



# Budget Model

## Policy Options: A Carbon Tax of \$30 per ton

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**Summary:** We estimate the budgetary and economic effects of a new carbon tax of \$30 per ton of emissions, which is enacted on January 1st, 2021, rising by inflation plus 5 percent through 2050. We project that it raises \$1.6 trillion of additional revenue on a conventional basis over the 10-year budget window and increases GDP by 2.2 percent by 2050.

### Current law:

Numerous scientific reports have shown that reducing emissions of greenhouse gases (e.g., carbon dioxide) would reduce the expected costs and risks associated with climate change.<sup>1</sup> Currently, the federal government regulates some emissions but it does not directly tax emissions except for gasoline taxes.

Policymakers can directly affect carbon emissions using two main tools: taxing carbon emission to raise its price or enforce a hard emissions cap using a cap-and-trade system. A carbon tax, however, has several advantages.<sup>2</sup> First, a carbon tax offers businesses more certainty for the cost of emitting carbon over time. Second, a carbon tax has smaller administrative burden. Third, additional programs to limit carbon or other pollutants would naturally “stack” with the carbon tax. If pollutants cause different levels of damage depending on location, additional emissions programs can be used in conjunction with the carbon tax to align the costs of emissions with the damages that they cause in each location.

### Proposal:

We examine a proposal that would levy a tax of \$30 per ton of carbon carbon emitted. Over time, the tax rate rises with inflation plus 5 percent through 2050, and remains constant afterwards.<sup>3</sup> The carbon tax is applied to transportation, construction, manufacturing, power generation, and any other productive process that creates carbon emissions. The carbon tax affects the price by increasing the cost for goods and services depending on the amount of carbon used. A good or service that generates larger carbon emissions leads to higher taxes, which are reflected in higher prices for those carbon-intensive goods and services.

### Budget estimates:

On a conventional basis, PWBM estimates this policy would raise about \$1.6 trillion over the period 2021 to 2030.<sup>4</sup> This figure includes the budgetary offset of lower business tax receipts since carbon tax payments would be deductible against business income.

Table 1. Conventional Budget Estimate, FY2021-2030

*Billions of Dollars, Change from Current-Law Baseline*[DOWNLOAD DATA](#)

Policy	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Budget Window
A carbon tax of \$30 per ton	96	136	144	152	161	170	181	192	201	212	1,644

**Economic Effects:**

An increase in the carbon tax makes consumption more expensive relative to savings; households will respond by lowering consumption by -1.1 percent in each decade. The additional revenue reduces government debt, which increases investment and productive capital, by 6.2 percent by 2050. Higher capital increases wages by 2.2 percent in 2050. Higher wages have two offsetting effects: a *price* effect (higher wages lead to more work) and an *income* effect (higher wealth induces households to work less); the former effect dominates, thereby increasing hours worked by 0.3 percent by 2050. GDP increases by 2.2 percent in 2050.

Table 2. Dynamic Macroeconomic Effects

*Percent Change from Baseline*[DOWNLOAD DATA](#)

Year	GDP	Capital stock	Labor income	Hours worked	Consumption
2030	0.3%	0.9%	0.3%	0.0%	-1.1%
2040	0.9%	2.5%	0.9%	0.1%	-1.1%
2050	2.2%	6.1%	2.2%	0.3%	-1.1%

1. NOAA (2019) "[Rising emissions drive greenhouse gas index increase.](#)" ↩
2. Ian Parry and William Pizer (2007), "[Emissions Trading versus CO2 Taxes versus Standards.](#)" ↩
3. Warwick McKibbin, Adele Morris, Peter Wilcoxon, and Weifeng Liu (2018), "[The Role of Border Carbon Adjustments in a U.S. Carbon Tax.](#)" ↩
4. For purposes of comparison, the conventional revenue estimate is based on McKibbin et. al. (2018), with additional adjustments to match PWBM macroeconomic aggregates. ↩