Carbon Tax Model Law
Explanatory Note
Notes

• In this explanatory note:

  a) terms that are defined in the Commonwealth Carbon Tax Model Law (CCTML) are capitalised;

  b) a number in square brackets refers to a reference provided at the end of this explanatory note; and

  c) a letter in square brackets refers to an endnote provided at the end of this explanatory note.
Why do we need the CCTML? (1)

• The Commonwealth is committed to limiting global warming to 1.5 degrees Celsius, with all 56 Commonwealth member countries (CMCs) having ratified the Paris Agreement.

• However, the world is not currently on course to achieve the Paris Agreement, with:
  a) global greenhouse gas (GHG) emissions continuing to increase [1];
  b) forecasted emissions given current commitments exceeding the carbon budget consistent with limiting climate change to 1.5 degrees Celsius [2]; and
  c) petroleum production expected to increase given current policies [3].

• Carbon pricing makes polluters bear the external costs of GHG emissions and provides a financial incentive for polluters to reduce their emissions. It provides a triple benefit of reducing emissions, stimulating investment in the low-carbon economic transition and increasing government revenue.
Why do we need a CCTML? (2)

• Many studies argue that carbon pricing is an effective tool for reducing emissions[4], and there has been substantial work by international institutions on carbon pricing. These include:

a) IMF analysis suggesting a carbon price floor per tonne of Carbon Dioxide equivalent emissions (CO2e) of $75 for advanced economies, $50 for high-income emerging market economies and $25 for low-income emerging market economies by 2030 [5];

b) the *UN Handbook on Carbon Taxation* (2021) for developing countries, which provides a practical guide for the design and implementation of a carbon tax [6]; and

c) the World Bank’s *State and Trends of Carbon Pricing* (2021), which provides an overview of carbon pricing instruments around the world [7].

• The CCTML is, however, to the best our knowledge the first carbon tax model law. Given that in most CMCs introducing carbon pricing will require new legislation, the previous absence of a model law was a significant lacuna.
Why do we need a CCTML? (3)

• The permanent phase of the European Union’s (EU’s) carbon border adjustment mechanism (CBAM) will enter into force on the 1\textsuperscript{st} of January 2026 \[a\]. Under this mechanism, importers of certain carbon-intensive goods will be required to purchase CBAM certificates from EU countries. However, if the importer can prove that a carbon price has already been paid during the production of the imported goods, the corresponding amount can be deducted from the purchase of CBAM certificates \[8\].

• The UK Government has also stated that it may coordinate with the EU on the CBAM and has started a consultation on a UK CBAM \[9\].

• CBAMs provide an additional rationale for carbon pricing by CMCs with significant exports to Europe. Without domestic carbon pricing, CMCs’ exports are charged and the EU receives the revenue. With domestic carbon pricing, exports are not charged by the EU and the CMC receives the revenue from the carbon price.
Why do we need a CCTML? (4)

- Based on World Bank statistics, out of 56 CMCs only 6 have implemented carbon pricing and a further 5 are considering doing so [10].

<table>
<thead>
<tr>
<th>CMCs that have implemented carbon pricing</th>
<th>CMCs considering carbon pricing</th>
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<tbody>
<tr>
<td>Canada</td>
<td>Botswana</td>
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<tr>
<td>Cyprus</td>
<td>Gabon</td>
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<td>Malta</td>
<td>Malaysia</td>
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<td>New Zealand</td>
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<tr>
<td>United Kingdom</td>
<td>Pakistan</td>
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<tr>
<td>South Africa</td>
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</table>
Why do we need a CCTML? (5)

• A carbon tax is administratively the simplest way of implementing carbon pricing. Going forward, there will likely be increased demand from many CMCs to implement such a tax.

• The Commonwealth Secretariat has, therefore, drafted this model law to assist those of our member countries that wish to implement a carbon tax.

• The CCTML is intended not as an obligation, but as a tool for CMCs that are considering introducing a carbon tax. It does not constitute a recommendation by the Commonwealth Secretariat for all (or any) CMC to implement a carbon tax.

• Some CMCs may wish to use this CCTML as a starting point for their legislation. Some CMCs may wish to select certain provisions from it. Some CMCs may wish to draft their legislation from scratch, while others may opt for an entirely different approach.
Why do we need a CCTML (6)?

**Possible disadvantages of a carbon tax**

- A carbon tax is likely to increase the prices of fossil fuels and carbon-intensive goods. Such price increases are likely necessary to reduce consumption of fuels and carbon-intensive goods, incentivise the use of low-carbon energy, and limit climate change. But they can also be unpopular. There is, however, evidence that using the revenue from the carbon tax to support households can increase support for carbon taxation. For this reason, the CCTML provides for the ring-fencing of revenue from the Carbon Tax for spending on low-income households and supporting the low-carbon economic transition.

- There are also costs associated with administering and auditing a carbon tax. These costs can, however, be minimised by designing a carbon tax so that it is mainly paid by a few large, sophisticated taxpayers. The CCTML provides for such an approach, with households and the vast majority of businesses not being liable for the Carbon Tax or having to submit any new information to the tax authorities.
Carbon Price

- The CCTML does not include a dollar amount for the Carbon Price, as each CMC that is considering the introduction of the Carbon Tax should determine its own Carbon Price. This should be based on its own economic analysis of the price required to meet its Nationally Determined Contributions and the likely impact of different carbon prices on national economic growth, income inequality and poverty.

- The CCTML does, however, provide for the Carbon Price to increase over time, initially by a nominal amount and then by inflation plus a nominal amount.

- The Carbon Price increases over time to provide taxpayers with time to modify their behaviour and reduce emissions. In addition, a Carbon Price that increases over time is consistent with the increasing ambition required to achieve the Paris Agreement’s goals.
What is taxed (1)?

- Under the CCTML, the Carbon Tax consists of:
  a) a Carbon Tax on the Carbon Content of all Fuels produced by Fuel Facilities; and

- The Carbon Tax on the Carbon Content of all Fuels is calculated as follows: $A \times B$, where:
  
  $A$ is the Carbon Content of all Fuels produced by Fuel Facilities; and
  $B$ is the Carbon Price.

- The Carbon Tax on Industrial Process Carbon Emissions and Carbon Dioxide Equivalent Emissions is calculated as follows: $A \times B$, where:
  
  $A$ is the Industrial Process Carbon Emissions and the Carbon Dioxide Equivalent Emissions arising from the Industrial Processes of Large Industrial Emitters; and
  $B$ is the Carbon Price.
What is taxed (2)?

**Fuels** according to their **Carbon Content**
[The Carbon Dioxide that will be emitted when the Fuel is combusted]

**Industrial Process Carbon Emissions**
[Carbon Dioxide emissions the source of which is not fuels; e.g. Carbon Dioxide from limestone used during cement production]

**Carbon Dioxide Equivalent Emissions** from Greenhouse Gases from Industrial Processes
[For example, nitrous oxide emissions from Industrial Processes converted into Carbon Dioxide Equivalent Emissions]
What is taxed? (3)

- Carbon Content means the mass of the Fuel in metric tonnes multiplied by the CO2 emissions factor.
- The CCTML includes a comprehensive list of the CO2 emissions factors for all (relevant) Fuels. The table below shows the CO2 emissions factors for four Fuels only. The CCTML includes a list of all Fuels.

<table>
<thead>
<tr>
<th>Fuel</th>
<th>CO2 emissions factor (mass basis per metric tonne) [11]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor gasoline</td>
<td>3.070</td>
</tr>
<tr>
<td>Gas/diesel oil</td>
<td>3.186</td>
</tr>
<tr>
<td>Coal (Other bituminous coal)</td>
<td>2.441</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>2.693</td>
</tr>
</tbody>
</table>
What is taxed? (4)

• The CCTML taxes a broad range of emissions. In most countries, the Carbon Tax will tax the vast majority of emissions. Carbon dioxide emissions from Fuels, Carbon Dioxide emissions from Industrial Processes and other (non-carbon dioxide) GHG emissions from Industrial Processes are all taxed.

• The CCTML taxing Fuels according to their Carbon Content is similar to the approach taken in British Columbia’s legislation. This component of the Carbon Tax is following the fuels approach to carbon taxation.

• The CCTML taxing Large Industrial Emitters on their emissions from Industrial Processes is similar to the approach taken in Singapore’s legislation. This component of the Carbon Tax is following the direct emissions approach.
Who pays the tax? (1)

• The Carbon Tax on the Carbon Content of Fuels is paid by Operators of Fuel Facilities.

• The term “Fuel Facilities” refers to:

   a) Coal Mining Facilities;

   b) Petroleum Field Facilities (oil fields and gas fields);

   c) Processing Facilities (effectively, Oil Refiners, Gas Processors and Coal Processors); and

   d) Importers (of Fuels).
Who pays the tax? (2)

Coal Mining Facilities and Petroleum Field Facilities pay the Carbon Tax on the Carbon Content of:

a) Fuels (e.g., crude oil, natural gas and coal) that they mine and supply to Domestic Consumers; and

b) Fuels (e.g., natural gas) that they vent or Flare.

Thus, they do not pay the Carbon Tax on:

a) Fuels that they export; and

b) Fuels that they supply to Processing Facilities.

In most cases, the tax liability of Coal Mining Facilities and Petroleum Field Facilities will be limited. Coal mines, oil fields and gas fields normally export crude oil, natural gas and coal, and/or supply these products to a domestic Processing Facility (e.g., an Oil Refinery, gas processor or coal processor). Only in rare cases is coal or natural gas supplied directly to a Domestic Consumer without being processed. Crude oil is very rarely/never supplied to Domestic Consumers without being refined.
Who pays the tax? (3)

Processing Facilities pay the Carbon Tax on the Carbon Content of all fuel that is:

a) processed/refined at the Facility (e.g., motor gasoline);

b) supplied to a Domestic Consumer without being processed/refined; and

c) Flared or vented at the facility.

However, Processing Facilities are entitled to a tax rebate on any Fuel they process/refine that is subsequently exported.

In many CMCs, much of the tax burden will fall on Processing Facilities. Oil Refiners will be liable for the Carbon Tax on Fuels such as motor gasoline. Coal Processors will be responsible for the tax on coal. Gas Processors will be liable for the tax on natural gas.
Who pays the tax? (4)

• Importers are liable for the Carbon Tax on the Carbon Content of all Fuel that is imported and that is not supplied to a Processing Facility.

• However, Importers are entitled to a tax rebate on any Fuel that is re-exported.

• In many CMCs, Importers will pay much of the Carbon Tax. In some CMCs where there are no oil fields, gas fields, coal mines, Oil Refiners, Coal Processors or Gas Processors, all Fuels will be imported. Here, the entire burden of the Carbon Tax on Fuels will fall on Importers.
Who pays the tax? (5)

Tax administration efficiency

- Taxes are normally easiest and cheapest to collect when they are levied on a small number of large taxpayers.

- The CCTML fulfils this criterion. Most of the Carbon Tax on Fuels will be paid by Processing Facilities (e.g. Oil Refineries) and Importers. Neither petrol stations nor households are liable for the tax.

- As an example, in the UK there are:
  a) 33.3 million cars;
  b) 28.1 million households;
  b) 8,365 petrol stations; but only
  c) 6 refineries.

- In the example provided above, it the six refineries that would bear the legal liability for the Carbon Tax under the CCTML. Car owners, households and petrol stations would not directly pay the Carbon Tax.
Who pays the tax? (6)

• Large Industrial Emitters are responsible for paying the Carbon Tax on Industrial Process Carbon Emissions and Carbon Dioxide Equivalent Emissions.

• Large Industrial Emitters are Operators of Facilities that are:
  a) in the energy, transport, manufacturing or construction industries; and
  b) that have combined Industrial Process Carbon Emissions and Carbon Dioxide Equivalent Emissions greater than [TBD] metric tonnes of CO2e.

• The CCTML does not provide a recommended value for this emissions floor, as we consider that this amount should be based on detailed country-specific economic analysis.
Who pays the tax? (7) Economic incidence of the tax

• The CCTML mandates who is legally responsible for paying the Carbon Tax (e.g. the Operator of an Oil Refinery).

• The Oil Refiner will likely pass much of the economic incidence of the tax onto petrol stations through higher prices.

• Likewise, petrol stations will likely pass much of the economic incidence of the tax onto their customers (drivers) through higher prices.

• These higher gasoline prices may incentivise drivers to both travel less and use alternative lower-carbon forms of transport.

• The extent to which the economic incidence of the Carbon Tax is passed onto consumers depends on the elasticity of demand, which will vary by CMC. However, many studies have concluded that the demand for fuels is inelastic in the short term, implying that a significant amount of the tax will be passed onto consumers through higher prices [12].

• The CCTML does not govern how the tax is passed onto consumers. This happens through the market. However, the CCTML does provide for the ring-fencing of Carbon Tax revenues to support low-income households and the low-carbon energy transition.
Calculation of the Carbon Tax (1)

Carbon Tax on Fuels

• To calculate the Carbon Tax payable by an Oil Refinery on 10 metric tonnes of motor gasoline:

  • First multiply the weight of the Fuel by the CO2 emissions factor per metric tonne for that Fuel = 10 (the weight of the Fuel) * 3.070 (CO2 emissions factor per metric tonne for motor gasoline) = 30.7

  • Second multiply 30.7 (the Carbon Content of 10 metric tonnes of motor oil) by the Carbon Price. Assuming a $25 Carbon Price this equals 30.7 * 25 US Dollars = 767.50 US Dollars.
**Calculation of the Carbon Tax (2)**

- The Carbon Tax paid by Large Industrial Emitters is calculated as $A \times B$, where $A$ is Industrial Process Carbon Emissions and Carbon Dioxide Equivalent Emissions, and $B$ is the Carbon Price.

- To calculate the Carbon Tax payable on 5 metric tonnes of Industrial Process Carbon Emissions and 5 metric tonnes of methane emissions (and assuming a Carbon Price of 25 US Dollars), the following steps should be taken:

  i) convert the Greenhouse Gas methane into Carbon Dioxide Equivalent Emissions
     
     $\text{Value} = 5 \text{ (the methane in metric tonnes)} \times 21 \text{ (the Carbon Dioxide equivalent conversion coefficient from Schedule 4)} = 105 \text{ metric tonnes}$;

  ii) calculate the value of $A$ (the Industrial Process Carbon Emissions and the Carbon Dioxide Equivalent Emissions) $= 5 \text{ (the Industrial Process Carbon Emissions)} + 105 \text{ (the Carbon Dioxide Equivalent Emissions of the methane)} = 110$; and

  iii) calculate the Carbon Tax as $A \times B = 110 \text{ metric tonnes} \times 25 \text{ US Dollars} = 2,750 \text{ US Dollars}$. 
How do taxpayers report their emissions?

• The Operator of a Fuel Facility must submit to the Minister:
  a) a forward-looking Fuels Emissions Monitoring Plan, which provides, inter alia: details of all Fuels that are imported, processed, Flared and vented, and the anticipated Carbon Tax Liability; and
  b) a backwards looking Fuel Emissions Report, which provides, inter alia: details of all Fuels that were imported, processed, Flared or vented, and the actual Carbon Tax Liability.

• A Large Industrial Emitter must submit a forward-looking Carbon Plan and a backwards looking Carbon Report.

• The Carbon Plan must include, inter alia: forecasted Industrial Process Carbon Emissions and Carbon Dioxide Equivalent Emissions and the anticipated Carbon Tax Liability.

• The Carbon Report must include details of, inter alia: the amount of Industrial Process Carbon Emissions and Carbon Dioxide Equivalent Emissions and the Carbon Tax Liability, how these compare to forecasted emissions, and steps being taken to reduce emissions.
How will the Carbon Tax and emissions be audited?

- The Minister has the power to audit Fuel Emissions Monitoring Plans, Fuel Emissions Reports, Carbon Plans and Carbon Reports.
- The Minister can appoint a Recognised Emissions Auditor to assist with these audits.
Impact of the Carbon Tax on industry (1)

• The Carbon Tax should not increase the cost of exported Fuels, as exports from Petroleum Field Facilities (e.g. oil fields and natural gas fields) and Coal Mining Facilities are exempt from the Carbon Tax.

• Processing Facilities (e.g. Oil Refiners, Coal Processors and Gas Processors) are entitled to a tax rebate on exported Fuels.
Impact of the Carbon Tax on industry (2)

• The Carbon Tax may increase the costs of carbon-intensive sectors such as cement, steel etc. that may produce goods for export or compete against imports from countries with a lower (or no) Carbon Price.

• To mitigate the potential impact on these sectors, the CCTML provides that the Minister may designate a sector as “a trade-exposed sector”, where there is substantial evidence that the Carbon Tax has caused or threatens to cause serious injury to domestic industry in that sector.

• Persons in trade-exposed sectors are entitled to a rebate on the Carbon Tax paid on Industrial Process Carbon Emissions and Carbon Dioxide Equivalent Emissions.
Impact of the Carbon Tax on industry (3)

• The amount of this rebate is equal to the Carbon Price multiplied by the Emissions Intensity Benchmark for the good multiplied by the number of units of that good that have been produced.

• The Emissions Intensity Benchmark is the average amount of Industrial Process Carbon Emissions and Carbon Dioxide Equivalent Emissions emitted during the production of that good.

• The design of this rebate provides that a registered person in a trade-exposed sector that emits more GHG per unit of production than the average will receive less from the rebate than they pay in Carbon Tax.

• In contrast, a registered person in a trade-exposed sector that emits less GHG per unit of production than the average will receive more from the rebate than they pay in Carbon Tax.

• The Carbon Tax and rebate provided for under the CCTML, therefore, provide an incentive for registered persons in trade-exposed sectors to reduce their emissions.
What can the revenue from the Carbon Tax be spent on? (1)

- Earmarking revenues from the Carbon Tax can be an important mechanism for building public and political support for the tax.
- In addition, it is important that, consistent with a just transition, public spending ameliorates any negative impact the Carbon Tax may have on low-income households.
- The CCTML, thus, provides that revenues from the Carbon Tax can only be spent on programmes that:
  a) assist low-income households with the cost of energy;
  b) improve low-carbon energy access for low-income households;
  c) invest in sources of renewable energy;
  d) finance Carbon Capture and Storage (CCS) and Carbon Capture and Utilisation (CCU); and
  e) support decarbonisation and climate adaptation measures.
What can the revenue from the Carbon Tax be spent on? (2)

• The economic rationale for the Carbon Tax is that GHG emissions cause environmental harm, the costs of which are not reflected in market prices in the absence of the tax.

• A corollary is that there are environmental benefits to removing and storing carbon from the atmosphere, for which there may not be a financial incentive.

• The Carbon Tax on Carbon Dioxide Equivalent Emissions and Industrial Process Carbon Emissions incentivises Large Industrial Emitters to store carbon, and hence reduce their emissions and lower their Carbon Tax Liability. In practice, there may be limited scope for Carbon Capture and Storage at the emitting Facility.
What can the revenues from the Carbon Tax be spent on? (3)

• However, the Carbon Tax on the Carbon Content of Fuels does not provide an incentive for CCS or CCU.

• For example, an Importer of Fuels would pay the Carbon Tax based on the Carbon Content of the Fuels imported. Neither the Importer nor any other entity would receive a tax rebate or financial incentive for storing the carbon emitted when the Fuel is combusted. That is, the tax burden on a litre of diesel oil that releases Carbon Dioxide into the atmosphere when it is combusted, and the tax burden on a litre of diesel oil burned at a facility that immediately captures the carbon, are identical.

• There is, then, a rationale for a portion of the Carbon Tax to be used to finance payments to CCS or CCU facilities. The CCTML provides for such payments.
What can the revenues from the Carbon Tax be spent on? (4)

• CCS and CCU facilities that meet the specified requirements (to be provided for in Regulations) can apply to the Minister to become a registered CCS or CCU Operator.

• CCS Operators must submit a Carbon Storage Plan to the Minister, which includes, inter alia: the amount of Carbon Dioxide emissions to be stored.

• CCS Operators must also submit a Carbon Storage Report to the Minister, which includes, inter alia: the actual Carbon Dioxide emissions stored.

• In a similar vein, CCU Operators have to submit a Carbon Usage Report and a Carbon Usage Plan.
What can the revenues from the Carbon Tax be spent on? (5)

- CCS Operators and CCU Operators can apply to the Minister for an annual CCUS Development Payment.
- The amount of the annual payment is equal to $A \times B$, where:
  $A$ is the amount of the Carbon Dioxide stored in metric tonnes, and
  $B$ is [TBD] per cent of the Carbon Price.

- The CCTML does not make a recommendation concerning the percentage of the Carbon Price that should be paid to CCS or CCU Operators.
How will the impact of the Carbon Tax be measured? (1)

• It is important to measure the economic and environmental impact of the Carbon Tax.

• The CCTML mandates that the Minister must prepare a Carbon Tax Impact Report every three years. This includes:
  a) analysis of the impact of the Carbon Tax on economic growth and Greenhouse Gas emissions;
  b) detail of the use of revenues from the Carbon Tax; and
  c) economic analysis of the programmes funded by the Carbon Tax.
How will the impact of the Carbon Tax be measured? (2)

- The CCTML also provides for the Minister to form a Carbon Tax Stakeholders Discussion Group. This must include representatives of groups impacted by the Carbon Tax, including:
  a) indigenous groups;
  b) youth groups;
  c) low-income households and communities;
  d) workers unions;
  e) workers in trade-exposed sectors;
  f) men and women; and
  g) other impacted or concerned groups of persons.
Key takeaways (1)

1. Carbon pricing is an important tool for mitigating climate change and achieving the Paris Agreement’s goals.

2. The EU (and potentially the UK) implementing a CBAM provides a further rationale for CMCs to implement carbon pricing.

3. The CCTML provides for carbon pricing to be introduced through a Carbon Tax.

4. The Carbon Tax is designed to cover the majority of emissions. It covers Carbon Dioxide emissions from Fuels, Carbon Dioxide emissions from Industrial Processes and other Greenhouse Gas emissions (not Carbon Dioxide) from Industrial Processes.

5. The Carbon Tax is designed so that the tax liability falls on a few large taxpayers. Processing Facilities, Importers (of fuels) and Large Industrial Emitters will pay the majority of the Carbon Tax.
Key takeaways (2)

6. The CCTML includes provisions for reporting and auditing. Key reporting requirements include Fuel Emissions Monitoring Plans, Fuel Emissions Reports, Carbon Plans and Carbon Reports.

7. The CCTML provides for the revenues from the Carbon Tax to be ring-fenced for spending on assisting low-income households with the cost of energy and financing the low-carbon economic transition.

8. Under the CCTML, the Minister is responsible for drafting a Carbon Tax Impact Report every three years. This report examines the impact of the Carbon Tax on emissions and the economy.

9. The CCTML is provided as a guide and a starting point for discussions for those CMCs that wish to implement a carbon tax. It does not represent a recommendation by the Commonwealth Secretariat that all (or any) CMC should implement a carbon tax. In addition, any CMC implementing a carbon tax should consider how the CCTML can be tailored to their national circumstances.
References (1)


References (2)


Endnotes

[a]. The transition phase of the EU CBAM enters into force on 1 October 2023, but this is an information-gathering phase only and importers will not have to make financial payments. The sectors covered by the EU CBAM are: cement, iron and steel, aluminium, fertilisers, electricity and hydrogen.