



*The following was written by Deborah A. Carroll and Kelly A. Stevens based on their [white paper](#), “The Impact of a Revenue Neutral Carbon Tax on Substitution of Natural Gas for Coal in the Electricity Sector,” which was supported by the Alliance for Market Solutions.*

In mid-August, Louisiana Governor John Bel Edwards [announced](#) the state’s commitment to net-zero carbon emissions by 2050. Louisiana will pursue this goal in stages, with initial reduction targets of 26–28 percent by 2025 and 40–50 percent by 2030. An important tool for Louisiana and the other 24 states committed to this goal will be a carbon tax, not least because it will foster increased utilization of natural gas.

In the last two decades, the U.S. energy sector has undergone a natural gas transformation. In Louisiana, for example, natural gas generation has increased [74 percent](#) since 2001. But there is room for improvement. Today’s natural gas combined cycle (NGCC) power plants operate only at roughly 50 percent capacity, which means there is significant untapped potential for the utility sector to use more natural gas and move the U.S. energy market in a cleaner direction.

The biggest driver behind the growth in natural gas utilization is the increasing availability of reliable natural gas at a competitive price. In large part, the growth of the U.S. natural gas market has come at the expense of coal. This is especially true in the south. Since 2010, the southern region of the United States has [experienced](#) the largest decline in coal generation and the largest increase in natural gas generation. This transition has many advantages, including the fact that substituting natural gas for coal means less smog and pollution in local communities and less CO<sub>2</sub> emissions into the atmosphere.

Lawmakers in both political parties have expressed interest in policies to support the use of natural gas, though Democrats and Republicans have differed significantly on how those policies should work. President Obama’s Clean Power Plan would have set an aggressive utilization target for NGCC plants as one of three approaches for reducing emissions, while Republicans have pursued targeted strategies such as facilitating gas pipeline permitting and liquefied natural gas exports to promote greater natural gas use abroad.

In a recent [research study](#), we examined the impact of a market-based strategy, a federal tax on carbon emissions, on NGCC utilization. The results were quite encouraging. And, such an approach would not require a heavy-handed regulatory framework that dictates how the utility sector must perform. Properly constructed, such a tax would fall on imports but would exclude exports, thereby keeping U.S. manufacturing globally competitive.

A modest carbon tax of \$20 per ton would result in a wider price differential between natural gas and coal that would lead to an increase in demand for natural gas and higher utilization rates across approximately 600 NGCC power plants in the United States. To some, this may be a



counterintuitive result since the tax would raise the price of natural gas. However, the price of its substitute, coal, would rise more, thereby making natural gas more economically attractive.

In Louisiana, we estimate that a \$20 per ton carbon tax will yield at least 1 million additional megawatt hours of natural gas generation a year. A tax of \$50 per ton would increase Louisiana's natural gas generation by 5.5 million megawatt hours, a 14 percent boost, while cutting electricity sector carbon emissions by 9 percent.

These estimates relate only to substituting natural gas for coal generation. Of course, a carbon tax would not only drive up demand for natural gas in the United States, but would also encourage other means of reducing carbon emissions, further contributing to the net-zero emissions goal of Louisiana and other states.

A carbon tax would also generate a sizeable amount of new tax revenue – at the national level, a tax of \$20 per ton will likely raise more than \$1 trillion in the next decade. This presents its own set of policy questions: Should this money be used to reduce other taxes, rebuild critical infrastructure, address the growing deficit, or address some other need? The answer matters, as each comes with winners and losers, both economically and politically.

But, given current fiscal pressures, the risk of rising income tax rates, and other demands on government, this may be both the best fiscal tool and the best climate tool we have at our disposal.

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