

# A PATH TO RAPIDLY AND EQUITABLY MEET CLIMATE MITIGATION GOALS: RECOMMENDATIONS FOR COP27

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## I. Requisites for Success

Climate scientists warn of deep and irreversible damage to Earth if we do not take immediate global action (IPCC, 2013, 2018; USGCRP, 2017; Wehrle et al., 2020). Despite growing attention and commitments, global carbon emissions are not declining, and the world is not on track to limit global average temperature rise to less than 2°C, and ideally less than 1.5°C as called for by the Intergovernmental Panel on Climate Change and the Paris Agreement (IPCC, 2014, 2018; UNFCCC, 2015). More ambitious actions are needed to avoid catastrophic and cascading impacts.

The global community should act now decisively and in concord to fight the existential threat of climate change. Action is imperative because the failure to act threatens human welfare at a scale greater than any other, and perhaps even societal existence as we know it today. COP26 in Glasgow laid the path for global collaboration on the climate crisis by increasing transparency on reporting climate actions, increasing financial assistance for adaptation, and agreeing to “phase down” coal. COP27 will be a historical turning point if the Parties to the Paris Agreement address three imperatives:

- 1) **Guarantee major greenhouse gas reductions.** Nations need to go beyond volunteered pledges to required commitments. Many actions are needed, but by far the most effective will be to put a price penalty on carbon emissions. Over 68 countries, regions and sub-national jurisdictions are adopting carbon pricing mechanisms; those failing to act will be left behind in global trade and technology.
- 2) **Create a level playing field** so that exports of large carbon reducing nations remain competitive with nations still using mostly fossil fuel energy.
- 3) **Assure substantial financial assistance to developing countries** so they can protect themselves through adaptation and mitigation. They have not caused climate change but will be harmed the most by it.

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**These commitments can be achieved at COP27 in Sharm el-Sheikh by the creation of a Climate Club, or Compact, and adoption of a Carbon Surcharge Transfer to bind all countries in solidarity and purpose.**

At COP27, nations should agree to short term action consistent with long-term goals in a way that recognizes their “common but differentiated responsibilities” (UN, 1992). A Climate Compact should simultaneously scale up emissions reductions by creating a rising global price for carbon. By recognizing differential interests, responsibilities and needs of Parties to the Paris Agreement, COP27 could revitalize and commit its participants to a global social contract in which rich-, moderate- and low-income countries join hands to help each other.

This proposal is based on extensive research and policy recommendations for domestic and global climate policy by many experts, including analyses by Greenleaf Communities and partners (Hill, 2021; Nienaber, 2021; Nordhaus, 2019, 2020; Parry et al., 2021; Pihl, 2020). In our 2020 report, “[Addressing Climate Change Using a Carbon Tax and Dividend Plan Within a Global Compact](#)”, we proposed a plan for the United States to rapidly reduce carbon emissions while enlisting other countries to do the same. Here, we build on this plan and lay out a path toward successful COP27 negotiations.

## **II. Two Proposed Agenda Items for the COP27 Conference.**

### **A. Form a Climate Compact to Sharply Reduce Emissions**

Nations that are committed to sharply reducing emissions create a Climate Compact under Article 6 of the Paris Agreement (UNFCCC, 2015), which recognizes some Parties may choose to pursue higher climate ambitions through voluntary cooperation. The Compact countries adopt membership requirements including a rising floor on carbon prices, transparent and comparable standards of a carbon tax or Cap-and-Trade system, and collection of an import carbon surcharge. Members are responsible for setting a rising carbon price floor that is compatible with the United Nations Framework Convention on Climate Change (UNFCCC) 2030 and 2050 emissions reductions goals.

### **B. Create A Carbon Surcharge Transfer to Benefit All Nations**

Adopt a Carbon Surcharge Transfer to unite member countries in a collaborative effort to meet their different responsibilities and needs. This surcharge demonstrates to all countries that their different needs will be met in fighting climate deterioration.

The Carbon Surcharge Transfer is a tariff-like fee imposed on all goods imported from nonmember countries into Compact Countries. Compact Countries act as collection agents and forward the revenue to the UNFCCC for Assistance to the Developing Countries.

The Carbon Surcharge Transfer:

- Provides substantial funding for assistance to Developing Countries.

- Protects the competitiveness of exports from Compact Countries by raising import prices from nonmember countries.
- Encourages Members to remain in the Compact and nonmembers to join to escape the surcharge.

Members of the Climate Compact would set a common minimum domestic carbon price for their domestic markets. The surcharge rate would be set by the UNFCCC in consultation with the Compact Countries and the WTO. Nordhaus suggests based on his analysis that the surcharge should be between 2% and 5% and could be adjusted as needed (Nordhaus, 2015).

**III. Overview of the Climate Compact and Surcharge** – seeking a deeper sense of comradeship and cooperation in protecting our planet. The following topics are discussed in greater depth in the Appendices with reference citations.

**A. The Climate Compact** – a workhorse for the world.

Climate change is coming faster than foreseen while counter measures are responding slowly. The Climate Club represents an effective approach to sharply decrease global carbon emissions. A small group of countries, with leadership and goodwill, can motivate each other to seek superior performance. Such small group contagion and emulation could start via a Compact comprised of the E.U., U.S, U.K., China, Japan, S. Korea, Canada, New Zealand, and Australia.

Each country joining the Compact would agree to adopt a domestic carbon tax with a price floor that rises over time or use an Emission Trading System (ETS) to create the same implicit carbon price. They would set and enforce their own domestic carbon rules and determine methods of collecting the import carbon surcharge and forwarding revenue collected to a UNFCCC-specified depository.

Countries of the Compact could incur inflation as they fast track their transition from fossil fuels to sustainable energy, making their exports less competitive. To counter any incentive for industry departure to cheaper cost Non-Compact countries, the Carbon Surcharge would raise the price of all goods imported from nonmember Countries by a small amount of 2% to 5%, countering the lower price advantage. See Appendices B and C for further discussion.

**B. The Carbon Surcharge Transfer**

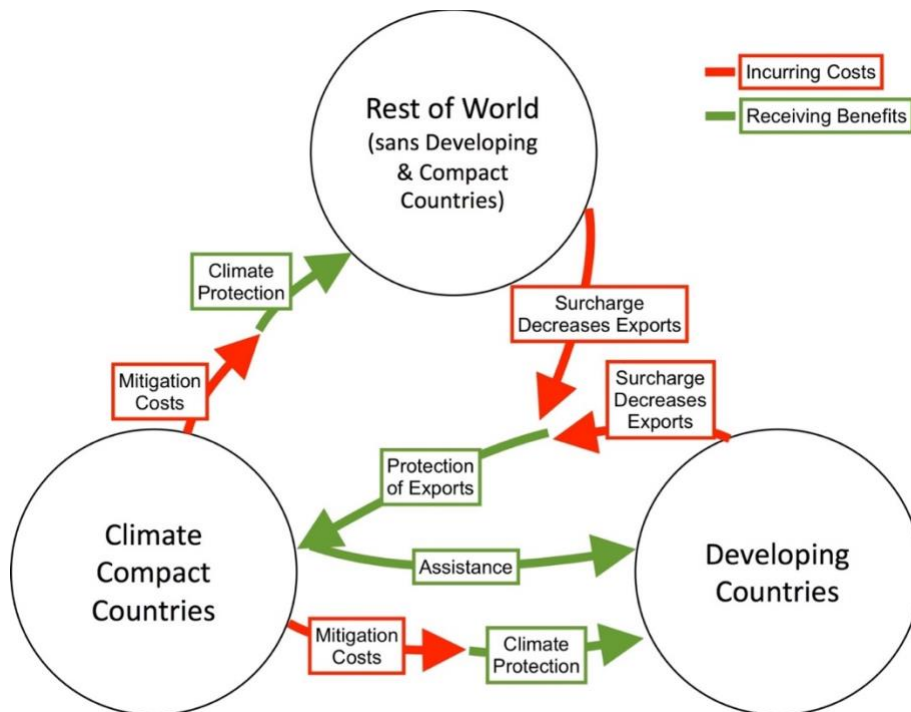
The Carbon Surcharge Transfer helps knit together differentiated responsibilities and benefits of the Members of the Paris Agreement. Compact Countries collect the surcharge on imports from all countries except those within the Compact and transfer the revenue to the UNFCCC. The surcharge raises import prices from non-Compact Countries as an approximate means to equalize export prices between major and minimal carbon reducing nations. This would be WTO compliant because the surcharge enables Compact Countries to decrease emissions and provides assistance to developing countries, thereby contributing to natural resource protection and humanitarian aims.

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During the Copenhagen COP15 in 2009, developed countries committed to providing a minimum of \$100 billion per year by 2020 to assist Developing Countries. Funds have not yet reached that level (see Appendix C), in part because of the COVID pandemic, and in part because countries have failed to meet their commitments.

The UNFCCC would define the surcharge funds as UNFCCC climate revenue dedicated for Assistance to Developing Countries. Since global trade is relatively stable from year to year, the surcharge revenue will provide a comparatively stable source of Assistance financing for the Developed Countries. (see Appendix C for possible funding levels). The surcharge rate could be increased as necessary. This approach implicitly rewards countries that remain in the Compact and encourages non-members to join it. (Dion, 2015; Nordhaus, 2019, 2020) The problem with using a tariff is that revenue collected would belong to the importing country which might or might not decide to donate the revenue to Developing Countries. Both the tariff and surcharge are politically problematic, but the surcharge has the major advantage of avoiding a politically fraught tussle each year to allocate large budget funds to aid the Developing Countries. Moreover, the inability of the rich countries to assure the Developing Countries of adequate assistance could cause COP27 to fail. See Appendix C for further discussion.

*Figure 1 - Countries Working Together in the Climate Compact: Surcharge as a Binding Force*



### C. Transforming Paris from an Agreement into a Global Social Contract

The Carbon Surcharge Transfer enlarges the framing of the Paris Agreement – creating a global social contract in which common and differentiated tasks interlock all countries in carrying out the Paris Agreement through a Climate Compact. This social contract among all

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countries presents a reliable source of assistance funding to Developing Countries, which need help soon to assist them in the transition, and there appears no other funding system at hand. This Climate Compact keeps carbon reducing nations in the Compact as carbon prices rise by protecting their competitive export position, and it encourages new countries to join. The surcharge brings fairness and toughness to the Paris Agreement.

The topic of pricing carbon at the border has been a central theme at COP26 and other high-level meetings. Implementing mechanisms to green international trade will be challenging and contested but are essential. As stated by Catrina Rorke, Vice President for policy at the Climate Leadership Council, “the current rules of global trade end up favoring dirtier producers, inefficient processes, in ways that are just not sustainable and not consistent with achieving a climate-stable future.” (Schonhardt, 2021).

The European Union is advanced in planning the use of a Border Carbon Adjustment (BCA) as a carbon content equalization measure. As discussed in Appendix C the BCA does not provide a proper inducement to join or stay in the Compact. It requires bi-lateral negotiations and will bring entanglements and controversies over the right way to measure both the carbon content and the fee. Furthermore, it is not transparent, risks delay, and fails to raise sufficient funds to meet the need for financial assistance even if countries donate their BCA revenue to the Assistance Fund. Parry (Parry et al., 2021) states “BCAs are far less efficient than price floors in achieving emissions reductions as they apply only to a small portion of a trading partner’s emissions.” Fortunately, a surcharge makes a BCA unnecessary.

The surcharge helps establish a global contract defining both duties and benefits and addresses many seemingly intractable social problems within a deteriorating climate situation. The Surcharge and the Climate Club are crucial steps forward for forestalling global climate change.

#### **IV. Conclusion**

It is vital that Sharm el-Sheikh in November 2022 is a turning point when nations unite in concord around effective and fair climate actions. While the Paris Agreement was a monumental achievement in international climate cooperation, it is now critical to adopt more muscular methods to reduce emissions. An agreement that discourages the use of fossil fuels, builds trust between countries, fosters accountability and ensures equity between major emitters and developing countries is just such an advance.

The Climate Compact should complement the Paris Agreement’s voluntary pledges with firm commitments to accelerate emissions reductions, putting the world on a path to reduce carbon emissions and preserve a habitable climate. A Climate Compact of nations committed to carbon emissions reductions through domestic carbon pricing and carbon surcharges on imports from countries without strong climate policies would help the global community achieve the UN’s targets for 2030 and 2050. Revenues from these surcharges will be significant and can ensure substantial assistance to developing countries to help them protect their populations and

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reach growth targets while limiting carbon emissions. To be credible as leaders, by adopting ambitious domestic climate policy, for instance through a carbon tax, the U.S. and other major economies will demonstrate the credibility of their commitment and enhance their influence on other nations. Most important, the Carbon Surcharge Transfer binds countries together by simultaneously protecting competitiveness for Climate Compact countries and ensuring assistance to developing countries. The terms of the Climate Compact could be negotiated in Egypt, with an organizing conference following in 2023, led by Co-Chairs China, the E.U. and the U.S. under the auspices of the UN.

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## Appendix A – Pricing Carbon

Pricing carbon is a requisite for forming the Climate Compact and therefore is discussed in this proposal. Since action on climate policy has been tardy, it is imperative that the best means of effective policy be chosen. Recently analysts have identified carbon pricing, through taxes or Emissions Trading Systems, (ETS) as the best means to jump start increasing carbon mitigation. A carbon tax system would levy the tax per tonne at the point of extraction of petroleum, natural gas and coal production. The producers would pass the tax along to wholesalers and retailers in proportion to the carbon tax value contained in each sale. Thus, the tax would be dispersed throughout the economy based on the carbon contained in each product. A schedule of the increasing carbon price over future years would be included in the tax legislation so that firms could plan their future products and investments in moving to less carbon intensive and increasingly cheaper products. The sellers would include their added cost in their selling price but not itemize the tax. The tax already paid to the Treasury at the mine or wellhead would not be apparent to the buyer, just the overall price. Consumers will demand the less costly products.

Promises of various climate actions are hard to quantify and notoriously difficult to compare. Further, they greatly weaken reciprocity. Further Nordhaus notes:

(Carbon prices) are best understood around the world as a clear and visible marker of performance. He adds “prices serve as a simpler instrument for international negotiations because they have a single dimension ...To the extent that carbon price targets lead to carbon taxes, the administrative aspects of taxes are better understood around the world than marketable emissions allowances, and they are less prone to corruption.” (Nordhaus, 2015, p1352)

For the Compact approach to succeed in escalating emission reductions, the small group of negotiating countries must have a clearly defined marker to judge progress and costs in their debate. Countries agree that the marker is the carbon price, explicit or implicit.

The following considerations support using a carbon price or ETS:

- Rising carbon taxes will increase prices to drive consumers away from carbon intensive energy and products thereby reducing carbon emissions and simultaneously driving firms to innovate and invest in sustainable energy and less intensive carbon products to meet the rising demand for these goods.
- This free-market industry approach allows those with the knowledge and information needed to decide which replacement products and energy to produce; they include scientists, engineers, economists, marketing managers, and most importantly, entrepreneurs. No one is better placed than those in industry, engineering, and science with the knowledge, information, and experience to transform industry from a fossil fuel to a non-fossil fuel base.

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- Carbon Tax legislation is straightforward and can be drafted fairly quickly, whereas regulation by economic sector is laborious to prepare, subject to litigation, and attracts a competing frenzy of lobbyists, all of which is time consuming. This legislation is transparent and when accompanied by dividends or refunds back to the citizens can be explained as a great equalizer keeping the tax burden off the poorer classes.
- Such legislation is difficult to rescind once firms start recasting their product portfolios and investing based on set future carbon prices. Uncertainty is the enemy of business planning and investment and is a major cause of tardy climate action, especially in the United States. Unsure of the future, firms cling to the certitude of standing pat.

Economists have uniformly agreed that utilizing price as the prime mover for the energy transition will be the fastest and lowest cost way to reach net-zero. In the US, both the Citizens' Climate Lobby (CCL) and the business-oriented Climate Leadership Council (CLC) are strong advocates of a rising carbon price as the most effective climate policy. In addition, the Business Roundtable composed of the 200 top US businesses has endorsed a carbon tax approach. This indicates a clear basis in the US for a bipartisan legislative approach.

Recently many analysts have endorsed carbon pricing as the superior means of moving forward. These include the following organizations, researchers, and studies: The Columbia University Global Energy Project, Resources for the Future, Parry et al. and the IMF Carbon Study, Hakan Pihl, Stern and Stiglitz, and many others give staunch support for a carbon tax or Cap and Trade System. Our report, *Addressing Climate Change Using a Carbon Tax and Dividend Plan within a Global Compact*, describes these processes in greater detail in Part II.

A common pricing mechanism among countries would give greater credibility and transparency to countries' climate pledges and build trust between Compact members. As of 2022, 68 carbon pricing instruments in various nations and jurisdictions are in operation, covering over a fifth of global greenhouse gas emissions. The U.S. is one of two developed economies without a price on carbon as shown in **Figure 2**. Global carbon emissions covered by carbon pricing initiatives rose from 15.1% in 2020 to 23.1% in 2022. (World Bank, 2022)

**Figure 2** *The U.S. is one of two developed economies without a carbon price as shown in the chart below.*  
 (Citizens’ Climate Lobby, 2021)

Developed Economies*	Carbon Price? **	Carbon Pricing System	Developed Economies	Carbon Price?	Carbon Pricing System
United States	No		Japan	Yes	Carbon Tax
Australia	Similar policy	Baseline and offset***	Latvia	Yes	EU ETS & Carbon Tax
Austria	Yes	European Union ETS (EU ETS)	Lithuania	Yes	EU ETS
Belgium	Yes	EU ETS	Luxembourg	Yes	EU ETS
Bulgaria	Yes	EU ETS	Malta	Yes	EU ETS
Canada	Yes	Carbon Tax	Netherlands	Yes	EU ETS
Croatia	Yes	EU ETS	New Zealand	Yes	ETS
Cyprus	Yes	EU ETS	Poland	Yes	EU ETS & Carbon Tax
Czechia	Yes	EU ETS	Portugal	Yes	EU ETS & Carbon Tax
Denmark	Yes	EU ETS & Carbon Tax	Romania	Yes	EU ETS
Estonia	Yes	EU ETS & Carbon Tax	Slovakia	Yes	EU ETS
Finland	Yes	EU ETS & Carbon Tax	Slovenia	Yes	EU ETS & Carbon Tax
France	Yes	EU ETS & Carbon Tax	Spain	Yes	EU ETS & Carbon Tax
Germany	Yes	EU ETS & Germany ETS	Sweden	Yes	EU ETS & Carbon Tax
Greece	Yes	EU ETS	Iceland	Yes	Carbon Tax
Hungary	Yes	EU ETS	Norway	Yes	Carbon Tax
Ireland	Yes	EU ETS	Switzerland	Yes	Carbon Tax
Italy	Yes	EU ETS	United Kingdom	Yes	ETS

Hakan Pihl in his comprehensive article “A Climate Club as a Complementary Design to the UN Paris Agreement,” states that the Paris Agreement was flawed at inception by “allowing in low ambition countries as members” and not dealing with the problem of “low commitments and weak reciprocity.” (Pihl, 2020) He defines reciprocity as when one person acts positively this encourages other persons to act similarly. He argues that reciprocity is the key to scaling up ambition in the Paris Agreement and it is feeble without a smaller group such as a Climate Club.

He concludes that “A Climate Club should begin “with a limited group of ambitious nations and have a mechanism that can lead to more global coverage in the future...(This) allows members with high ambition to set the standard.” (Pihl, 2020) This is the way the WTO was created. However, the group of nations must be large enough to be convincing that it will succeed and attract future members.

The IMF Staff “Proposal for an International Carbon Price Floor among Large Emitters” written by Jan Parry, Simon Black and James Roaf argues that “The main rationales for a ...(price floor) are that it can (1) facilitate negotiations in a transparent manner and (2) scale up ambition and policy action by addressing key obstacles. Parry et al describes the advantages of a select group of countries banding together to set a rising price of carbon and adds that “The ... (price floor) would complement rather than conflict with the existing Paris Agreement.” (Parry, 2021 p4) They suggest the possibility of a differential price floor such as \$25, \$50, and \$75 for different income level countries and stress the need to sharply increase mitigation:

“Existing NDCs remains insufficient for achieving the Paris Agreement temperature targets. Just to reach the top of the 1.5-2C range requires global emissions cuts of at least 21% by 2030 compared with “business as usual” ... Current NDCs would fall short – even if all G20 countries achieved their pledges emissions would be just 14 percent below baseline levels...Either a pure \$50 carbon price floor for all six countries or a differentiated price floor of \$25, \$50 and \$75 depending on development levels would reduce energy-related CO2 emissions 23-24 percent compared with business as usual.” (Parry et al., 2021)

Joseph Stiglitz and Nicholas Stern in their article “Report of the High Level Commission on Climate Prices” call for a policy of pricing carbon. (Stiglitz & Stern, 2017)

Finally, this public palatability of the carbon tax approach can be improved by adding a consumer dividend / rebate to the tax wherein some or all of carbon tax revenue is returned as dividends to the citizens. It would be interesting to know how President Macron’s carbon pricing proposal would have fared if he had proposed a 100% dividend or rebate to French citizens so that the lower classes benefited financially from the ‘tax’. See our report, *Addressing Climate Change Using a Carbon Tax and Dividend Plan within a Global Compact* (pages A-11 to A-21), for an analysis of how effective the 100% rebate is in benefiting the lower income classes when the total carbon tax revenue is distributed equally to all citizens and how lower income households increase their incomes by a tax and dividend policy.

## **Appendix B: Forming a Climate Compact**

### **I. Why a Climate Club is needed and How it would work**

The prime task today is to reduce carbon emissions quickly and sharply. The IMF Study states boldly (Parry et al., 2021):

Existing NDCs (Nationally Determined Commitments) remain insufficient for achieving the Paris Agreement temperature targets. ...there is a need to ratchet up near term climate ambition...The Paris Agreement’s universal country participation is critical for its legitimacy. But ratcheting up ambition among 195 parties simultaneously is proving challenging. To date, 85 countries have submitted revised targets, but many do not entail substantial additional emissions reduction by 2030. Meanwhile, at a global level revised commitments – even if fully implemented – remain insufficient to meet the Paris target of limiting warming to “well below 2C.”

### **II. The Climate Compact must encourage Ambitious Carbon Reductions**

Reaching an agreement on scaling up may be possible in a Compact “because fewer parties are involved. The very large number of signatories to the Paris Agreement makes it very difficult to agree on both (1) a coordinated scaling up of mitigation pledges over the next decade, and (2) incentive mechanisms to encourage countries to comply with their pledges. (Parry et al., 2021)

The ability of a ‘Club’ organization to achieve its goals is both psychological and sociological. In a large and heterogeneous group, there is no chance of creating a ‘band of brothers’ sentiment where each country trusts and feels bound to the common action of all members. In a large group of say 200 members, the action of one country does not compel others to follow. To the contrary, other countries may free-ride or pledge and then renege. The opposite is true for small groups whose members all feel responsible for their group’s performance and are pledged to each other to act. When a country calls for an increase in the carbon price, all other Compact countries will respond as positively as they can. If they agree on an increase, each country feels empowered. They are confident that the reductions will be carried out. Responsibility and ability to act are paired in the Compact since members feel the weight of responsibility and have the power to act.

In a compact, the pledges of action must be transparent and precise, not amorphous promises. The members cannot debate additional actions or enforce past pledges if the standard for performance is not unitary or at least relatively straight forward, like a carbon price. Creeping green wash will erode trust and solidarity rapidly. This is why many supporters of a Compact see the carbon tax or ETS approach as the key criterion for membership.

### **III. A Compact Requires Two Additional Elements:**

#### **Protection of the competitiveness of the Compact countries' exports.**

Transforming an economy based on fossil fuels to sustainable energy requires a gigantic reshuffling of resources, manufacture, manpower, and skills, as well as new industries and infrastructure. This job can be done as demonstrated by many countries during and after World War II, but it is much harder now under intense time pressure. The transformation will cause some prices to rise as shortages develop. Therefore, the Compact nations who are doing the heavy reducing will see the price of their exports rise somewhat. In addition, the non-Compact countries will have lower export prices because they are using cheaper fossil fuel energy.

The easiest way for Compact Countries to offset the climate-caused loss of competitiveness is to raise the price of imports to keep a level playing field. This can be done through a Border Carbon Adjustment (BCA) or a general tariff raising import prices sufficiently to erase the cost differential between the exporting and importing countries. The tariff is only an approximation of this difference, not a precise number. The job of the tariff is to a) place a small penalty on low reducers encouraging them to join the Compact, and b) to raise export prices from low reducers enough to roughly match the higher export prices of similar goods produced in Compact Countries caused by their large abatement costs. (Nordhaus, 2015) Such a tariff or surcharge does not change the relative export competitiveness among the Non-Compact countries because the same surcharge applies to all their countries' exports to Compact countries. Furthermore, there is no surcharge on trade among Non-Compact countries to distort their trade. This will be discussed further in Appendix C where the tariff is changed to a surcharge.

#### **Encouragement of Low Reducers to join the Compact of High Reducers.**

Success of a Climate Compact requires that over time additional countries join the Compact to further reduce emissions. This brings up the vital issue of how poor reducers are disciplined within the arena of Public Goods. Professor Nordhaus' exploration of this subject leads to the problem of the Prisoners Dilemma: How do countries punish bad actors without punishing themselves. He answers by calling for the 'tariff sanction mechanism' which:

“(i) imposes costs on the non-participating country but (ii) benefits participants that levy the penalty tariffs. Moreover, because tariffs apply bilaterally, they can support an efficient equilibrium for global public goods for a large number of countries as long as the optimal-tariff effect operates.” (Nordhaus 2015, p1351)

He uses a dynamic global model to test the tariff thesis and shows that even a tariff as low as 2% will accomplish two key tasks: (1) countries will remain in the Compact as the carbon price rises and (2) free-riders will be pushed to join the Compact because of the tariff's harm to their exports. This and other studies have concluded that the Climate Club approach coupled with a penalty for minimal reducers is perhaps the only way to sharply increase carbon reductions within a world of sovereign nations.

#### **IV. There Is Strong Support in the Research Literature for the Club Approach**

For further discussion of choosing between taxes and the ETS see Nordhaus 2013 and Bertram, Stiglitz and Helm.

The indispensability of having both a penalty for and a means of funding assistance to developing countries is discussed in Appendix C.

Pihl concludes his analysis listing three cornerstones he feels characterize a good climate club approach:

1. Synchronize domestic carbon pricing policies in the Climate Club (carbon taxes, trade schemes, etc.) by the introduction of a minimum carbon price.
2. Synchronize trade policies and introduce a border tax adjustment among member nations. Introduce a carbon tariff on imports from nations outside the Climate Club.
3. Welcome outside nations to join the Climate Club on the conditions that they pursue the same policies as above.

As mentioned by Pihl, designs similar to the above have been suggested by Stiglitz (2006), Helm (2012) and discussed by Bertram (2016).

In a retrospective analysis, Nordhaus considered why the 1997 Kyoto and the 2015 Paris Agreements have failed to reduce emissions while also suggesting a remedy. He argues that placing a penalty on low reducing countries will over time discourage free riders. Using a global, dynamic modeling procedure he demonstrated that a low general tariff of between 2 and 5% on all such imports would both encourage countries to remain in the Compact and over time draw new members into the contract to escape the penalty. We adopt this recommendation and change the tariff into a surcharge collected by the Compact Countries, but with the revenue belonging to the Developing Countries who receive these funds as Assistance. The reasons for this change are discussed in the text and in Appendix C.

**Appendix C -- The Triple Duty ‘Transfer Carbon Surcharge’**

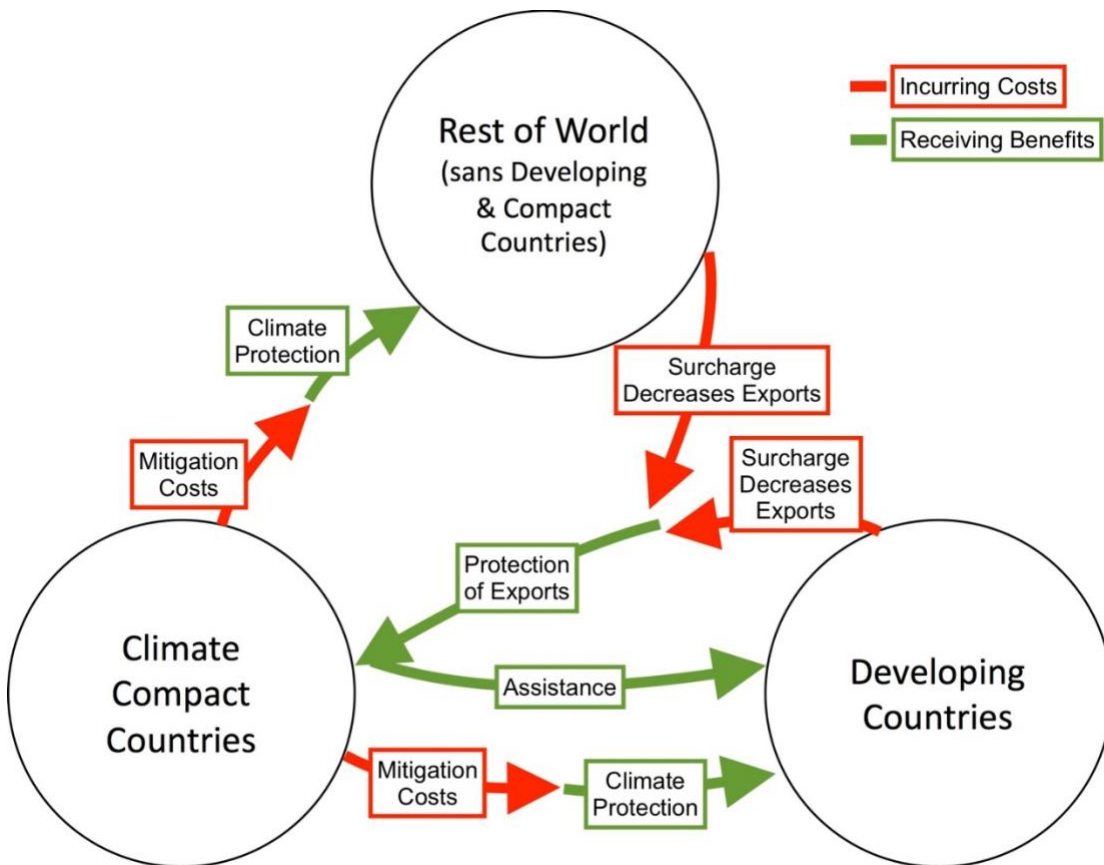
As stated previously the formation of a Climate Compact is indispensable to forestall the worst consequences of climate change. However, the accompanying step of initiating a global import surcharge on Compact Country imports from all other countries in the world is equally important. This appendix describes why the addition of a new global surcharge to the Paris Agreement is vital to the success of the UNFCCC.

**I. Why A Surcharge**

The surcharge on exports from Non-Compact to Compact countries is the public declaration of all members of the Paris Agreement that they share responsibilities and benefits in their common drive to protect our planet. The surcharge accomplishes three vital tasks:

- protects the Compact Countries by providing a more level playing field for their exports,
- encourages countries to join the Compact-reducers and avoid import surcharge on their exports,
- provides substantial and assured funding for assistance to Developing Countries.

*Figure 3 - Countries Working Together in the Climate Compact: Surcharge as a Binding Force*





Each of these tasks is essential to create an overall policy in which member countries take care of each other's needs, and in which all countries feel their needs and interests are met fairly. The Compact Countries are doing the heavy lifting of sharply reducing carbon thereby providing the umbrella climate protection for all countries. The Non-Compact Countries in return agree to have the price of their exports raised by the surcharge to both create a level playing field for the Compact Nations and to provide the funding for assistance to Developing Countries. In this way the surcharge is a global handshake joining all in a singularly historic and collaborative effort.

### **II. Describing the Transfer Carbon Surcharge**

The surcharge is a percentage rate, between 2% and 5%, added to the export sale price which raises the export price of exports from all non-Compact countries as they enter Compact Countries. The UNFCCC declares that all Surcharge Revenue is the property of the UNFCCC and will be used, after administrative costs, only for Climate Assistance to Developing Countries. The Compact Countries serve as collection agents of the surcharge for the UNFCCC. The Compact Countries transfer the revenue collected to a fiduciary account in the IMF or World Bank as a depository for the UNFCCC. The surcharge is not a tariff because the funds pass through but do not become the property of the importing nations.

The suggested name for the surcharge is 'Transfer Carbon Surcharge' to designate that it is a multiple use instrument to create a more level playing field for major reducing nations while also placing a penalty on all other countries who are minimal reducers. These non-Compact countries will suffer some loss in exports because of the rise in price caused by the penalty surcharge placed on their exports.

The term transfer denotes that the entire surcharge revenue created by the Non-Compact world goes to the Developing Nations for general assistance, adaptation and mitigation. Pihl notes:

Members of a Climate Club can redistribute revenues from carbon taxes and tariffs to groups that need support. Such measures would increase the popularity of carbon taxes among taxpayers and increase the political acceptability in a national context (Klenert et al., 2017). Revenue from tariffs could also or alternatively, be distributed to outside developing nations, supporting climate adaptation and climate transformation processes. Such efforts would make a Climate Club more legitimate in an international context. ...To the extent that such measures also would increase the effort in developing nations to reduce emission, it would add to the effect on climate change.

The Non-Compact Countries will not face a decline in competitiveness with each other. The same surcharge rate affects all non-compact exports to the Compact Countries. The surcharge does not affect their exports among non-Compact Countries since there is no surcharge on these exports. This recycling of surcharge revenue passing through the Compact Countries plays a key role in protecting their exports from unfair competition from countries who use

cheaper fossil fuel energy. The surcharge provides approximate, not precise, protection to the Compact Countries so that their export industries will not be injured or go abroad because their countries are bearing the heavy mitigation costs of carbon reduction.

### **III. Benefits of a Transfer Carbon Surcharge compared to Border Carbon Adjustment**

The Surcharge is a sort of glue holding the Paris Parties together in their extraordinary global work. The surcharge is not intended to put a precise price on carbon moving in trade as does the BCA, but rather imposes a general across-the-board penalty surcharge on all merchandise imports from non-Compact countries entering Compact Countries. This is far superior to a bi-lateral Border Carbon Adjustment because it can be started immediately since the statistics are readily available and can be enforced by simple audits. Article Six of the WTO stipulates that multilateral trade actions which protect people and the environment from harm are promoted. The surcharge is essential in forming the Compact and assuring funding for the Developing Countries. The BCA is complicated and will be prone to both legal and country delays, certainly not a jump start. The surcharge is a modification of Professor Nordhaus's tariff penalty suggestion. The tariff is modified in this proposal to become a surcharge to provide assistance to Developing Countries, protect the competitiveness of exports from Compact Countries, and encourage members to remain in the Compact and nonmembers to join as discussed on page 2. Because the transfer Carbon surcharge solves so many difficult problems, it is recommended over the BCA as the way forward.

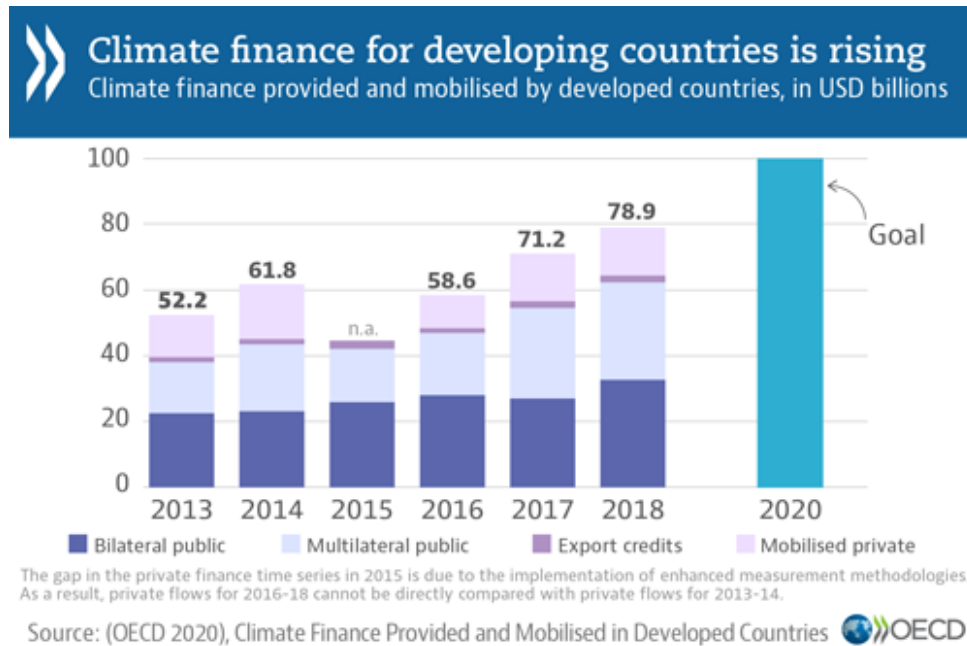
### **IV. Financing a Global Public Good**

This is difficult within a world of sovereign nations making their own decisions. Yet, it is indisputable that financing assistance be provided to poorer and developing nations as a necessary public good for those countries who did not cause climate disruption but will suffer the most from it. The current method of asking developed countries to pay for this Assistance is not working as demonstrated by failure to raise promised annual funds of \$100b. Additional approaches under consideration risk failure to deliver steady and adequate flow of funds due in part to local political processes. They include an international tax on travel, shipping or financial transactions, a tax on countries proportional to emissions (Rajan, 2021), and an international levy on countries.

The solution we recommend is a global carbon surcharge on imports from all countries that are not making major reductions. Reliable trade flows provide a level of assured funding to the Financial Assistance for Developing Countries. The Developing Countries could decide to accept this surcharge on their exports in recognition of climate protection costs being born by the reducing countries -- a pragmatic way of assuring that their needs of adaptation and mitigation will be met. The effect of the surcharge on importing country economies would be minor; it is estimated a 2% surcharge paid by importing countries, when mixed with domestic goods, would affect inflation by a fraction of one percent (e.g., 1/3 or 1/2 of 1%).

### Appendix D -- Funding Assistance to Developing Countries

The Copenhagen COP18 of 2012 committed members to provide assistance from international organization, governments and the private sector to finance assistance to the Developing Countries which would by 2020 reach and continue at a yearly contribution of \$100 billion. The contributions per year through 2020 comprised of bilateral funds from national governments, multilateral assistance from international organizations and private sector aid are shown below in billions of dollars.



Angel Gurría, Secretary-General of the OECD said, “Donors have to urgently step up their efforts to support developing countries to respond to the immediate effects of the pandemic and to integrate climate actions into each country’s recovery from the COVID-19 to drive sustainable, resilient and inclusive economic growth.” (“Climate Finance for Developing Countries Rose to USD 78.9 Billion in 2018,” 2020)

The Council on Foreign Relations analyst Alice C. Hill reported on May 18, 2021, that “Efforts to address climate change can cost billions of dollars, often making them out of reach for poverty nations, which have contributed far fewer greenhouse gas emissions than developed countries. As a result, financing has emerged as a potential flash-point issue this year as global climate discussions gain momentum.” (Hill, 2021)

The Carbon Transfer Surcharge would provide assistance to Developing Countries and is based on exports. Since global trade is relatively stable from year to year, the surcharge revenue will provide a comparatively stable source of Assistance financing for the Developed Countries. The following estimates are based on the Carbon Surcharge Transfer and on assumed Compact members consisting of the E.U., U.S., China, Japan, South Korea, Canada, Switzerland,

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Australia, and New Zealand. These countries are assumed to collect a varying surcharge from 2% to 5% of the imports coming in from the rest of the world. The following figures are approximations, not precise calculations.

*Figure 4 - Surcharge Revenue Estimates based on Compact and Non-Compact Country Statistics Source: Wikipedia using UN Com and ITC Statistics for 2020 presumed Compact Countries. Merchandise Exports in trillions of Dollars.*

<b>Country</b>	<b>Exports (Trillion \$)</b>
China	2.5 T\$
US	1.6
EU	5.8
Japan	0.7
South Korea	0.54
UK	0.47
Canada	0.45
Australia	0.27
New Zealand	0.04
<b>Compact Total</b>	<b>12.7 T\$</b>
<b>Non-Compact Total</b>	<b>6.1 T\$</b>
<b>World Total for 2020</b>	<b>18.8 T\$</b>

*Figure 5 – Surcharge Calculations based on Non-Compact Total. Revenues in billions of Dollars.*

<b>Surcharge</b>	<b>Revenue (billion \$)</b>
2%	122
3%	184
4%	245
5%	306

## **Appendix E --Key members: European Union, China, and the United States**

For the Climate Compact to succeed, it must include the world's major economies. The U.S., China and the E.U. represent, respectively, 15%, 27% and 8% of global CO<sub>2</sub> emissions (Ritchie & Roser, n.d.). By covering half of global emissions, as well as about half of the world's GDP, this core group would exert enough leverage to pull in more members (Statista, 2021). Moreover, the implementation of deep emissions cuts, particularly by the U.S. and China, is necessary to meet the U.N.'s climate targets: "Assuming full implementation of the net zero targets by the U.S., China and other countries [...] global warming by 2100 could be as low as 2.0°C ('Optimistic Targets' scenario)" (CAT, 2021).

**The European Union:** The EU already prices carbon on certain sectors through the EU ETS. Individual EU countries have additional carbon pricing mechanisms in place. In early 2021, the E.U. ETS's carbon price reached record highs of more than \$60 per ton of CO<sub>2</sub>. The existing ETS only covers around 35% of its GHG emissions. The rising EU carbon price, combined with increasingly ambitious EU climate actions, are putting pressure on the region's leader to address concerns around carbon leakage. The main proposal in this regard is the creation of Border Carbon Adjustments. In July, the European Commission is expected to release its proposal for a BCA, and the E.U. and U.S. agreed to hold talks on the subject at the World Trade Organization. A leaked draft of the proposal indicated that it would apply to steel, iron, cement, fertilizers, aluminum and electricity (Taylor, 2021). It would take the form of a regulation, phased in from 2023 and fully in place from 2026. The framework would provide a method for calculating embedded emissions in imported goods (for "simple" and for "complex" goods). A differential treatment would be applied to imported goods based on carbon pricing policies in the country of origin, but a country is not automatically exempt by having ambitious climate policies. The poorest countries would likely be exempted from border fees. Although this mechanism, if approved, would represent a significant improvement over the *status quo*, it remains limited in terms of sectors and it might be difficult to make it compliant with WTO rules on protectionism. In addition, it does not prevent firms from avoiding the border tax through trans-shipping (i.e. shipping to a partially or fully exempt country before shipping to the EU).

Early in 2021 Germany strengthened its Climate Action Law for stricter GHG emission reductions to meet a 65% reduction by 2030. (Appunn & Wettengel, 2021) This indicates Germany's serious intention to counter climate change effects.

The upcoming EU BCA proposal is already causing unease in some countries (e.g., Ukraine, China, India), and will likely lead to legal challenges, but political support is building within the E.U. While China is likely to protest the EU's proposal, its position could change in the near- or medium-term.

**China:** China launched its own national ETS in 2021 – the largest carbon market in the world – initially covering around 30% of its national GHG emissions (World Bank, 2022). Although it is not yet clear what the starting price of carbon within China's ETS will be (estimates suggest \$7.6

per tonne of CO<sub>2</sub>), it may put pressure on Chinese leaders to encourage other countries to follow suit. Furthermore, President Biden had mentioned BCAs during his presidential campaign, but the Administration has since stepped away from this suggestion and criticized the EU's own upcoming BCA proposal. If the Administration passes more ambitious climate legislation it could change its position on the subject. Though under pressure to cease, China is still financing coal fired electricity generation plants both at home and within their Belt and Road Initiative.

**U.S.:** So far, the US has been stymied by the partisan political standoff in dealing effectively with climate change policy. President Biden has placed climate within his top policy priorities. However, he has not so far decided to seek legislation on a carbon tax or other policy that would proclaim to the world the steadfast and long run US dedication to aggressive climate action. US and China relations are strained, and this complicates a trilateral leadership of the Climate Compact. However, both effective climate policy and the success of the Climate Compact depend vitally on the full cooperation of China. Thus, the US must exercise a full partnership with China on climate policy (assuming China is willing) while also addressing its other oppositional policies on trade, technology and human rights.

Leaders and experts in the European Union and the G7, such as Germany's chancellor and the French president, have also expressed a strong interest in the creation of a "climate club" with other countries, such as the United States, Japan, and China (*G7 Statement on Climate Club*, 2022; Grant, 2021; Nienaber, 2021). This would make unilateral BCAs unnecessary. The terms of this Compact could be negotiated in Egypt, with an organizing conference following in 2023, led by Co-Chairs China, the E.U. and the U.S. under the auspices of the UN.