

# CITY-LEVEL CLIMATE LEADERSHIP IN BOULDER: THE CLIMATE ACTION PLAN TAX



Cities across the United States are using a range of policy options to achieve their climate mitigation goals. One example is Boulder, Colorado, which has a long history of taking climate action, and is using a market-based approach to both reduce emissions and fund mitigation programs. In 2006, the city passed Initiative 202, the Climate Action Plan (CAP) Tax Initiative, which became the nation's first directly voter-approved carbon tax. The tax charges consumers based on their fossil fuel-based electricity consumption, and the revenue is used to fund energy efficiency and renewable energy programs.

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## BACKGROUND

The history of the CAP tax dates back to 2002, when the city council passed a resolution to reduce greenhouse gas emissions to 7 percent below 1990 levels by 2012, in line with the United States' targets under the Kyoto Protocol. Then in 2006, Boulder established the Climate Action Plan to provide a longer-term framework of strategies and policies to reduce the city's overall greenhouse gas emissions 80 percent below 2005 levels by 2025.<sup>1</sup> To help meet these goals, the council recommended a carbon charge to generate a consistent revenue stream for emission reduction programs, with an estimated need of \$1million-\$3 million annually.<sup>2</sup> The CAP tax was then approved in 2006 and implemented in 2007, making Boulder the first U.S. city to institute a levy on consumption of electricity with the explicit aim of reducing greenhouse gas emissions. The CAP tax now funds the city's efforts on energy efficiency in homes and buildings, switching to renewable energy, and reducing emissions associated with transportation and solid waste.<sup>3</sup>

## BOULDER'S CAP TAX IMPLEMENTATION

Electricity use in the residential and commercial building sectors is the largest contributor to Boulder's emissions. For example, in the city's 2012 greenhouse gas emissions inventory, electricity accounted for 53 percent of emissions, followed by transportation (31 percent), and natural gas (15 percent).<sup>4</sup> The CAP tax is levied on residents and businesses based on kilowatt-hours of electricity consumed and is collected on customer bills by Boulder's utility, Xcel Energy. Since 2009, the tax has been levied at the rate of \$0.0049/kWh for residential customers, \$0.0009/kWh for commercial customers, and \$0.0003/kWh for industrial customers (see Table 1). In 2015 voters elected to extend the tax at these rates through 2020.

The program provides an exemption to customers that voluntarily purchase wind power through Windsource, Xcel's local green power program.<sup>5</sup>

The city council calculated the tax rate for each sector using a "revenue recycling" model, wherein the tax rate is determined by the amount of estimated funding (abatement costs, personnel expenses, etc.) required to

**Table 1: The Tax Rate and Average Annual Electricity Tax per Sector**

SECTOR	TAX RATE IN 2007 (PER KWH)	TAX RATE (2009–PRESENT) (PER KWH)	AVERAGE ANNUAL TAX
<i>Residential</i>	\$0.0022	\$0.0049	\$21 (per household)
<i>Commercial</i>	\$0.0004	\$0.0009	\$94
<i>Industrial</i>	\$0.0002	\$0.0003	\$96,000

Source: City of Boulder, Colorado.

reduce greenhouse gas emissions from each sector.<sup>6</sup> This model recognizes the concerns of the industrial sector as well as those of low-income households. Because the industrial sector is an engine of economic growth for the city, the program design avoids penalizing the expansion of industrial facilities. With low-income households, the CAP tax design addresses regressivity by directing revenue to programs for low-income residents to help them reduce their electricity consumption, as energy consumption is often a larger portion of their spending.<sup>7</sup> For example, the CAP tax funded SmartRegs program directly subsidizes low-income and rental properties for efficiency and on-site solar generation.<sup>8</sup>

Since 2009, the city estimates the CAP tax has raised \$1.8 million in annual revenue. According to the city's 2012 Community Greenhouse Gas Inventory, emissions have remained fairly constant since 2005, despite growth in population, jobs, and economic growth.<sup>9</sup> While it is hard to calculate emission reductions directly attributable to the CAP tax, the city credits it with reducing Boulder's emissions by 50,000 metric tons between 2007 and 2015.<sup>10</sup> According to Boulder's Sustainability Manager, Jonathan Koehn, the CAP tax has decreased energy consumption, particularly in the residential sector, by changing behavior and supporting energy efficiency and renewable energy programs. Energy consumption in the commercial and industrial sector remained flat over this time.<sup>11</sup> The city hopes that new policies and programs aimed at the commercial and industrial sector that go into effect in 2016 will facilitate reductions in these sectors.<sup>12</sup>

## ENERGY SMART: A CAP TAX FUNDED PUBLIC-PRIVATE PARTNERSHIP

One example of a CAP tax-funded program is EnergySmart, a collaboration of Boulder County, the City of Boulder, the City of Longmont, Xcel Energy, and Platte River Power Authority. The program provides rebates, low interest loans, and energy advising services for residents and businesses. Xcel Energy supports EnergySmart by donating compact fluorescent light bulbs and energy-efficiency showerheads for EnergySmart customers. The residential energy advisors install these items in homes that enroll in the program at no charge to the participants. Since the program's inception in 2010, more than 13,500 housing units and 3,700 businesses have participated in the program. The residential sector has received rebates more than \$1.5 million and businesses have received more than \$3 million in rebates.<sup>13</sup>

## INTERACTION WITH COLORADO'S ENERGY AND CLIMATE POLICIES

Colorado's Renewable Portfolio Standard (RPS) requires investor-owned utilities such as Xcel Energy to produce 30 percent of electricity from renewable energy sources by 2020. As a result of the RPS mandate, Xcel Energy's use of coal and natural gas decreased between 2005 and 2012 while use of solar and wind increased.<sup>14</sup> This transition impacted the carbon intensity of Boulder's electricity, and in turn contributed to a reduction in the city's net greenhouse gas emissions.

The Cap tax and the RPS operate in tandem—the tax is improving energy efficiency and conservation on the demand side, while the state’s RPS reduces the carbon intensity of the energy system on the supply side. These two policies help with Boulder’s overall strategy to reduce greenhouse gas emissions.

## CONCLUSION

Boulder’s CAP tax demonstrates a market-based approach to city-level climate policy that works in conjunction with state and federal energy and climate policies. Boulder’s experience also points to the challenge of measuring and attributing absolute emission reductions to serve as indicators of policy success. Nevertheless, this Boulder initiative offers valuable lessons to cities exploring innovative policies to reduce emissions. It demonstrates that a local carbon pricing policy that receives community approval, is responsive to local business concerns, and interacts with both existing and new policies, can set the right signals to change behavior and help scale-up initiatives that can collectively reduce greenhouse gas emissions.

## ENDNOTES

1 “Climate Action Tax,” City of Boulder, Colorado, last accessed June 7, 2016, <https://bouldercolorado.gov/climate/climate-action-plan-cap-tax>.

2 Boulder’s Climate Action Plan. (Boulder, Colorado: 2006), [https://www-static.bouldercolorado.gov/docs/CAP\\_document\\_FINAL-1-201603211302.pdf](https://www-static.bouldercolorado.gov/docs/CAP_document_FINAL-1-201603211302.pdf).

3 “Climate Action Tax,” City of Boulder, Colorado, last accessed June 7, 2016, <https://bouldercolorado.gov/climate/climate-action-plan-cap-tax>.

4 “2012 Boulder Community Greenhouse Gas Inventory,” City of Boulder, Colorado, last accessed June 7,

2016, <https://bouldercolorado.gov/climate/boulders-community-greenhouse-gas-inventory>.

5 “Buying Green Power,” U.S. Department of Energy, last accessed, June 5, 2016, <http://apps3.eere.energy.gov/greenpower/buying/>.

6 C. Brouillard, and S.V., Pelt. 2007. A Community Takes Charge: Boulder’s Carbon Tax, Report prepared for the City of Boulder. Boulder, CO: City of Boulder.

7 Ibid.

8 “SmartRegs,” City of Boulder, Colorado, last accessed June 8, 2016, <https://bouldercolorado.gov/plan-develop/smartregs>.

9 2012 Community Greenhouse Gas Inventory Results. (Boulder, Colorado: 2012), [https://www-static.bouldercolorado.gov/docs/2012\\_GHG\\_Inventory\\_Summary\\_FINAL-1-201507271631.pdf](https://www-static.bouldercolorado.gov/docs/2012_GHG_Inventory_Summary_FINAL-1-201507271631.pdf).

10 “Climate Action Tax,” City of Boulder, Colorado, last accessed June 7, 2016, <https://bouldercolorado.gov/climate/climate-action-plan-cap-tax>.

11 Jonathan Koehn (Regional Sustainability Coordinator, Boulder, Colorado), phone interview with author, May 25, 2016.

12 2012 Community Greenhouse Gas Inventory Results. (Boulder, Colorado: 2012), [https://www-static.bouldercolorado.gov/docs/2012\\_GHG\\_Inventory\\_Summary\\_FINAL-1-201507271631.pdf](https://www-static.bouldercolorado.gov/docs/2012_GHG_Inventory_Summary_FINAL-1-201507271631.pdf).

13 EnergySmart. Last accessed June 1, 2016, <http://www.energysmartyes.com>.

14 “2012 Boulder Community Greenhouse Gas Inventory,” City of Boulder, Colorado, last accessed June 7, 2016, <https://bouldercolorado.gov/climate/boulders-community-greenhouse-gas-inventory>.



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