Putting a Price on Carbon with a Tax

Summary of Key Findings:

- A carbon tax is a form of **explicit carbon pricing directly linked to the level of carbon dioxide emissions**.
- While a maximum level of emission reductions is not guaranteed, a carbon tax is **a cost-effective economic instrument**.
- **Fifteen countries** are implementing or have passed legislation for a direct carbon tax.

Carbon Tax at a Glance

A carbon tax is a form of explicit carbon pricing; it refers to a tax directly linked to the level of carbon dioxide (CO2) emissions, often expressed as a value per tonne CO2 equivalent (per tCO2e).[1]

Carbon taxes provide certainty in regard to the marginal cost faced by emitters per tCO2e, but do not guarantee a maximum level of emission reductions, unlike an emissions trading scheme. However, this economic instrument can be used to achieve a cost-effective reduction in emissions.

Since a carbon tax puts a price on each tonne of GHG emitted, it sends a price signal that gradually cause a market response across an entire economy, creating incentives for emitters to shift to less greenhouse-gas intensive ways of production and ultimately resulting in reduced emissions.

Where Carbon Is Taxed

Carbon taxes can be introduced as an independent instrument or they can exist alongside other carbon pricing instrument, such as an energy tax. While the experience with direct carbon tax implementation is relatively new, such instruments are being introduced at a fast pace. The table below provides an overview of existing national and subnational jurisdictions that have introduced a direct carbon tax.

[1] Based on "Climate and carbon - Aligning prices and policies," OECD Environment Policy paper, October 2013 n°01".

Country/Jurisdiction		Type	Year Adopted	Overview/Coverage	Tax Rate
1	**British Columbia**	Sub-national	2008	The carbon tax applies to the purchase or use of fuels within the province. The carbon tax is revenue neutral; all funds generated by the tax are returned to citizens through reductions in other taxes.	CAD30 per tCO2e (2012)
2	**Chile**	National	2014	Chile's carbon tax is part of legislation enacted in 2014. The country is to start with measuring of carbon dioxide emissions from thermal power plants in 2017 and begin the tax on CO2 emissions from the power sector in 2018.	USD5 per tCO2e (2018)
3	**Costa Rica**	National	1997	In 1997, Costa Rica enacted a tax on carbon pollution, set at 3.5 percent of the market value of fossil fuels. The revenue generated by the tax goes toward the Payment for Environmental Services (PSA) program, which offers incentives to property owners to practice sustainable development and forest conservation.	3.5% tax on hydrocarbon fossil fuels
4	**Denmark**	National	1992	The Danish carbon tax covers all consumption of fossil fuels (natural gas, oil, and coal), with partial exemption and refund provisions for sectors covered by the EU ETS, energy-intensive processes, exported goods, fuels in refineries and many transport-related activities. Fuels used for electricity production are also not taxed by the carbon tax, but instead a tax on electricity production applies.	USD31 per tCO2e (2014)
5	**Finland**	National	1990	While originally based only on carbon content, Finland's carbon tax was subsequently changed to a combination carbon/energy tax. It initially covered only heat and electricity production but was later expanded to cover transportation and heating fuels.	EUR35 per tCO2e (2013)
6	**France**	National	2014	In December 2013 the French parliament approved a domestic consumption tax on energy products based on the content of CO_2 on fossil fuel consumption not covered by the EU ETS. A carbon tax was introduced from April 1, 2014 on the use of gas, heavy fuel oil, and coal, increasing to €14.5/tCO2 in 2015 and €22/tCO2 in 2016. From 2015 onwards the carbon tax will be extended to transport fuels and heating oil.	EUR7 per tCO2e (2014)
7	**Iceland**	National	2010	All importers and importers of liquid fossil fuels (gas and diesel oils, petrol, aircraft and jet fuels and fuel oils) are liable for the carbon tax regardless of whether it is for retail or personal use. A carbon tax for liquid fossil fuels is paid to the treasury, with (since 2011) the rates reflecting a carbon price equivalent to 75 percent of the current price in the EU ETS scheme.	USD10 per tCO2e (2014)
8	**Ireland**	National	2010	The carbon tax is limited to those sectors outside of the EU ETS, as well as excluding most emissions from farming. Instead, the tax applies to petrol, heavy oil, auto-diesel, kerosene, liquid petroleum gas (LPG), fuel oil, natural gas, coal and peat, as well as aviation gasoline.	EUR 20 per tCO2e (2013)
9	**Japan**	National	2012	Japan's Tax for Climate Change Mitigation covers the use of all fossil fuels such as oil, natural gas, and coal, depending on their CO_2 emissions. In	USD2 per tCO2e (2014)

	Country/Jurisdiction	Type	Year Adopted	Overview/Coverage	Tax Rate
				particular, by using a CO_2 emission factor for each sector, the tax rate per unit quantity is set so that each tax burden is equal to US$2/t$CO_2$ (as of April 2014).	
10	**Mexico**	National	2012	Mexico's carbon tax covers fossil fuel sales and imports by manufacturers, producers, and importers. It is not a tax on the full carbon content of fuels, but rather on the additional amount of emissions that would be generated if the fossil fuel were used instead of natural gas. Natural gas therefore is not subject to the carbon tax, though it could be in the future. The tax rate is capped at 3% of the sales price of the fuel. Companies liable to pay the tax may choose to pay the carbon tax with credits from CDM projects developed in Mexico, equivalent to the value of the credits at the time of paying the tax.	Mex$ 10 -50 per tCO2e (2014)* * Depending on fuel type
11	**Norway**	National	1991	About 55 percent of Norway's CO_2 emissions are effectively taxed. Emissions not covered by a carbon tax are included in the country's ETS, which was linked to the European ETS in 2008.	USD 4-69 per tCO2e (2014)* *Depending on fossil fuel type and usage
12	**South Africa**	National	2016	In May 2013 the South African government published a policy paper for public comment on introduction of a carbon tax. The paper proposes a fuel input tax based on the carbon content of the fuel. It was agreed that emissions factors and/or procedures are available to quantify CO2-eq emissions with a relatively high level of accuracy for different processes and sectors. The carbon tax will cover all direct GHG emissions from both fuel combustion as well as non-energy industrial process emissions and is expected to start in January 2016.	R120/tCO2 (Proposed tax rate for 2016)* *Tax is proposed to increase by 10% per year until end-2019
13	**Sweden**	National	1991	Sweden's carbon tax was predominantly introduced as part of energy sector reform, with the major taxed sectors including natural gas, gasoline, coal, light and heavy fuel oil, liquefied petroleum gas (LPG), and home heating oil. Over the years carbon tax exemptions have increased for installations under the EU ETS, with the most recent increase in exemption starting from 2014 for district heating plants participating in the EU ETS.	USD168 per tCO2e (2014)
14	**Switzerland**	National	2008	Switzerland's carbon tax covers all fossil fuels, unless they are used for energy. Swiss companies can be exempt from the tax if they participate in the country's ETS.	USD 68 per tCO2e (2014)
15	**United Kingdom**	National	2013	The U.K.'s carbon price floor (CPF) is a tax on fossil fuels used to generate electricity. It came into effect in April 2013 and changed the previously existing	USD15.75 per tCO2e (2014)

Country/Jurisdiction		Type	Year Adopted	Overview/Coverage	Tax Rate
				Climate Change Levy (CCL) regime, by applying carbon price support (CPS) rates of CCL to gas, solid fuels, and liquefied petroleum gas (LPG) used in electricity generation.	