

## The MARKET CHOICE Act: A Legislative Analysis from the Niskanen Center

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July 23 2018

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### EXECUTIVE SUMMARY

The MARKET CHOICE Act (MCA) proposes a tax swap to fund maintenance and new investment for roads, bridges, airports, and other infrastructure. The bill would abolish the federal excise tax on gasoline and diesel fuel while levying a tax on greenhouse gas (GHG) emissions from fossil fuels and certain large industrial facilities and products. The GHG tax would start at \$24 per ton of CO<sub>2</sub>-equivalent emissions and increase at a real rate of 2 percent per year. It would cover about 85 percent of U.S. GHG emissions. Modeling estimates indicate such a swap would reduce taxed GHG emissions by about 30 percent against 2005 baseline levels and raise nearly \$1 trillion in the first 10 years.

Seventy percent of revenue from the tax swap goes toward the Highway Trust Fund, with the remainder going toward climate adaptation, energy research and development, and measures to mitigate the impacts of the tax. For consumers, the burden of the GHG tax at the pump will be partially offset by the elimination of the fuel excise tax. Additionally, the MCA amends the Clean Air Act to impose a 12-year rolling moratorium on EPA regulation of GHG emissions from stationary sources as long as emissions are below specific targets for 2020-2030. If the targets are missed, the MCA requires automatic increases in the carbon price to give the market approach another chance before regulatory authority returns.

## Introduction

The MARKET CHOICE Act (MCA) was introduced by Rep. Carlos Curbelo (R-FL) and Brian Fitzpatrick (R-PA) on July 23, 2018. The legislation would eliminate the federal excise tax on gasoline and diesel fuel (the “gas tax”), in favor of a tax on GHG emissions, i.e., a carbon tax, levied on fossil fuels and certain industrial facilities and products.

The MCA’s goals are 1) to fund infrastructure by taxing GHG pollution; 2) spur significant reductions in GHG emissions; 3) and to offer a market alternative to the expansion of federal GHG regulations.

## Tax Swap Details

The MCA repeals the federal excise tax on motor vehicle and aviation fuels, which are currently 18.4 cents per gallon on gasoline, 24.4 cents per gallon on diesel, and 4.4 cents per gallon on commercial jet fuel.<sup>i</sup> These taxes provide revenue for the Highway Trust Fund, though stagnant revenues and increasing costs have led to persistent shortfalls, and for the Airport and Airway Trust Fund.

In place of the fuel excise tax, the MCA levies a tax on GHG emissions from fossil fuel combustion, industrial processes, and product uses. While it is convenient to refer to this as a *carbon tax*, the MCA applies the tax to emissions of multiple GHGs (CO<sub>2</sub>, methane [CH<sub>4</sub>], nitrous oxide [N<sub>2</sub>O], and ozone depleting F-gases [HFCs, unless the United States joins an international agreement regulating HFCs separately) based on their CO<sub>2</sub>-equivalent warming potential measured over 100 years.

### 1. How Much?

The tax is levied at a rate of \$24 per metric ton of CO<sub>2</sub>-equivalent emissions, starting in 2020. The rate increases 2 percent annually in real terms (above inflation), using the Consumer Price Index to adjust for inflation. If the carbon tax is first collected in 2020, then over the first

10 years the rate would average \$26.20 per ton in 2020 dollars. After 2029, the tax continues to increase annually at 2 percent real.

A carbon tax based on combustion emissions will increase commodity prices. Using Resources for the Future’s [Carbon Price Fuel Calculator](#),<sup>ii</sup> this new tax would add about \$0.23 per gallon of gasoline, \$1.39 per 1,000 cubic feet of natural gas, and \$55.09 per short ton of coal. Benchmarked to 2015 prices, such increments would represent price increases of 12, 33, and 173 percent for each commodity, according to the RFF calculator.

By eliminating the gas tax, the tax swap will significantly reduce the price impacts of the GHG tax on gasoline at the pump. Directly subtracting the savings on the gas tax from the increase in the carbon tax indicates that the price increase at the pump will be 5 cents per gallon.

While the MCA’s primary purpose is funding infrastructure, the legislation also includes mechanisms to meet a series of emissions targets. The targets are expressed in cumulative emissions from taxed sources. If taxed emissions are higher than targeted levels (see figure 2), then the rate of the carbon tax will increase. Every two years, the EPA Administrator and the Secretary of the Treasury must report emissions levels under the tax for the preceding year and issue a finding as to whether or not they exceed the specified targets. If they do, then the tax will automatically increase an additional \$2 per ton the following year, on top of the annual 2 percent increase. If emissions are less responsive to the carbon price than the sponsors expect, these adjustments could occur a maximum of five times over the first 11 years of the tax, potentially increasing the tax rate by up to \$10 per ton. After 2030, there are no emission targets and thus no provision for such increases.

### 2. Who Pays?

The MCA’s carbon tax affects fossil fuel emissions and select industrial and product emissions, covering about 85 percent of U.S.

GHG emissions. Table 1 shows estimates of the taxed emissions from these different sources.

Source	2016 emissions (mmt CO <sub>2</sub> e)	Percentage of total 2016 U.S. emissions
<b>Total</b>	5590	85
<b>Fossil Fuels</b>	5078*	75
<b>Industrial Processes</b>	220	3.2
<b>Product Uses</b>	421	6.2

*\*Includes 112 MMT of non-combustion emissions  
Data from U.S. EPA Greenhouse Gas Inventory 2018, see Appendix 1 for detailed totals.*

**Fossil Fuels:** The largest part of the tax base is fossil fuel emissions. The proposal taxes coal, petroleum fuels, and natural gas produced in, or imported into, the United States based on the fuel’s emissions of CO<sub>2</sub> when combusted. The owner of the fossil fuel at the point of taxation is responsible for paying the tax. The proposal requires the Secretary of the Treasury and EPA Administrator to issue rules defining how combustion emissions will be calculated for different fossil fuel products.

This tax is designed to minimize the number of taxed entities. Coal is taxed at the mine mouth; petroleum products are taxed at the refinery exit; and natural gas is taxed at the exit from the gas processing plant. Imported fossil fuels are taxed at the point where they first enter the United States. For cases not captured by these categories, the point of taxation is selected to reasonably limit the number of entities paying the tax.

In addition, the carbon price covers certain nonfossil sources of emissions that result from industrial processes and product uses.

**Process Emissions:** The MCA imposes the same rate of tax on emissions from facilities that emit GHGs while manufacturing a specific list of products such as metals, petrochemicals, and cement. Facilities emitting more than 25,000 tons CO<sub>2</sub>e per year in process emissions are

taxed on those emissions. EPA may add to the list of taxed facilities when total emissions from that source category are over 250,000 tons per year for 2 out of the previous 5 years, average facility emissions are over 25,000 tons for those years, and EPA anticipates that source category emissions will be over 250,000 tons in any of the following five years. EPA may remove source categories when total source category emissions fall below 250,000 tons per year for 3 consecutive years and are expected to remain below that level, and facility emissions have averaged less than 25,000 tons per year during that period.

**Product Use:** The MCA also imposes the same tax rate on emissions from specific listed products that release GHGs when used, including fuel ethanol, biodiesel, and woody biomass. The list of covered products includes HFCs and other ozone-depleting substances, as long as the United States has not ratified the Kigali Amendment, which would regulate these emissions in accordance with the Montreal Protocol. Product manufacturers (or importers) are responsible for paying the tax. For biofuels, the tax rate is based on the lifecycle emissions of the product. As with industrial process emissions, EPA can add to, and must remove from, the list of products when certain emissions criteria are met.

### 3. Rebates and Border Adjustments

The MCA creates a rebate for fuel purchasers who use fossil fuels either as feedstock for durable products or capture the CO<sub>2</sub> postcombustion and sequester it in geological storage. However, there are no rebates for sequestration until Treasury issues regulations defining secure geological storage.

The proposal also offers a declining credit against any carbon price paid at the state level, as in California or the RGGI states. In the first year of the carbon tax, anyone who pays a state-based carbon price can apply for a credit against

the federal price equal to the full state-based tax. In the second year, they may apply for a credit equal to 80 percent of the state-based price. The credit falls another 20 percent each year, reaching zero in the sixth year and beyond.

The declining credit gives those states that price CO2 emissions time to decide whether to modify the scope or rates for their pricing schemes. Not allowing any credit would not give states that opportunity; on the other hand, a permanent 100 percent credit would encourage every state to impose their own carbon tax, which would undermine the revenue purposes of the MCA.

Like many previous carbon tax proposals, the MCA also authorizes the Treasury Department to create border adjustments for greenhouse-gas-intensive goods. Border adjustments require importers of carbon-intensive goods to pay a fee, as if those goods were manufactured in the United States, to maintain the competitiveness of domestic producers of greenhouse-gas-intensive and trade-exposed goods. Importers of highly-traded goods that have a GHG intensity (emissions multiplied by the carbon price) higher than 5 percent of the total value of their good are subject to these border adjustments. Likewise, exporters of those same goods will receive rebates, to maintain their competitiveness in international markets.

The President is also given the authority to exempt sectors or products if subjecting them to the adjustment were not in the interest of the United States. The bill also exempts from the tax products that come from the least-developed countries, or countries the President determines have *de minimis* GHG emissions.

#### **4. Rules and Regulations**

The MCA requires multiple rulemakings from the Treasury Department, Environmental Protection Agency, and the Department of Energy in order to set up and administer the carbon tax. A listing of the required rulemakings is included in Appendix 1 of this document.

## **Greenhouse Gas Emissions and Revenue Disbursement**

The revenue outcomes from the MCA's tax swap will depend on future GHG emissions and changes in fossil fuel usage, which is expected to decline under the new carbon tax, as emitters and consumers adopt lower-emitting alternatives. Thus estimates of MCA revenue must take the emitters' expected response into account.

### **5. Expected Emissions**

The MCA's carbon tax is expected to significantly reduce GHG emissions, but not enough to eliminate them as a source of revenue in the 10-year period after the tax is first imposed. As they are the largest emissions category covered by the tax, emissions from fossil fuel combustion are the most important to projections of revenue and environmental outcomes. We expect these emissions, especially from the electric power sector, to be the most responsive to the carbon price.

Using the Goulder-Hafstead E3 model, a CGE (Computable General Equilibrium) model of the U.S. economy, analysts at Resources for the Future have [projected how the tax swap would affect GHG emissions](#).<sup>iii</sup> For a carbon tax starting at \$24 per ton in 2020 and increasing 2 percent annually in real terms, the model projects that CO2 emissions from fossil fuel combustion will fall 29 percent from 2005 levels by 2030 (starting from 14 percent below 2005 levels in 2016). In the power sector, the model projections indicate that emissions will fall 55 percent from the 2005 levels.

To fully account for the tax's revenue and GHG emissions impacts, emissions from other source categories should be included (see Appendix 2 for a summary of such emissions). However, the emissions response to the tax in those other sectors is not as readily modeled. The simplest approach is to develop estimates that assume that those emissions remain constant at their

**Table 2: Expected GHG Emissions and Revenue**

Year	Carbon Price (\$)	Expected Emissions (MMT)	RISE Contributions <sup>1</sup> (billion \$)
2005	-	6343	-
2016	-	5590	-
2020	23.93	5196	93
2021	24.41	5148	94
2022	24.90	5099	95
2023	25.39	5060	96
2024	25.90	5031	98
2025	26.42	4992	99
2026	26.95	4963	100
2027	27.49	4944	102
2028	28.04	4915	103
2029	28.60	4895	105
10-YR Total		50243	985

<sup>1</sup> Expected Revenues to the RISE Trust Fund after 25 percent haircut.

2016 levels near 750 MMT per year. This leads to a conservative estimate of the environmental benefits of the bill, and a generous estimate of the revenue.

Expected emissions from the taxed sources can be generated by adding the fossil fuel combustion emissions from the E3 model with the static emissions from other sources. We report that sum for the first decade of taxation in Table 2.

## 6. Expected Revenue

The MCA creates the Rebuilding Infrastructure and Solutions for the Environment (RISE) Trust Fund to receive and disburse revenue from the new carbon tax. The revenue values in Table 2 reflect the new revenue expected after a 25 percent haircut, as an approximation of the Congressional Budget Office practice for new excise taxes. After this adjustment, revenues into the RISE Trust Fund would be nearly \$1 trillion over the first 10 years of the tax.

The MCA appropriates specific percentages of the RISE Trust Fund for infrastructure funding, energy assistance to low-income households, energy transition assistance, climate adaptation, and advanced energy R&D. Figure 1 shows how

those revenues would be distributed under the MCA and Appendix 3 lists authorization by program.

**Infrastructure Funding:** The largest percentages are directed to infrastructure funding, including 70 percent to the Highway Trust Fund, which will no longer receive funding from the gas tax under the MCA. A small percentage (2.5 percent) is also appropriated for the Airport and Airway Trust Fund, to replace funding lost to the elimination of the jet fuel excise tax. To estimate the amount if revenue that would go toward planned spending from the Highway Trust Fund we extrapolated [projected outlays from the Congressional Research Service](#).<sup>iv</sup>

**Energy Assistance:** The next largest appropriation (10 percent) goes to a state-based grant program that individual states will use to offset the costs to households earning less than 150 percent of the federal poverty line or qualifying for other assistance programs. The MCA requires that those funds be apportioned between the states based on the relative carbon footprint for the energy consumed in each state, meaning that states with higher populations or carbon intensities will receive a larger proportion of the funds.

The MCA also directs funds to increase the budget of the LIHEAP program (1 percent) and programs for displaced energy workers (3 percent).

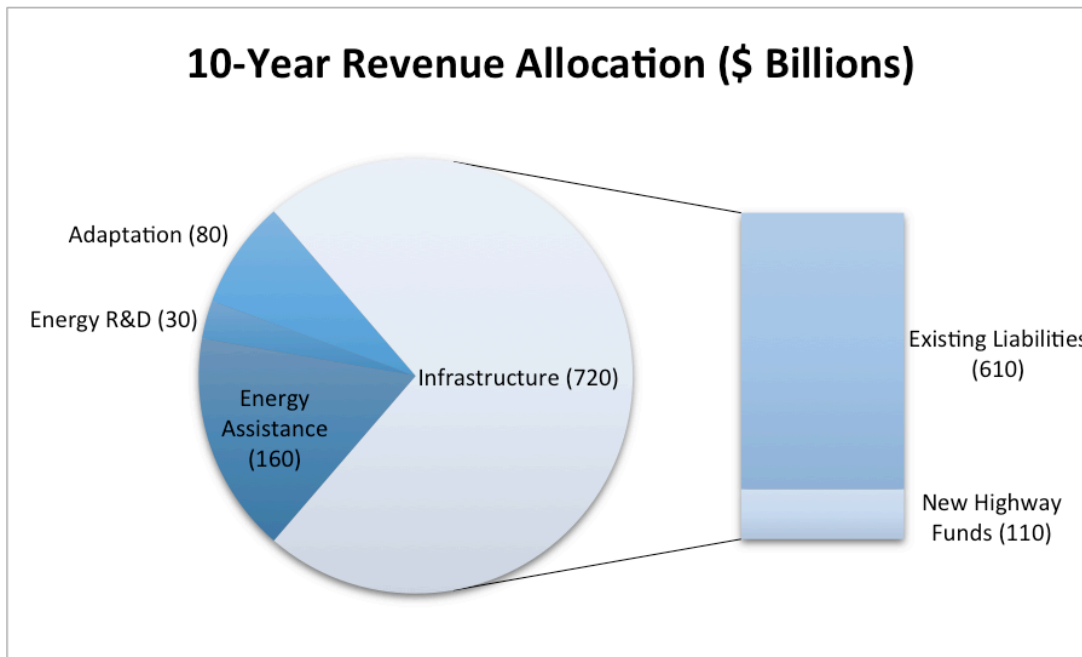


Figure 1: Authorized Spending from the RISE Trust Fund based on expected revenues from the carbon tax.

**Adaptation:** The MCA appropriates 5 percent of the RISE Trust Fund for mitigation of frequent and chronic coastal flooding and for adaptation infrastructure projects authorized by amendments to the Coastal Zone Management Act. The MCA also appropriates funds to the Abandoned Mine Reclamation Fund and the Reforestation Trust Fund.

**Energy R&D:** The MCA appropriates small percentages (less than 1 percent each) to ARPA-E and research into specific DOE research programs for CO<sub>2</sub> capture at the facility level, direct capture of CO<sub>2</sub> from ambient air, underground storage of CO<sub>2</sub>, grid-scale battery storage, and preventing incidental bird-takes at wind power facilities.

## Regulatory Moratorium

Starting from the time it is first collected, the MCA imposes a 12-year rolling moratorium on EPA finalizing or enforcing regulations to limit GHG emissions from taxed sources.

### 7. Exceptions

EPA retains its full authority over GHG emissions from natural gas and petroleum systems and from publicly-owned sewage treatment plants. EPA also retains its full authority to limit GHG emissions from motor vehicles, nonroad engines, and aircraft, although the latter may not be stricter than the limits imposed by the International Civil Aviation Organization.

Beyond reducing GHG emissions, EPA retains (1) all other regulatory authority over GHG emissions (*e.g.*, monitoring and reporting requirements, information gathering); (2) authority to regulate GHG emissions for non-GHG effects; and (3) authority to regulate any GHG that is not among the six specific ones targeted by the bill (carbon dioxide, methane, nitrous oxide, HFCs, PFCs, and sulfur hexafluoride).

### 8. Conditions

The regulatory moratorium imposed by the MCA is conditional on GHG emissions-reductions from the taxed sources meeting the MCA's targets. Those targets are defined by the expected

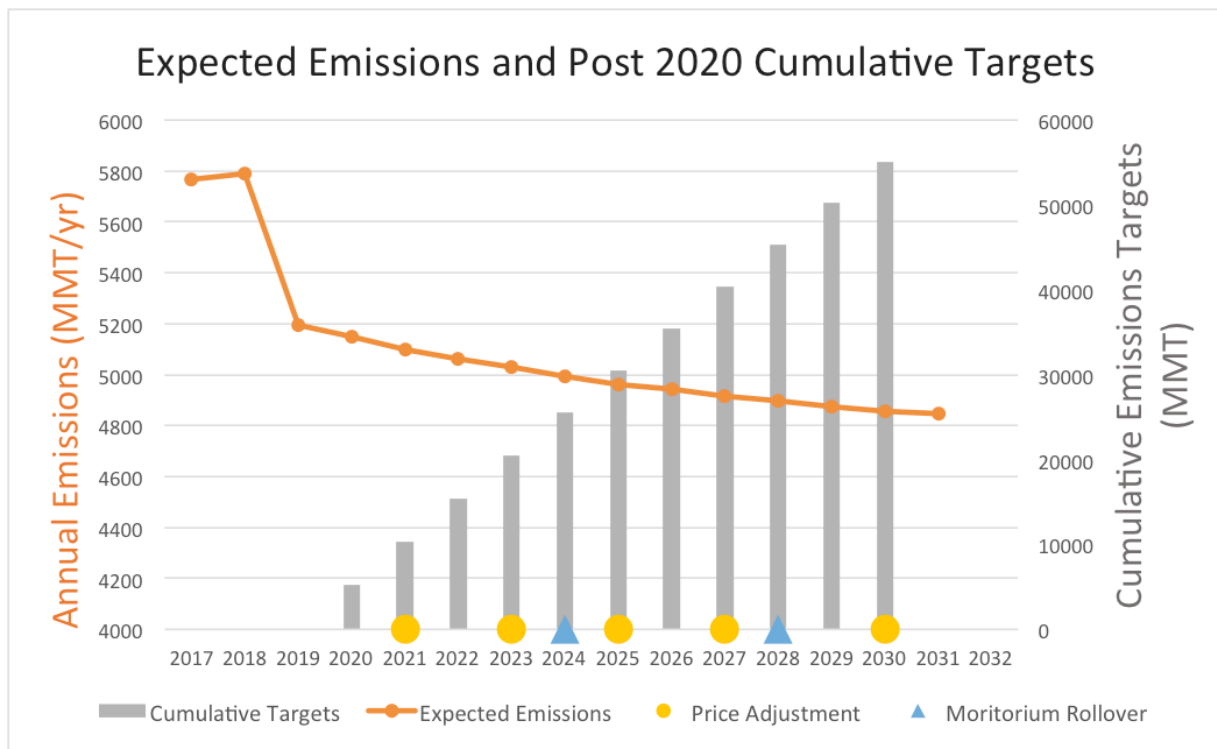


Figure 2: Expected Emissions from taxed sources (orange), based on energy-sector modeling, and cumulative emissions targets (grey) which condition price adjustments (yellow dots) or regulatory moratorium (blue triangles).

emissions in Table 2, but apply to cumulative emissions as of 2024 and 2028 (figure 2) from the taxed sources. In March 2025, cumulative emissions will be reported for the period 2020-2024; if those emissions are higher than the 2024 cumulative emissions target, then the regulatory moratorium will end in October 2025. Likewise, cumulative emissions through 2028, determined in March 2029, will determine if the moratorium will extend beyond October 2029. The regulatory moratorium expires on January 1, 2033.

## Summary

As an infrastructure funding mechanism, the MCA provides a novel source of revenue with significant expected environmental benefits. As a GHG reduction measure, the MCA differs from previous carbon tax proposals in key ways.

First, this proposal is revenue positive. Under the MCA, new revenue is dedicated to the perpetually underfunded Highway Trust Fund and a variety of other programs to reduce the

impact of the new carbon tax on poor households, support climate adaptation, transition energy workers, and support low-carbon energy research and development. The political prospects of such a revenue stream are unknown and the economic implications are less studied than more common proposals to use carbon revenue to reduce the rates of capital or labor taxes.

While the sponsors expect the proposal will spur significant reductions in GHG emissions, and propose a price adjustment mechanism to secure those reductions, the bill does not specify GHG emissions targets beyond 2030. This is a fundamental difference from climate bills that use carbon pricing to pursue midcentury climate goals. How well the price adjustment mechanisms will work and what information about long-term carbon pricing strategies would be captured by having a decade of carbon pricing to measure the economic and environmental outcomes of a meaningful carbon price are questions for further study.





## Appendix 1 – REQUIRED REGULATORY ACTIONS UNDER THE MARKET CHOICE ACT

### By Bill Section

#### Title I; Part 1

Section 9901(b)(3)(A): No later than March 30, the Secretary of the Treasury and the Administrator of EPA “shall jointly report the emissions during the calendar year ending the previous December 31 from sources subject to taxation under this part”, and determine whether those emissions were less than the stated annual targets for 2020-2030.

Section 9901(b)(3)(B): “Not later than March 30, 2022, and every two years thereafter, the Secretary shall determine” if the emissions report under 9901(b)(3)(A) showed emissions exceeding the target levels, in which case the tax rate under 9901(b)(2) shall be increased by \$2/ton in addition to the increases mandated in 9901(b)(2)(b).

Section 9901(e)(1)(B): Treasury, in consultation with EPA, “shall establish by rule the process by which product manufacturers can demonstrate” that they qualify for the refund for noncombustive uses of fossil fuels they have purchased. Section 9901(e)(1)(C) then requires that these regulations be published “no later than one year” prior to the first tax year (2020).

Section 9901(e)(2)(B): Treasury shall establish the procedures by which persons who have sequestered CO<sub>2</sub> may apply for the tax refunds mandated in section 9901(e)(2)(A).

Section 9901(e)(2)(C): provides that Treasury may not refund any amounts under 9901(e)(2)(B) “until such time as the Secretary has published the regulations described in section 45Q(d)(2).

(Section 45Q is the existing federal tax credit for sequestering CO<sub>2</sub>. The regulations described in section 45Q(d)(2) are the ones that Treasury, in consultation with EPA, “shall establish . . . for determining adequate security measures for the geological storage of carbon dioxide under paragraph (1)(B) or (2)(C) of subsection (a) such that the carbon dioxide does not escape into the atmosphere.” Congress provided no deadline for promulgating those regulations, and Treasury has never proposed any.)

Section 9902(b)(2): requires EPA to review the list of source categories for industrial process emissions in section 9902(b)(1) at least every five years to determine if those sources should continue to be listed.

Section 9903(b)(2): requires EPA to review the list of products in section 9903(b)(1) at least every five years to determine if those products should continue to be listed.

Section 9905(a): EPA, in consultation with the Department of Energy, must establish the method by which taxable emissions are calculated. Per section 9905(e), all the regulations in this section must be published at least one year prior to the initial tax year.

Section 9905(b)(1): EPA shall establish the amount of carbon dioxide that will be emitted when each fossil fuel is combusted.

Section 9905(b)(3): Based on lifecycle analysis, EPA shall establish the CO<sub>2</sub> emissions from fuel ethanol and biodiesel combustion.

Section 9905(b)(4): Based on lifecycle analysis, EPA shall establish the CO<sub>2</sub> emissions from solid biomass combustion.

Section 9906: requires Treasury to allow a tax deduction for payments for GHG emissions required under state law. *This provision does not require regulatory action by Treasury, but it is likely that regulations will be needed to implement this section.*

#### Title I; Part 2

Section 9913(b)(1): requires Treasury, within one year of enactment, to designate the list of industrial sectors whose products are covered by the border tax adjustment. The criteria for Treasury to use in making this determination are described in section 9913(c).

Section 9913(b)(2): requires Treasury to include the amount of the border tax adjustment for each covered good in the list issued pursuant to 9913(b)(1).

Section 9913(b)(3): requires Treasury to issue annually, as of January 31, an updated version of the subsection (b)(1) list.

Section 9913(c)(2)(B): establishes a petition process for Treasury to designate additional industrial sectors as eligible for the border tax adjustment, and (c)(2)(B)(v) requires Treasury to take final action on such petitions within 180 days of receipt of a completed petition. *This provision does not require regulatory action by Treasury, but it is likely that regulations will be needed to implement this section.*

Section 9914(a) requires Treasury to issue regulations: listing the products covered by the border tax adjustment (paragraph 1); establishing “a general methodology for calculating” the border tax adjustment rate (paragraph 2); establishing an administrative appeals process for “any determination” by Treasury (paragraph 3); exempting products from the least developed countries or countries that the President determines are responsible for less than 0.5 percent of global GHG emissions (paragraph 4); specifying the procedures for declaration and entry of covered goods (paragraph 5); and establishing procedures to prevent good that are manufactured in more than one foreign country from circumventing border tax liability (paragraph 6).

#### Title II; Subtitle A

Section 203(c): requires Treasury, in consultation with EPA and the Department of Energy, to determine the amount of the grant to each state (the “State Grant”, as required by section 203(a)), “based on the percentage of total United States energy-related greenhouse gas

emissions attributable to electricity, natural gas, gasoline, diesel, and fuel ethanol sold in each State during the preceding calendar year.”

Section 203(d): requires Treasury to set the date by which states must notify it of their intent to distribute the State Grant funds.

#### Title III; Subtitle A

Section 302: amends the Coastal Zone Management Act to allow the Department of Commerce to make grants for “Frequent and Chronic Coastal Flooding Mitigation and Adaptation Infrastructure Projects” (the appropriations for this program are made in section 202(a)(7)).

*This provision does not require regulatory action by Commerce, but it is likely that regulations will be needed to implement this section.*

#### Title III, Subtitle B

Section 321: requires the Department of Labor to “implement a program to assist workers in the energy sector who may be displaced” as a result of the Market Choice Act. *This provision does not require regulatory action by Labor, but it is likely that regulations will be needed to implement this section.*

## Appendix 2 - RISE Trust Fund Appropriations

### *Infrastructure*

70% to the Federal Highway Trust Fund;  
2.5% to the Airport and Airway Trust Fund;  
0.1% to the Leaking Underground Storage Trust Fund;

### *Energy Assistance*

10% to State grants for distribution to low-income households;  
3% for assistance for displaced energy workers under section 321 of the Act;  
2% to the Abandoned Mine Reclamation Fund;  
1.5% to DOE's weatherization program under EPCA;

### *Adaptation*

5% for frequent and chronic coastal flooding mitigation and adaptation infrastructure projects under new section 318 of the Coastal Zone Management Act (new CZMA Section 318 is described in MCA section 302);  
2.5% for the environmental quality incentives program under chapter 4 of subtitle D of title XII of the Food Security Act of 1985;  
0.5% for specified uses under the regional conservation partnership program under section 1271 of the Food Security Act of 1985;  
0.1% to the Reforestation Trust Fund;

### *Energy Research and Development*

0.7% for the National Energy Technology Laboratory's (NETL) carbon capture research and development program;  
0.5% for ARPA-E;  
0.5% for NETL's direct air capture program;  
0.5% for DOE research and development relating to battery energy storage;  
0.1% for assistance through cooperative agreements to decrease the environmental impact of energy-related activities pursuant to section 931 of the Energy Policy Act of 2005 (incidental bird-takings).

## Appendix 3 – 2016 EPA GHG Emissions Inventory

	EPA Inventory GHG Emissions (mmtCO <sub>2</sub> e)	Percentage of Total U.S. GHG Emissions (2016: 6511,3 mmtCO <sub>2</sub> e)
<b>Fossil Fuel Combustion Emissions by Sector (Section 9901)</b>		
Petroleum combustion	2183.1	33.53
Natural gas combustion	1476.1	22.67
Coal combustion	1306.4	20.06
<i>Non-energy use of fossil fuels</i>	112.2	1.72
<b>SUBTOTAL</b>	<b>5077.8</b>	<b>77.98</b>
<b>Industrial Process Emissions (Section 9902)</b>		
Iron and steel production and metallurgical coke production	42.3	0.65
Underground coal mining	40.7	0.63
Coal preparation and processing plants	6.3	0.1
Cement production	39.4	0.61
Petrochemical production	28.4	0.44
Lim production	12.9	0.2
Ammonia production	12.2	0.19
Aluminum production	2.7	0.04
Soda ash production	1.7	0.03
Ferroalloy production	1.8	0.03
Phosphoric acid production	1	0.02
Glass production	1.2	0.02
Zinc production	0.9	0.01
Lead production	0.5	0.01
Magnesium production and processing	1.1	0.02
Nitric acid production	10.2	0.16
Adipic acid production	7	0.11
Semiconductor manufacture	5	0.08
Electrical transmission and distribution	4.3	0.07
<b>SUBTOTAL</b>	<b>219.6</b>	<b>3.37</b>
<b>Product Use Emissions (Section 9903)</b>		
Ethanol	81.2	NA
Industrial carbonates and soda ash	11	0.17
Carbon dioxide urea	4	0.06
Nitrous oxide	4.2	0.06
Ozone depleting substances	159.1	2.44
<b>SUBTOTAL</b>	<b>259.5</b>	<b>2.73</b>
<b>Solid Biomass Combustion (Section 9904)</b>		
Wood Consumptions Emissions	161.4	NA
<b>Non-Fossil Fuel Combustion Subtotal</b>	<b>752.8</b>	<b>11.56</b>
<b>TOTAL (not including ethanol or biomass emissions)</b>	<b>5590.1</b>	<b>84.64</b>

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<sup>i</sup> U.S. Internal Revenue Service, “Quarterly Federal Excise Tax Return” (April 2018), <http://bit.ly/gastaxirs>.

<sup>ii</sup> Marc Hafstead and Paul Picciano, *Calculating Various Fuel Prices Under a Carbon Tax* (fuel price calculator tool) (Resources for the Future: 28 Nov. 2017), <http://www.rff.org/node/26571>.

<sup>iii</sup> Marc Hafstead, *Considering a Carbon-Tax Gasoline Tax Swap: Projected Energy-Related U.S. CO<sub>2</sub> Emissions Reductions under the MARKET CHOICE Act* (issue brief) (Resources for the Future: July 2018), <http://www.rff.org/research/publications/considering-carbon-tax-gasoline-tax-swap-projected-energy-related-us-co2>.

<sup>iv</sup> Robert S. Kirk and William J. Mallett, *Funding and Financing Highways and Public Transportation* (Congressional Research Service: 11 Jan. 2018), <https://fas.org/sgp/crs/misc/R44674.pdf>