovia
Fortum
Garanti Bank
Get2C
Global Environmental Markets
Godrej & Boyce Mfg. Co. Ltd.
Gol Linhas Aéreas Inteligentes
Groupe ADP
Grupo Financiero Banorte SAB de CV
Hindustan Construction Company
HSBC
Iberdrola
ICF International
IKEA Canada
Infigen Energy
Infinite Solutions
Infosys
Keyassociados
Kruger Inc.
LafargeHolcim
LATAM Airlines Group
Libélula
Lloyd's Register
Loblaw Companies Limited
Mahindra
Man Group
MexiCO2
Michelin
Milbank
Mott MacDonald
National Australia Bank
Natura
NatureBank
Naturgy Energy Group (formerly Gas Natural Fenosa)
Navigant
NaxRo
NEAS Energy
NEI Investments
Nestlé
Nouveau Energy Management
Novartis
Novozymes
Obrascón Huarte Lain (OHL)
Ontario Power Generation
Origin Energy
Paper Excellence
Perspectives Climate Group GmbH
PG&E
Poch (WSP)
Pollination
Portafolio Verde
Predict Ability Limited (PAL)
Redshaw Advisors
Resolute Forest Products Inc.
Royal Bank of Canada
Royal DSM
Royal Philips
RUSAL
Saint-Gobain
Schneider Electric
Scotiabank
Şekerbank
Shell
Shell Canada
Siemens AG
Sindicatum
SkyPower
Sodimac
Solvay
South Pole Group
S&P Global
SSE
Star Rapid
Statkraft
Suez (formerly Suez Environnement)
Suncor Energy
Tata Group
TC Energy (formerly TransCanada Corporation)
Teck Resources
TELUS
The African Stove Company (TASC)
The Carbon Trust
The Climate Solutions Group
The Co-operators Group Limited
Toronto-Dominion Bank
Total
Trucost
Ukrgasbank
Unilever
Vale SA
Vena Energy
Veolia
Vestas
Viña Concha y Toro
Visão Sustentável
Yes Bank
Zenith Bank

100 STRATEGIC PARTNERS

ABIQUIM - Brazilian Chemical Industry Association
American Sustainable Business Council
Arbor Day Foundation
Asia Society Policy Institute
BCSD Portugal
Brazilian Agricultural Research Corporation (EMBRAPA)
Brazilian Association of Airlines (ABEAR)
Brazilian Sugarcane Industry Association (UNICA)
Brazilian Tree Industry (IBA)
BSR
The B Team
Carbon Market Institute
Carbon Market Watch
Caring for Climate
CDP
CEBDS
Center for Clean Air Policy
Center for Climate and Energy Solutions (C2ES)
Centre for European Policy Studies (CEPS)
Ceres
China Low Carbon Network
Children's Investment Fund Foundation (CIFF)
CII-ITC Centre of Excellence for Sustainable Development

Citizens' Climate Lobby
Cleantech21
Climate Leadership Coalition (CLC)
Climate Leadership Council
Climate Markets and Investment Association (CMIA)
Climate Neutral
Climate Outreach
Climate Solutions Group Ltd
Climate Strategies
Climate Transparency
Climate XChange
Coalition for Rainforest Nations
Columbia University SIPA Center on Global Energy Policy
Conservation International
Duke University Nicholas Institute for Environmental Policy Solutions (NIEPS)
East African Alliance on Carbon Markets and Climate Finance
Entreprises pour l'Environnement (EpE)
Environmental Defense Fund (EDF)
ERCST
European Bank for Reconstruction and Development (EBRD)
Fundación Natura
George Washington University, Environmental and Energy Management Institute (EEMI)
Global Green Growth Initiative
Global Maritime Forum
Gold Standard Foundation
Groupe de Travail Climat REDD
Haga Initiative
I4CE
ICAP
IDEAcarbon
IETA
IFC
Institute for Global Environmental Strategies (IGES)
Instituto Ethos
International Center for Trade and Sustainable Development (ICTSD)
International Monetary Fund (IMF)
Japan Climate Leaders Partnership (Japan-CLP)
Klimaatplein.com
MIT
OECD
Pembina Institute
Prince of Wales's Corporate Leaders Group
Put a Price on it
Russian Carbon Fund
Second Nature
Sekem Group
Shakti Sustainable Energy Foundation
Solutions for Our Climate (SFOC)
Stockholm Environment Institute
Sustainable Communities India Pvt Ltd
Svebio, Swedish Bioenergy Association
Swarthmore College
The Climate Group
The Climate Trust
The Confederation of Danish Industry
The Generation Foundation
The Institutional Investors Group on Climate Change (IIGCC)
The Nature Conservancy
The Shift Project
The University of the South Pacific
Union of Concerned Scientists
United Cities and Local Governments of Africa
United Nations Foundation
United Nations Global Compact
UNICA
University College London (UCL)
Verra
WBCSD
We Mean Business
West African Alliance on Carbon Markets and Climate Finance
World Bank Group
World Bioenergy Association
World Economic Forum (WEF)
World Resources Institute (WRI)
WWF
Yale University
Zero Carbon Campaign



CPLC-SINGAPORE PARTNERS (62, INCLUDING 4 NEW PARTNERS IN 2020/21)

Accudyne Industries Asia Pte Ltd
Action Impact Pte Ltd
AkzoNobel Paints (Singapore) Pte Ltd
Asia Pulp and Paper Company Ltd
Barghest Building Performance Pte Ltd
Beni Warehousing Pte Ltd
BNP Paribas
Carbon Care Asia Pte Ltd
Centre for Business Sustainability, Nanyang Technological University (NTU)
Changi Airport Group (Singapore) Pte Ltd
City Developments Limited (CDL)
Climate Resources Exchange International Pte Ltd (CRX)
Cooling Lab Pte Ltd
Containers Printers Pte Ltd
Danfoss Industries Pte Ltd
DSM Singapore Industrial Pte Ltd
Dynamic Capital Growth Pte Ltd
ecoSPIRITS Pte. Ltd
Eng Hup Shipping Pte Ltd
engeco Pte Ltd
ENGIE Asia Pacific
ETH Enterprise Pte Ltd
ExxonMobil Asia Pacific Pte Ltd
Greenpac (S) Pte Ltd
Herculean Climate Solutions
Hydratech Industries Pte Ltd
Hydrogen and Fuel Cell Association of Singapore (HFCAS)
IBC Solar Energy Pte Ltd
idstats Research Pte Ltd
IHI Asia Pacific Pte Ltd
Insect Feed Technologies Pte Ltd
Interface Singapore Pte Ltd
iWow Technology Pte Ltd
Lendlease Singapore Pte Ltd
LYS Energy Solutions Pte Ltd
Marquis Energy Global Pte Ltd
Matex International Limited
Maximator Far East Pte Ltd
MEP Systems Pte Ltd
Mermaid Ventures Pte Ltd
Mordec International Pte Ltd
Northmore Gordon Pte Ltd
Onestop Pte Ltd
Ovol Singapore Pte Ltd
Petrochemical Corporation of Singapore Pte Ltd
PricewaterhouseCoopers LLP Singapore
PSA International
Quest Ventures
Right People Renewable Energy (RPRE)
Sembcorp Industries
Singtel
Singapore Institute of Technology
Societe Generale
Solaris Strategies Singapore Pte Ltd
South Pole Carbon Asset Management
StarHub
Trucost (part of S&P Global)
UL Verification Services Private Limited
Unilever Asia Pte Ltd
Vac-Tech Engineering Pte Ltd
Volve Solutions Pte Ltd
Zilingo Pte Ltd

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