



SECRETARIAT THE °CLIMATE GROUP



Final Report

Roadmap for the implementation of an ecological tax (carbon tax) in the State of Sonora

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To:

Gobierno del Estado de Sonora

Comisión de Ecología y Desarrollo Sustentable del Estado de Sonora

And:

The Climate Group and Under2 coalition



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Contents

Acronym Summary	2
Introduction.....	3
Methodology	3
Development of the project.....	4
International Experiences.....	4
Experiences at the National Level.....	4
Experiences at the National Level.....	6
Workshop.....	8
Roadmap	8
Creation and design of the carbon tax.....	9
Implementation of the carbon tax.....	14
Final Words.....	15
Acknowledgments	16

Acronym Summary

CEDES	Commission of Ecology and Sustainable Development of the State of Sonora <i>Comisión de Ecología y Desarrollo Sustentable del Estado de Sonora</i>
SFS	Ministry of Finance of Sonora <i>Secretaría de Finanzas del Estado de Sonora</i>
GHG	Greenhouse Gasses
PEACC	Programa Estatal de Acción para el Cambio Climático <i>State Action Program for Climate Change</i>
NDCs	Nationally Determined Contributions
SEMARNAT	Secretaría de Medio Ambiente y Recursos Naturales <i>Ministry of the Environment and Natural Resources</i>
INECC	Instituto Nacional de Ecología y Cambio Climático <i>National Institute of Ecology and Climate Change</i>
MRV	Monitoring, reporting and verification

Introduction

In 2019, the State of Sonora was selected to receive a grant from the coalition of The Climate Group and the Future Fund to get technical assistance on the implementation of a carbon tax within the State. The Commission of Ecology and Sustainable Development of the State of Sonora (CEDES) entrusted by the State of Sonora received technical assistance materialized in a Roadmap by the Carbon Trust to develop and implement a carbon tax.

This project allowed the key actors of the State of Sonora to learn about carbon taxes and how they are currently working around the world. The Roadmap delivered by the Carbon Trust established some guidelines that the State would have to follow in order to create and implement the carbon tax in that State.

The development of the Roadmap was divided in three different stages:

1. Revision of international experiences of carbon taxes around the world (focusing in Latin America due to the similarity of the tax and legal contexts)
2. A workshop and a seminar where relevant actors from the State government, Non-Governmental Organizations and the academia attended to learn more about the carbon taxes. After a series of important speakers that talked about other cases of carbon taxes in and out of Mexico, a seminar was held in order to receive some feedback on the strengths and weaknesses of the Roadmap and its areas of improvement.
3. Development of the Roadmap after reviewing the international experiences and the feedback retrieved from the seminar.

Methodology

There are many factors that are needed to consider while creating and implementing a carbon tax. The State of Sonora faces some knowledge, technical and legal barriers that has to overcome before accomplishing the implementation of the carbon tax. Taking these into account, the Carbon Trust elaborated a methodology to address all of the issues mentioned previously.

The methodology consisted in taking three different steps to enrich the project:

1. Revision of international experiences: Being that carbon taxes are relatively new internationally, exploring how other countries accomplished the implementation of a carbon tax within each jurisdiction would allow the State of Sonora to have more knowledge on best practices, the successful factors, and which steps other jurisdictions took to overcome their barriers.
2. Deliver a workshop and seminar to relevant stakeholders: This step was fundamental to put them in context of what are the carbon pricing initiatives, why they are useful, and how a carbon tax would be beneficial for the State of Sonora. The Carbon Trust gathered key actors from the government, the private sector, NGOs and the academia that would be fundamental when the creation of the carbon tax came into effect.
3. Development of the Roadmap: After exploring the international experiences, and understanding the context in which Sonora is immerse, the Roadmap presented the international experiences more relevant for the State of Sonora, taking into consideration the legal, economic and social contexts. Then, the Roadmap presents which steps the State of Sonora has to take first to create

the tax, and then the legal implications that has to consider to accomplish the implementation of the tax through a tax law reform.

Development of the project

This project was divided in three phases:

International Experiences

The Carbon Trust reviewed the current carbon taxes that exist across the world and the experiences of Mexico, Colombia, Argentina, Chile, British Columbia and Zacatecas specifically. The relevant bibliography for this phase was the State and Trends of Carbon Pricing 2019 and the Carbon Tax Guide (both from the World Bank).

A carbon tax assigns a price to the emission of Greenhouse Gasses (GHG) due to the negative externality it produces causing global warming and the climate change. Normally, the GHG covered are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), fluorinated gasses (CFC) and tropospheric ozone(O_3), as well as other short-lived climate pollutants (SLCPs) like black carbon. The carbon tax is an expression of a public policy that seeks to internalize the negative externalities caused to the environment by anthropogenic activities. It incentivises emission reductions to transit to a low-carbon economy. Besides, it is an instrument for tax collection, and the use of its revenue can be addressed to diminish other taxes, invest in green infrastructure, income redistribution, among others.

Carbon taxes can be found at the national or local levels. Internationally, carbon taxes have been gaining importance. Until April 1, 2019, there were 29 jurisdictions with a carbon tax. Most of these taxes are established at a national level. However, in the last period, initiatives for the implementation of carbon taxes at the local level have increased, especially in Canada and the United States. This section explores some of the experiences at the national level in Latin America (Mexico, Chile, Argentina and Colombia), as well as some local ones (the Canadian province of British Columbia and the State of Zacatecas in Mexico).

Experiences at the National Level

Carbon taxes currently exist to a greater extent at the national level. Each tax has a tax rate, where Sweden has the highest tax (\$ 127 per ton CO_2e) and Ukraine the lowest (less than \$ 1 per ton CO_2e). Also, each tax covers different sectors, so the amount of revenue collected at the national level depends on both the tax rate and the sectors to which it is applied (World Bank, 2019).

The main objective of carbon taxes is to mitigate GHG emissions by assigning a cost to GHG emissions that allows internalizing the negative effects it produces. Based on the World Bank report "State and Trends of Carbon Pricing 2019" it is necessary that the level of the tax ranges between USD \$ 40 and USD \$ 80 to reach the Paris Agreement commitment of keeping the rise of temperature below 2°C and with efforts to keep it even below 1.5°C. (World Bank, 2019).

Mexico

Mexico has had a fuel tax since 2014 after a reform on the tax law promoted by the former administration of Enrique Peña Nieto. The tax is included in the Law on Special Tax on Production and

Services and taxes fossil fuels¹ with different rates depending on the amount of carbon dioxide that they contain (Mexico2, 2019)

México tiene desde el 2014 un impuesto a los combustibles tras una Reforma Fiscal promovida por la administración de Enrique Peña Nieto. El impuesto se encuentra incluido en la Ley del Impuesto Especial Sobre Producción y Servicios y grava a los combustibles fósiles con tasas diferentes dependiendo de la cantidad de dióxido de carbono que contienen (México2, 2019).

The tax adjusts depending on the national inflation. The tax rate is really low (less than 3 dollars). In order for companies and consumers to be discouraged from using fossil fuels with high GHG emissions and other pollutants, the price signal must be high enough so that they seek other alternatives to replace the fossil fuels.

Use of the revenue: for Mexico, the revenues are used for the general budget of the Nation, since they do not have a special label. The main objective of environmental taxes is to discourage the use of fossil fuels, and also, to increase the collection for the governments. In 2018, MXN \$ 5,883.55 million pesos were collected (around USD \$305.36 million dollars).

It has an upstream point of regulation, so the tax is payed by the buyer or importer of the fossil fuel. The taxation is posed on the carbon content of the fuel (it is easier to collect it, since it does not require a much sophisticated MRV system to track the emissions).

Chile

Since 2014, Chile has three taxes that levy emissions from mobile and fixed sources. They are called green taxes, since they seek to contribute to the mitigation and reduction of GHG emissions and/or promote CO₂ absorption.

These green taxes are divided by fixed and mobile sources and they have a downstream point of regulation. For the fixed sources the tax is upon establishments that use boilers or turbines that add nominal thermal power equal or greater than 50MWt. For the mobile sources, the automobiles are taxed at the time of purchase, depending on the amount of NOx and PM they produce. The tax rate is around USD\$5 dollars.

One successful factor from the Chilean experience is that the companies that use renewable energy sources or whose facilities are small are exempt from the tax. This type of practice encourages innovation within the private sector, given that innovation and the transition to renewable energy that produce less emissions are rewarded.

Argentina

The Argentinian government implemented a carbon tax on January 1st, 2018 after a fiscal reform promoted by the former presidential administration of Mauricio Macri in 2017. Currently, there are two taxes that tax fossil fuels in Argentina: one for liquid fuels and the other for the CO₂e content of each fuel (there are different fixed amounts depending on the fossil fuel). Taxes are updated quarterly based on the National Consumer Price Index (Mexico2 and Genesis, 2018).

These taxes entered replacing three other taxes on fuels. This measure was taken so that the tax payers' income would not be affected. Thus, fossil fuels that were previously subject to a tax, such as LP gas, neutral gas and coal, were initially exempt from the tax and would be taxed gradually with an

¹ The tax exempts the natural gas and the jet fuel (ATF) due to pressure from those fossil fuel lobbyists.

annual 10% progression beginning in 2019 and ending its 100% application in 2028 (Mexico2 and Genesis, 2018).

The tax rate in Argentina is around 10 dollars, with the possibility of a maximum upward adjustment of 25% and 10% downward, depending on the inflation that the country presents (Mexico2 and Genesis, 2018).

Colombia

The Colombian carbon tax came into effect in 2017, it taxes the carbon content of fossil fuels, including all petroleum products and types of fossil gas that are used for energy purposes, only when they are used for combustion. In the case of liquefied petroleum gas, the tax is levied when it is sold to industrial users, and for the case of natural gas it is levied at the moment it is sold to the hydrocarbon and petrochemical refining industry (Mexico2, 2019).

One of the fiscal incentives promoted by Colombia is the exemption from the tax of all persons and enterprises that prove to be “carbon neutral” through the use of national certificates, that is, to compensate all the emissions for which they would be charged the tax on emission reduction projects within Colombia (Mexico2, 2019).

The tax is produced when 1) the fossil fuel is sold in national territory, 2) the producer of the fuel withdraws it for personal consumption, 3) when the fuel is imported.

Currently the equivalent CO₂ tax is around 5 dollars, and each year is fair based on inflation of the previous year plus 1%. The destination of the resources is for projects in rural areas that have been relegated by the internal conflicts that Colombia has gone through.

Experiences at the National Level

As presented in the previous section, most of the existing carbon taxes today are at the national level. However, the local level has gained relevance since its role is fundamental in the fight against climate change. In Mexico, the vulnerability of states varies depending on their geographical, social, and economic conditions.

The State of Sonora presents a high vulnerability since it is above sea level, which could cause an increase in the level of its coasts, the acidification of marine ecosystems and therefore, an irreversible change in local ecosystems. Therefore, a carbon tax at the local level can help States cope with the effects of climate change through two parallel paths: discouraging an intensive carbon economy, and using the resources raised for adaptation actions within the State.

Zacatecas, Mexico

In 2017, the State of Zacatecas included in its Tax Law a new category: the ecological taxes. They established 4 types: 1) the Environmental Remediation Tax in the Extraction of Materials; 2) to the Emission of Greenhouse Gases to the Atmosphere (carbon tax); 3) to the Emission of Contaminants to Soil, Subsoil and Water, and; 4) Tax on Deposit or Storage of Waste.

Taxes 2 and 3 refer to emissions of GHG and other pollutants, and have different approaches for the tax collection. These ecological taxes arose in response to the environmental deterioration in which

the State is immersed. The carbon tax (for GHG emissions) has a tax rate of MXN\$250 pesos (around USD\$13 dollars), so it is more ambitious than the carbon tax existing at the federal level. The revenues collected are used for different purposes, but seeking the improvement of Sonora's people (social programmes, funds related to climate change consequences).

As it was mentioned previously, the legality of these taxes was established after the National Supreme Court of Justice ruled in favour the State of Zacatecas reformed based on Articles 21 and 22, of the General Law of Ecological Balance and Environmental Protection, which indicates that the Federation and the States they can design, develop and apply economic instruments that favour the environment, and in Article 30 of the General Law of Climate Change where it is affirmed that States have the power to propose and promote mechanisms for collecting and obtaining resources so that they can take action against climate change. This process set as a precedent the legality of the creation of carbon taxes (ecological) by the other States of the Mexican Republic.

British Columbia, Canada

The carbon tax was established in 2008 as a measure to reduce GHG emissions within its jurisdiction. Its tax base from the beginning included both consumers and industrial sources, with a level of CAN\$10 Canadian dollars that would increase gradually and predictably to provide certainty to the markets. The tax covers approximately 70% of GHG emissions and is charged both to the purchase and use of fuel (Government of BC). Currently the tax rate is of CAN\$40 Canadian dollars for each ton of CO₂e.

The British Columbia tax is the first tax to be neutral, that is, that all the resources collected are returned to the population, either through the transfer of resources or personal measures or for companies. In addition to the tax, British Columbia has several mechanisms that support the mechanisms of return of resources to the population, especially to individuals and households with lower income levels (United Nations Climate Change).

Another of the mechanisms implemented in the Canadian province, are some subsidies addressed to certain sectors that find more difficult to change or reduce the use of fossil fuels and whose production is affected to a greater extent. In order to do this, they implemented complementary laws such as the Greenhouse Growers Rebate Program and the Cement Low Carbon Fuel Program. These types of measures must be carefully planned so that they can facilitate the transition to a low carbon economy without affecting economic productivity, but without counteracting the effect of a carbon tax (United Nations Climate Change).

The case of British Columbia is considered one of the most successful internationally, since it has achieved emissions reduction accompanied by greater economic growth. Between 2007 and 2016, the Gross Domestic Product of the province increased by 19% while emissions decreased by 3.7% (Government of BC).

Workshop

On November 20th the Carbon Trust led a workshop and a seminar in Hermosillo, Sonora with the cooperation of the CEDES.

More than 10 relevant actors attended to learn more about carbon taxes and the international experiences that currently exist. It was divided in two different parts: first, there were some presentations on what is to put a price a carbon, the relevance of a carbon tax for the federal government as well as for local jurisdictions.

The workshop had the attendance of relevant speakers like Ivan Islas, expert on carbon pricing initiatives, Juan Carlos Belausteguigoitia who took an important role while developing the carbon tax for Mexico, and Roberto Vallejo, who also worked developing the carbon tax for the State of Yucatan.

After visiting the theory behind carbon taxes, the Carbon Trust organized a group activity were the attendees formed two teams to discuss which were the barriers that the State of Sonora would face if a carbon tax was implemented.

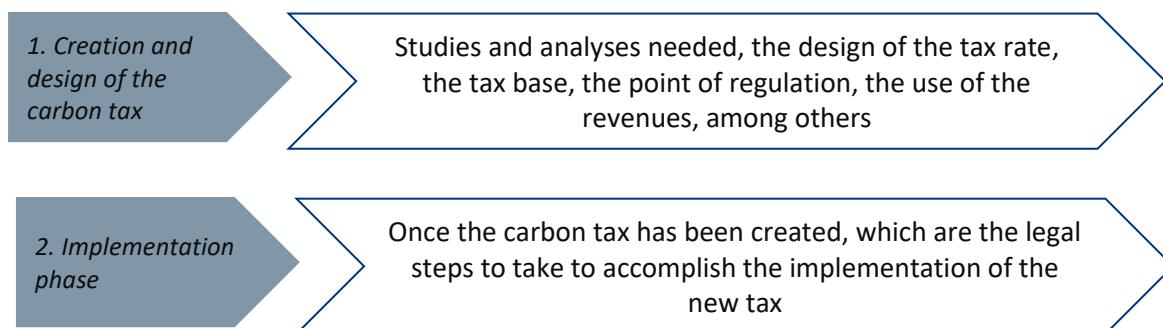
Key findings from the group activity:

- All participants highlighted that the relevant stakeholders for the creation and implementation of the carbon tax are lacking information on the benefits of carbon pricing.
- Participants showed concern on how the taxpayers would react if a new tax was developed, especially while the current Federal Administration has stated that no more taxes would be created.
- Participants were concerned about how to overcome the corruption barrier in Mexico and in the State of Sonora, since previous experiences had shown that even when an economic tool functions theoretically, in practice the corruption defeats the possibility of its purpose.

Roadmap

The Roadmap delivered to Sonora was presented in Spanish and is more much detailed than the information presented below, especially for presenting different example for each one of the scenarios. This is a summary of the key aspects needed to implement a carbo tax in the State of Sonora.

There are different ways in which a carbon tax can be implemented, as seen in the previous section. This Roadmap presents the necessary steps identified to implement a carbon tax, divided in two different steps:



This Roadmap presents the existing barriers to create a carbon tax and which actions could be considered to tackle those barriers along with the identification of the institution that would be

responsible to do it. It is important to highlight that the barriers identified in this Roadmap are not exhaustive nor finals. During the processes of the creation and the implementation of the carbon tax some other obstacles will come up, but they can be solved while sticking to the methodology presented in the Roadmap: holding workshops, communicating between ministries and with the relevant sectors, identifying key institutions. It is well recommended to assign a person responsible to give a follow up to the maintenance and updating the Roadmap (also a Special Technical Committee to be involved with the carbon taxes topic).

Creation and design of the carbon tax

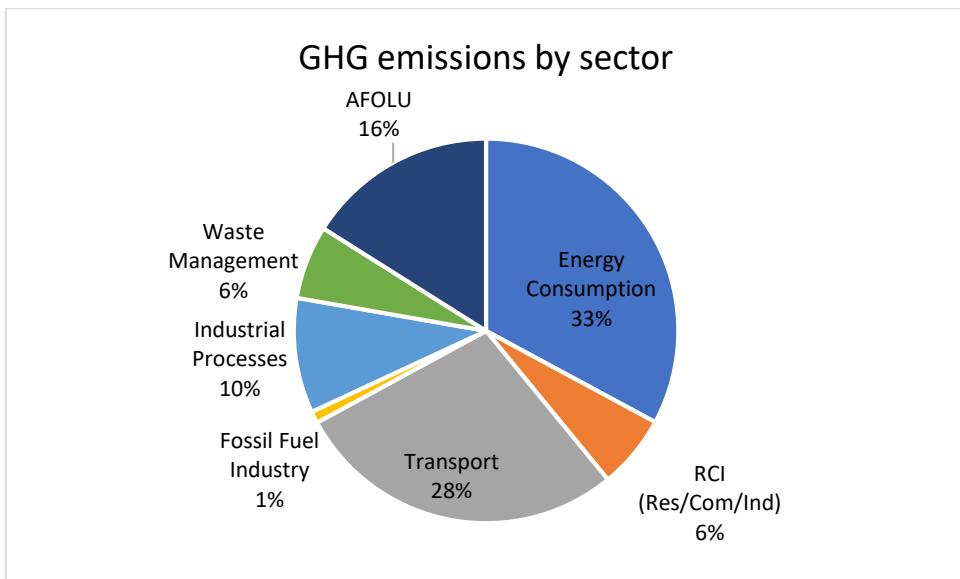
Context of Sonora

The State of Sonora has a legal structure defined in the Climate Change Law that came to existence since 2017, where all legal attributions for adaptation and mitigation for climate change are specified, as well as the powers assigned to each responsible body. At the same time, they have a State Program of Action on Climate Change (PEACC) published in August 2011, in which is detailed some lines for mitigation action, such as energy efficiency measures, promoting the generation of renewable energy for self-consumption in Sonora, reduction of energy use by 10% or more in state-owned buildings, require LEED certification for new government buildings, among several others (CEDES, 2011).

Based on the numbers calculated by the State of Sonora in its document *Emisiones de gases de efecto invernadero en Sonora y proyecciones de casos de referencia 1990-2020* by the Comisión de Cooperación Ecológica Fronteriza (published in 2010), the historical emissions and projected to 2020 are the following:

Millones de Toneladas Métricas de CO ₂ e) 1990 1995	1990	1995	2000	2005	2010	2015	2020
Energy Consumption	4.03	5.5	7.03	6.84	7.58	9.76	12.2
RCI (Res/Com/Ind)	1.58	2.56	1.27	1.06	1.43	1.78	2.3
Transport	3.78	4.12	4.79	5.25	6.46	7.57	8.94
Fossil Fuel Industry	0.16	0.18	0.19	0.22	0.23	0.24	0.25
Industrial Processes	0.69	0.93	1.25	1.66	2.23	2.99	4.04
Waste Management	0.95	1.09	1.18	1.34	1.43	1.52	1.61
AFOLU	3.76	3.1	2.77	3.47	3.7	3.98	4.31
Silviculture, Land Use and Other Land Uses	-8.21	-9.12	-6.29	-8.42	-7.96	-7.96	-8.69
Gross emissions	6.74	8.36	12.19	11.42	15.1	19.88	24.96
Net emissions	14.95	17.48	18.48	19.84	23.06	27.84	33.65

This information is relevant to understand the distribution of the State's emissions across the economic sectors. However, it is important to highlight that this data was collected for its publication in 2010, so the data is not recent. In order to elaborate more sophisticated economic analysis, it will be important to have more updated information.



Point of regulation

One of the main decisions that need to be considered before setting the tax rate is defining the point of regulation:

For Sonora, the Ministry of Finance (SFS) would be the institution responsible to collect the revenues. As seen in the figure above, the greater share of emissions in Sonora are from the energy, transport, RCI, industrial processes and waste management, so an upstream point of regulation would be useful to cover all those emissions. This type of point of regulation is better for saving costs to the government, since the existent fiscal system can be used to collect this new tax, and does not need a more sophisticated MRV system.

Upstream

- An upstream point of regulation does not require an additional MRV mechanism because the tax depends on the quantity of fossil fuels consumed.
- Examples: Mexico, Colombia, Argentina, France, Portugal

Midestream

- The tax is collected on the mid-point of the supply chain. This point of regulation does not need a complex MRVF system.
- Examples: To tax the primary transformation of energy: refineries, power generation plants, among others.

Downstream

- This requires a very robust MRV system that allows the tracking of the emissions of each sector. That system has to be updated every year..
- Examples: Chile, Southafrica, Australia

Combination

- A combination of the systems mentioned before could also be implemented, for example, by dividing the tax between fixed and mobiles sources of emissions.

Definition of reduction goals

Carbon taxes can pursue different objectives: reducing GHG emissions, raising more revenues, encouraging green investments, or increasing the efficiency of the tax system. As long as these objectives are clear, a medium- and long-term strategy can be developed so that they can be achieved. Strictly speaking, a carbon tax seeks to correct a negative externality such as pollution (this type of tax

is known as Pigouvian). If the target is to reduce GHG emissions, one of the first steps is to define which are the mitigation objectives for the state and at the national level. Depending on this scope and the objectives for each sector, the tax rate can be defined depending on that objective. However, it is necessary to carry out an economic analysis of the potential economic impact that the different rates would have on all the economic sectors.

The CEDES would be the institution responsible for establishing these objectives based on the PEACC and the Climate Change Law of Sonora and by updating the emissions data that the State has. In this way, a medium and long-term projection can be developed with the mitigation objectives for each sector and based on this, define the tax rate and its projection over time. Mitigation goals need to be aligned also with the national mitigation target expressed in Mexico's Nationally Determined Contributions (NDCs), or they can be even more ambitious. Usually, studies of this type require the establishment of sectoral portfolios of different mitigation measures and their cost through the development of marginal depletion curves. Similar studies were done at the national level for the National Climate Change Strategy in 2013 and for the NDCs in 2015 by SEMARNAT and INECC.

Trainings and workshops for key actors

Establishing a new tax at the local level may not be well received by both producers and consumers. In the case of Zacatecas, even after the Supreme Court of Justice of the Nation ruled in favour of the State for the imposition of carbon taxes, several mining companies filed a legal procedure called in Mexico "amparo" to curb the legal process. In the long term, taxes will be approved, however, this example is tested as a sign of rejection of new taxes.

To address this barrier, it is necessary to inform the different actors in society about the social benefits that carbon taxes can bring. For this, it is suggested to do training, workshops, seminars, online and face-to-face courses and other events with all the relevant actors and especially with the subjects to the tax to have more knowledge and consensus on the subject.

Factors to have under consideration while creating a carbon tax

- Tax base: Which sectors and GHG are covered, which is the point of regulation, and the regulatory entities.
- Tax rate: Define the tax rate, how it will develop over the time, economic modelling to analyse the different rate levels.
- Take under consideration potential unwanted effects: risk of carbon leakages and negative distributive effects, cost-benefit analysis of different measures to mitigate.
- Determine how the revenues are going to be used: calculate the projected collection of the tax, determine if it will be used to diminish other taxes, increase the public spending, or for redistribution purposes, decide whether offsets will be used for compliance of the tax.
- Assurance of monitoring and fulfilment: Determine which roles are going to take the different institutions, determine if the existing institutional arrangement is enough for the implementation of the new tax or if an additional entity will be required, establish clear procedures, and ensure the coordination among key institutions, and include fining mechanisms for non-compliance of payments.

Defining the tax rate

For this phase there are many factors involved at the same time, so for defining the tax rate there has to be flexibility to move all the indicators before arriving to a definitive level of the tax. The key factors are the following:

- Sectors covered → For Sonora, the sectors that could be covered (excluding AFOLU) are: Energy Consumption, RCI (Res/Com/Ind), Transport, Fossil Fuel Industry, Industrial Processes and Waste Management. This adds up for 86% of all emissions of Sonora (info from 2007, it has need to be updated). Putting a tax on fossil fuels would incentivize all these sectors to cut their emissions. However, being that they represent a great share of the economy, the tax rate must be defined based on: emissions reduction, but without significant costs on the productivity of the economy.
- Greenhouse Gasses → Internationally the CO₂e is used as a “common currency” to express the price and the warming potential of all the GHG. Implementing a carbon tax would mean to set the rates of conversion to CO₂e depending on its warming potential (1 ton of methane could mean 23 or 28 tons of CO₂e). Determining which GHG are going to be covered is essential, as it also defines which sectors could be subjected to the carbon tax.
- Other pollutants → The economic activities developed by the State of Sonora (and all States) emit other pollutants different than the GHG. It is important to determine whether these kinds of pollutants are going to be covered by the tax in order to also establish the different rates that each pollutant would have.
- Regulatory entities → If the point of regulation is going to be upstream or midstream, the SFS would be the institution responsible for collecting the tax. If it's a downstream system, the CEDES would have to create a new entity that supervises the emissions of each sector and company in order to collect the tax.
- Economic analysis for the tax → As it has been mentioned above, there are many considerations for establishing a carbon tax so different economic analyses would help to bring more light on the impacts it would produce. There are different types of econometric models that can provide specific or general information, they could be bottom-up, top-down, specific to a sector. The type of analysis required will depend upon which is the target of the State of Sonora for this tax: mitigation objectives or a specific level of revenue.
- MRV system: The complexity of the MRV system will depend on the point of regulation that is selected. But even if the State of Sonora chooses an upward or downward system, there will have to exist a regulation system or entity that can monitor whether the tax is being paid or not.

Define the institution that will collect the tax

Once all the considerations necessary to establish the tax rate have been designed, the legal framework in which the tax will operate has to be created. For the Mexican States, the attribution of collecting taxes belongs to the Ministries of Finance (SFS for Sonora). However, there will have to exist a tax reform to the tax law of Sonora (Ley de Hacienda de Sonora) to specify which attributions will carry the SFS and which can be delegated to another state dependency.

One of the key aspects is to consider whether to allow offsets as payment for the tax to comply with the obligations. These offsets (emission reductions) come from carbon absorption projects, such as carbon sinks, wind energy projects, reforestation projects, among others. Some jurisdictions with

carbon taxes accept such measures as compliance with the payment of the tax, as Mexico and South Africa.

Determine the destination of the resources raised

The final step for creating the tax refers to the use of the revenues. The use and destination of the revenues has a significant impact on the policy and economy of the State, since it can correct some unwanted effect, contribute to mitigation measures, function as a redistributive mechanism, or be allocated to the general budget.

This decision is fundamental for the medium- and long-term, given that it will provide a signal to the market about the role that the State of Sonora is taking in the fight against climate change. This step is completely linked to the economic modelling of the tax, given that the use of resources will have completely different impacts on the economy, depending on how the revenues are being used.

These are the different destinations to which the carbon tax can be directed (determining the use of revenues):

Return by transfer to consumers:

- The revenues raised are returned to consumers through social or health programmes.
- This return allows the tax to be perceived as an initiative to reduce emissions, given that consumers do not see a reduction in their disposable income.
- It can also function as a mechanism for redistribution of wealth.
- It is economically inefficient given the institutional cost of collection plus the cost of the redistribution.
- Example: Switzerland

Recycling of taxes

- The resources collected can be used as a source of government revenue that allows other taxes to be reduced.
- It generates greater economic efficiency since it can substitute other taxes that a higher social cost.
- The carbon tax is more difficult to avoid than other taxes, since even the informal market uses energy, oil and other fossil fuel sources.
- Example: British Columbia, Sweden, France, Norway, South America

General Budget

- Increasing government spending by increasing the resources raised can encourage economic activity within the jurisdiction.
- There are some jurisdictions that have as a legal requirement that all the money raised be allocated to the general budget (Mexico, United Kingdom, South Africa).
- Since the proceeds are absorbed by the general budget, it may happen that the destination of the resources will not have an environmental purpose.

Special Labelling

- Another way to increase government spending is while using resources through fixed labelling (resources are directed specifically to a particular objective). Labelling can include various objectives:
 - Environmental objectives: Green infrastructure investment, research and development for low carbon technologies (Japan and India).

- Groups affected by the tax: Financial assistance for vulnerable groups that are affected by the tax (France).
- Groups affected by climate change: Funds for people affected by health or extreme changes in the climate (Catalonia).
- Other types of objectives established by each jurisdiction

The use of resources to reduce other taxes or as transfers to the population would allow the result to be socially desired. The objective of carbon taxes is the reduction of GHG emissions, not a greater collection. This use of resources in Sonora would allow addressing other social issues, such as the redistribution of wealth or the reduction of taxes that affect the lower-income sectors (regressive taxes).

Key finding:

- During the workshop and the seminar, there was special attention to the British Columbia experience due to the fact that all their collected resources are reallocated to the taxpayers, even with special programmes focused on redistribution. For the State of Sonora, it is really important that the imposition of a new carbon tax addresses the issues caused by climate change, but that also serves as a tool for social transformations. If the use of resources is well planned, the carbon tax could help accelerate the cutting of emissions, but also help social objectives for the State.
- The State of Sonora sees that this economic tool that aims to help repair the environment, cannot be disassociated with the social and economic context of the State.

Implementation of the carbon tax

Once the first step (designing the carbon tax) has been visited and after having determined all the elements required by the tax, a proposal for the law initiative must be drafted together with a statement of reasons for it to be presented to the Sonora local Congress. Apart from the explanatory statement, there must be stated the legal sanctions that the taxpayers would incur in case of breach of the tax obligation.

Drafting the reform to the Fiscal Law of the State of Sonora

For developing the tax reform, all the elements present in the stage of the tax creation must be considered. The SFS may issue a technical study of the feasibility of the proposal, along with the economic study of the impacts of the carbon tax on the economy.

Presentation of the tax law reform initiative

For the formal legal procedure to reform the Fiscal Law of Sonora, according to Article 53 of the Political Constitution of the State of Sonora, the presentation of the law initiative that amends the Fiscal Law must come from the State Executive, the deputies of the Congress of Sonora, the Town Halls of the State, the Supreme Court of Justice, or citizens representing 1% of the total registered in the State Electoral Register (Government of the State of Sonora, CPES).

In this step, the Ministry of Finance will not have to participate formally (unless a technical consultation on the reform initiative is required). In order for the law initiative to go directly into discussion within the corresponding commission, it would be necessary for the Governor of Sonora to present the law initiative, otherwise it will be subject to the Debate Regulations before being turned over to the corresponding commission (Article 55. Government of the State of Sonora, CPES).

It is important to highlight that the Fiscal Law, and the budget laws are discussed and approved annually, so that, if the reform to the Law is approved, it would come into force the year after being discussed (if it is discussed in 2020, it may enter effective only in 2021).

Approval of the initiative to reform the Treasury Law of the State of Sonora

Once the initiative is presented, it will be referenced to the corresponding Commission within the Sonora Congress. In this step, an advisory opinion may be requested from the Ministry of Finance, given that the subject of taxation is one of its competence. That is why involving the SFS during the entire tax preparation process is of essential importance.

If the initiative is approved so that the State of Sonora has a carbon tax, the operating rules previously established will be followed.

It is very important to note that carbon taxes evolve over time, the tax rate can increase over time with an inflationary adjustment or depending on the mitigation goals that have been set for the tax. Therefore, it is essential to monitor the local situation, the impact that the tax has on the economy of Sonora and the response of both producers and consumers to this economic instrument of carbon pricing, that is, to understand what are the signs that are receiving the market for this public policy instrument.

Final Words

This Roadmap explores the different paths that the State of Sonora could take in order to implement a carbon tax. The barriers presented in this document are not exhaustive, and will continue to rise during the process of the creation, implementation and during the development of the carbon tax over time. It is important to take this document as a guideline on how to assess and approach the different barriers and overcome them. This project helped the State of Sonora to have a wider view of what a carbon tax is and how it will be beneficial for its environment as well as for its economy.

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