



# Proxy Carbon Pricing

A Tool for Fiscally Rational and Climate-Compatible Governance

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By Alison Cassady and Gwynne Taraska    April 2016

Center for American Progress



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# Introduction and summary

As the world unites to fight climate change, more and more countries are turning to carbon pricing as a means to reduce their greenhouse gas emissions. By putting a price on carbon, governments can correct the market's failure to account for the climate costs of burning fossil fuels; in so doing, carbon pricing mechanisms encourage polluters to find cleaner, lower-carbon processes. Some countries have adopted emissions trading systems and carbon taxes to establish an explicit price on carbon, while others have turned to nonmarket regulatory policies that establish an implicit price on each ton of pollution. It is reasonable to expect these trends to continue as nations endeavor to fulfill the national and global goals to curb climate change that they established through the Paris agreement in 2015.

The inevitable shift to a low-carbon future presents the world with both transition risks and transition opportunities: some projects, technologies, and investments will become increasingly costly or noncompetitive, while others will become increasingly economical. Private-sector actors are taking notice. A growing number of investors, companies, and business-minded stakeholders are concerned about “carbon asset risk”—the financial risk carried by fossil fuel-intensive assets that may become stranded and lose their value or viability in a world with stricter limits on greenhouse gas emissions.<sup>1</sup>

As fiscally rational agents, companies are beginning to anticipate a price on carbon as they evaluate the financial viability of potential long-term projects, even if they do not operate in a region governed by an explicit carbon pricing instrument. Many companies assume that a carbon price exists to help guide long-term capital investment decisions, particularly for investments involving fossil fuels. By evaluating these investments through the lens of a carbon price, companies can avoid stranded assets that they would have to retire before the end of their useful lives and mark as a loss on their balance sheets. This practice—known in the private sector as shadow carbon pricing and referred to generally in this report as proxy carbon pricing—helps soften these companies' landings in the impending low-carbon economy.

State and federal governments do not have investors. However, they do represent taxpayers and ratepayers who may have to shoulder the burden of energy infrastructure decisions and other investments of public dollars that do not make sense in a world that needs to decarbonize rapidly. Officials responsible for evaluating the environmental and economic costs and benefits of government action, such as a decision to approve a new oil pipeline or power plant, have the responsibility to consider how tougher carbon limits could affect the viability of projects and investments under consideration. A proxy carbon price is one instrument that can inform government decision-making and provide a framework within which to determine whether a particular choice makes long-term climate sense.

State and federal governments have two primary motivations to use a proxy carbon price to evaluate the long-term financial viability of their investments and decisions in a carbon-constrained world. First, government officials should be motivated by fiscal prudence and the need to prepare the United States and its local economies for the global pivot to clean energy. If a fossil fuel investment becomes stranded due to carbon constraints in the future, it will do more than harm the investor's bottom line. Unwise commitments to carbon-intensive energy infrastructure could leave the broader U.S. economy unable to adapt quickly in a world that needs to limit warming to 2 degrees Celsius above preindustrial levels—the generally recognized ceiling above which climate change could be catastrophic.

Second, government actors should be motivated by the commitment to propel the low-carbon shift domestically. Infrastructure projects—such as pipelines, power plants, and fossil fuel export terminals—have lifetimes that measure in decades. Given that such projects drive climate change cumulatively rather than on an individual basis, government officials need a tool that evaluates potential projects in the context of their consistency with a low-carbon future rather than solely in the context of their individual climate effects. A proxy carbon price could be one such tool. Government officials could apply a proxy price to a proposed project to see whether it would be financially viable in a world in which the price of fossil fuels includes the costs of climate change.

The Center for American Progress proposes that federal agencies and state governments adopt the private-sector practice of proxy carbon pricing when evaluating long-term government decisions and investments. This practice would apply to decision-making with respect to both direct government action, such as investment in transportation infrastructure, and indirect government action, such as permitting. This report focuses on energy infrastructure permitting and

how a proxy carbon price could inform government decisions about the U.S. network of pipelines, power plants, transmission lines, and other facilities that transport and generate energy.

Specifically, the report recommends that Congress enact legislation to require all federal agencies to use a proxy carbon price when reviewing permit applications for energy infrastructure. In the absence of legislation, the Obama administration or its successor should identify existing authorities and direct federal agencies to employ proxy carbon pricing. The report also recommends that state agencies, such as public utility commissions, leverage existing authorities that would allow them to use a proxy price when evaluating the long-term viability of potential projects.

The U.S. public sector could learn from the private sector's movement toward proxy pricing as a risk mitigation tool. In the absence of an explicit price on carbon, public officials need to think about how to assess the potential climate risks posed by major government investments and actions, such as approval of energy infrastructure projects. Proxy carbon pricing can help inform these decisions and shed light on their potential long-term climate implications.

# The proliferation of carbon pricing

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## Trends in the public sector

Regional, national, and subnational emissions trading systems and carbon taxes are burgeoning. (see Figure 1) In recent years, Mexico and France implemented carbon taxes; the Republic of Korea implemented a trading system; China began seven subnational trading pilots and announced plans for a national system by 2020; and Ontario and Manitoba announced plans to join the trading systems of California and Quebec, which themselves linked in 2014. These events further develop an existing landscape of carbon pricing instruments established in regions including the European Union, Japan, British Columbia, and the northeast United States.<sup>2</sup>

### What is the function of a carbon price?

Carbon pollution from the burning of fossil fuels results in significant costs to human society and the environment through the damage that climate change causes. This includes damage to health, agriculture, regional security, economies, livelihoods, and ecosystems. The price of fossil fuels often does not reflect these costs. As a result, climate change remains a cost that is external to the market; the market therefore cannot respond appropriately to incentivize the development and deployment of cleaner, lower-carbon processes. Instead, the economy consumes more fossil fuels than it would if prices accurately reflected the costs of greenhouse gas pollution.<sup>3</sup>

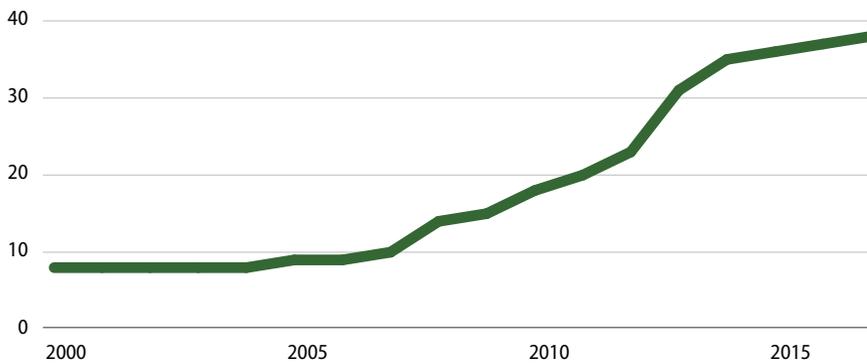
By putting a price on carbon, policymakers can help correct this market failure by ensuring that the price of fossil fuels accounts for their climate costs on a per-ton basis.

In addition to—or instead of—explicit carbon pricing instruments, some governments are implementing nonmarket regulatory policies that reduce emissions and create a so-called implicit price on carbon.<sup>4</sup> The U.S. Environmental Protection Agency, for example, is pursuing nonmarket regulations under the Clean Air Act to curb carbon pollution from new and existing power plants.<sup>5</sup>

FIGURE 1

**The number of implemented or scheduled pricing mechanisms has increased by 90 percent since January 2012**

Number of implemented or scheduled carbon pricing systems (regional, national, and subnational combined)



Source: Alexandre Kossoy and others, "State and Trends of Carbon Pricing 2015" (Washington and Utrecht, Netherlands: World Bank Group and Ecofys, 2015), available at [http://www-wds.worldbank.org/external/default/WDSP/IB/2015/09/21/090224b0830f0f31/2\\_0/Rendered/PDF/State0and0trends0of0carbon0pricing02015.pdf](http://www-wds.worldbank.org/external/default/WDSP/IB/2015/09/21/090224b0830f0f31/2_0/Rendered/PDF/State0and0trends0of0carbon0pricing02015.pdf).

In December 2015, more than 190 countries adopted the Paris climate agreement, a legally binding agreement to curb carbon pollution and build resilience to the effects of climate change. It is reasonable to expect that the trends in carbon pricing will continue as nations endeavor to reach the national and collective objectives they set in Paris. The agreement obligates countries to submit national climate goals every five years, with the expectation that the goals will become increasingly ambitious. In addition, the agreement sets collective targets to limit warming to 2 degrees Celsius over preindustrial levels and to achieve net-zero emissions in the second half of this century.<sup>6</sup>

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## Trends in the private sector

Carbon pricing is becoming increasingly prevalent in the private sector as well. In 2015, more than 1,000 companies reported that they currently or will imminently use some variety of an internal carbon price (see text box definition), with the number of companies that reported a current price nearly tripling from 2014.<sup>7</sup> Companies use internal carbon pricing for a number of reasons. Some use it to evaluate the financial and social cost of their operations' carbon emissions. Others use it as a financial risk assessment tool to inform business investment decisions.<sup>8</sup>

### Variations of internal carbon pricing in the private sector

Some companies—even those that do not operate in a region with a government-imposed carbon tax or trading system—are setting an internal price on carbon, which can take several forms.

Some companies use an internal carbon price to evaluate or stress test possible long-term investments as if there were a price on carbon emissions.<sup>12</sup> That is, they incorporate a hypothetical price on emissions—known in the private sector as a shadow carbon price and referred to generally in this report as a proxy carbon price—into their decision-making processes in order to prepare their businesses for a future that has stricter carbon limits. For example, ConocoPhillips applies an internal carbon price as part of its base-case economic analysis for new capital expenditures.<sup>13</sup>

Other companies assess an internal fee for each ton of greenhouse gas emissions or operate a trading system among divisions in order to limit companywide emissions.<sup>14</sup> Microsoft, for example, charges an internal fee to individual business groups based on their carbon emissions, the proceeds from which are invested in energy efficiency and clean energy projects.<sup>15</sup>

Whatever the form, these companies are using internal carbon pricing to mitigate and account for the potential costs of greenhouse gas emissions and climate change.

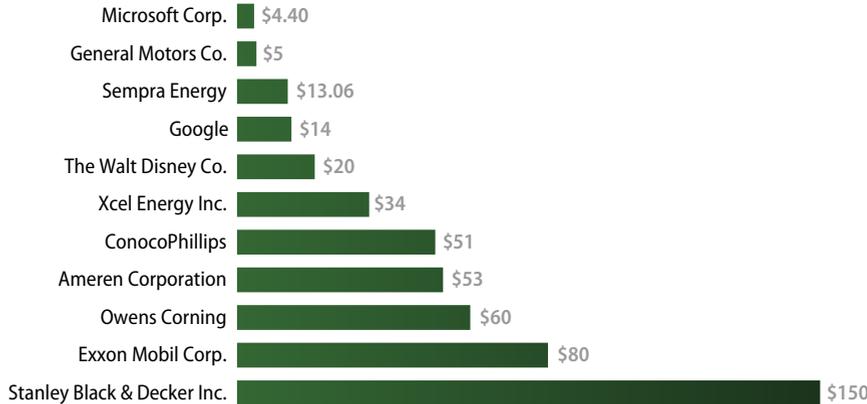
Internal carbon pricing is prevalent—mainstream, even—in the oil and gas industry. Hess Corporation, for example, says that it assumes a carbon cost for “all significant new projects as a sensitivity analysis to financials to ensure that we understand and evaluate the ramifications that potential carbon regulations may have on our

business.”<sup>9</sup> Internal carbon pricing can be found in other sectors as well, such as the financial and industrial sectors.<sup>10</sup> In the United States, major companies that report internal prices on carbon include Chevron, Colgate Palmolive, ConocoPhillips, Dow Chemical, Duke Energy, ExxonMobil, General Electric, General Motors, Goldman Sachs, Google, Microsoft, Disney, and Wells Fargo.<sup>11</sup> (see Figure 2)

Increasingly, the private sector is also openly supporting external pricing. In advance of the Paris summit, major oil and gas companies—including BP, Statoil, and Total—publicly appealed to governments to establish and link pricing systems in order to move toward a global price on carbon.<sup>16</sup> These companies said that they are already taking action to reduce emissions but need governments to provide “clear, stable, long-term, ambitious policy frameworks,” including carbon pricing. They wrote in a letter to the U.N. Framework Convention on Climate Change that this would “reduce uncertainty and help stimulate investments in the right low carbon technologies and the right resources at the right pace.”<sup>17</sup> During the Paris summit, a partnership of governments, nongovernmental organizations, and more than 70 businesses launched the Carbon Pricing Leadership Coalition, which has the objective of increasing the use of “effective carbon pricing policies that can maintain competitiveness, create jobs, encourage innovation, and deliver meaningful emissions reductions.”<sup>18</sup> This coalition, which shares a long-term goal of a “carbon price applied throughout the economy,” is working to “share experience working with carbon pricing and to expand the evidence base for the most effective carbon pricing systems and policies.”<sup>19</sup>

**FIGURE 2**  
**Selected U.S. companies with a disclosed price on carbon**

Maximum internal carbon price



Source: CDP, “Putting a price on risk: Carbon pricing in the corporate world” (2015), available at <https://www.cdp.net/CDPResults/carbon-pricing-in-the-corporate-world.pdf>.

# Opportunities for government agencies to use a proxy carbon price

At the state and federal levels, government officials make decisions every day that have long-term implications for the climate. They make enormous capital investments to power the military, allocate tax dollars to maintain the nation's transportation network, and provide permits for large energy infrastructure projects, ranging from pipelines to natural gas export terminals and power plants.

This report focuses on the federal government's responsibility—shared with the states—to oversee, manage, and approve permits for the nation's energy infrastructure. The private sector anticipates a price on carbon when it evaluates the risks associated with capital-intensive energy investments. The public sector could follow this model and apply a proxy carbon price when considering whether to approve new energy infrastructure. There are two primary motivations for all levels of government to use a proxy price to inform decisions related to energy infrastructure investment.

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## Mitigating transition risks and seizing transition opportunities

The future is unavoidably and increasingly carbon constrained. Globally, there will be a continued expansion of programs, building on trends to date, that explicitly or effectively price carbon. In the United States, the Obama administration has pursued emissions reductions through nonmarket regulations for the power sector, transportation sector, and other parts of the economy.<sup>20</sup> In the long term—although a specific time horizon is impossible to predict—it is reasonable to expect congressional inaction to give way to legislation that establishes a national carbon price. Synapse Energy Economics, for example, argues that the scientific and economic imperative to respond to climate change ultimately will lead to a carbon price as an “efficient, least-cost path to emissions reduction.”<sup>21</sup>

Climate change presents not only physical risks—in the form of climate impacts—but also so-called transition risks: As governments, investors, and companies respond to climate change by steering the world toward a low-carbon future, some projects, technologies, and investments will become increasingly costly. It is important to add, however, that the low-carbon shift also presents transition opportunities: some projects, technologies, and investments will become increasingly economical.

The inevitable pivot to clean energy is the private sector's primary motivation for incorporating a proxy price—or a range of proxy prices that represent a range of possible futures—in long-term business planning.<sup>22</sup> Proxy prices are a tool for the fiscally rational: They help minimize transition risks and seize transition opportunities. There is ample evidence, for example, of proxy carbon prices helping drive private-sector investments in energy efficiency, natural gas, and carbon capture and storage.<sup>23</sup> For instance, proxy pricing was one of the factors that encouraged Shell and SaskPower to approve carbon capture and storage projects in the Alberta oil sands and the Saskatchewan Boundary Dam Power Station, respectively.<sup>24</sup>

Just as companies assume a price on carbon in order to avoid stranded assets and capitalize on the global response to climate change, so should governments use a proxy carbon price to evaluate the long-term viability of proposed energy infrastructure projects. This will help position the national economy and local economies for the global low-carbon shift.

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## Facilitating the low-carbon shift

Proxy pricing would not only help the U.S. economy prepare for the global shift to clean energy but also help propel the shift domestically. It would be an additional tool to move the country closer to its mitigation goals. At the national level, the U.S. has committed to reduce greenhouse gas emissions 17 percent below 2005 levels by 2020 and 26 percent to 28 percent below 2005 levels by 2025.<sup>25</sup> Many states have established their own emissions reductions goals. California, for example, has established an aggressive greenhouse gas emissions target of 40 percent below 1990 levels by 2030.<sup>26</sup>

These goals should serve as a benchmark against which to measure energy policy decisions, but that is often easier said than executed in practice. A single energy infrastructure project—whether it is a pipeline, export terminal, or other proj-

ect—is unlikely to have a significant effect on the global climate on an individual basis.<sup>27</sup> Rather, these projects drive climate change cumulatively and lock in a certain amount of fossil fuel use and distribution over their lifetimes. The state and federal environmental review process traditionally focuses on the direct emissions effects of an individual energy project proposal. While this is a critical part of the permitting process, it likely is insufficient to understand how a single project would or would not affect the country’s broader climate goals.

In addition to understanding a proposed project’s potential emissions, federal and state governments need to examine whether an individual project is consistent with achieving state or federal near-term climate goals and building the foundation for steeper emissions reductions in the future. Essentially, government officials have to ask: Does this particular infrastructure project make sense in a world that needs to rapidly decarbonize?

One way to help approximate an answer to this question is to apply a financial lens to a proposed energy infrastructure project. In the same way that a private company would assume a carbon price to see how a capital investment would perform with stricter emissions limits, a government agency could apply a proxy carbon price to evaluate a proposed project within the context of an increasingly carbon-constrained world.

# Setting a proxy carbon price to inform government decisions

Government agencies have an incentive to adopt the private sector's practice of proxy pricing for the public sector. One threshold question is: At what level should the public sector set the proxy carbon price?

Adele Morris of the Brookings Institution has recommended establishing an expert committee to look at how the federal government could use an internal or proxy carbon price. One key charge of the committee would be to determine how to set an appropriate price.<sup>28</sup>

The Center for American Progress sees two potential benchmarks for a proxy carbon price.

Since 2010, the U.S. executive branch has considered the social cost of carbon—which refers to the amount of financial damage to society caused by each ton of greenhouse gas emissions—when evaluating the costs and benefits of potential regulations that affect emissions. This activity falls under Executive Order 12866, signed by President Bill Clinton in 1993, which mandates agencies to evaluate the costs and benefits of potential regulations. In recent years, the social cost of carbon has been considered in the evaluation of rulemakings such as fuel economy standards and power plant regulations.<sup>29</sup> The figures for the social cost of carbon currently in use by the U.S. government range from \$11 to \$105 per metric ton in 2015—depending on the discount rate and the projected severity of climate effects—and increase over time.<sup>30</sup>

A logical next step would be for government officials to use the social cost of carbon as a proxy price when evaluating the financial viability of potential long-term investments. The social cost of carbon has the advantage of being already established as an interagency metric and representing a range of values, which can be used as a stress test for potential investments.

Alternatively, government agencies could tie the proxy price to the price needed to drive a reduction in emissions of more than 80 percent from 2005 levels by 2050—the U.S. midcentury decarbonization goal—or a price that is consistent with the scenario of limiting warming to 2 degrees Celsius. The International Energy Agency, or IEA, estimates that applying a \$140 carbon price economy-wide by 2040 would be consistent with emissions reductions compatible with the 2-degree Celsius goal.<sup>31</sup> Government officials could use this as the basis for a proxy price when reviewing infrastructure projects.

# Using a proxy carbon price in energy infrastructure permitting decisions

This section focuses on federal permitting for energy infrastructure, the shape of which will determine if the world is able to stave off the worst effects of climate change. In 2012, the IEA examined cumulative carbon emissions from the global energy system and warned that the world’s existing power plants, factories, and other infrastructure had already “locked in” almost four-fifths of the global carbon budget—the amount of carbon pollution the world can emit before 2035 without exceeding a 2-degree Celsius increase of warming and triggering dangerous climate change.<sup>32</sup>

The U.S. government, in close coordination with the states, plays a key role in permitting many types of long-lived energy-related infrastructure, such as interstate and cross-boundary pipelines and transmission lines, fossil fuel export facilities, and power plants. Numerous federal and state agencies share permitting responsibilities, and the permitting process differs by agency and type of project. Broadly speaking, however, two stages of the permitting process offer the potential for government agencies to use their discretion to apply a proxy price to inform decision-making: during the environmental review phase and during the assessment of nonenvironmental factors.

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## Environmental review

For major federal actions, the National Environmental Policy Act, or NEPA, requires the relevant federal agency to assess a proposed project’s potential environmental effects on the human environment and examine alternatives to mitigate these effects.<sup>33</sup> NEPA is an important tool for federal agencies to inform federal decision-makers of the potential environmental consequences of a decision before that decision is made. To assess the long-term financial viability of an infrastruc-

ture project, however, federal regulators need to do more than examine the direct and indirect greenhouse gas impact of a proposed project; they also need to assess how the project would perform in a carbon-constrained world.

NEPA focuses on direct effects of the proposed project on the environment and indirect effects that are reasonably foreseeable.<sup>34</sup> As a result, the NEPA review process does not provide an obvious opportunity to evaluate the effects of a carbon price on the financial viability of a project. One recent and high-profile environmental impact statement, however, offers a lens into how federal regulators could incorporate a proxy price into the environmental assessment of certain projects.

The U.S. Department of State performed a comprehensive environmental review of TransCanada's Keystone XL pipeline, a proposed 875-mile pipeline to transport tar sands crude oil from western Canada to Nebraska, where it would then connect with pipelines to the U.S. Gulf Coast.<sup>35</sup> As part of the final supplemental environmental impact statement, the State Department conducted a comprehensive review of the petroleum market to inform decision-makers about the potential effect of the Keystone XL pipeline on oil supply and demand, oil flows, and prices.<sup>36</sup> Ostensibly, the department also could have analyzed how a carbon price would change the oil market and the Keystone XL pipeline's viability in that carbon-constrained context.

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## Nonenvironmental review of financial and other factors

The energy infrastructure permitting process differs by agency and jurisdiction, making it difficult to identify a one-size-fits-all approach to introducing a proxy price into the decision-making process. As the following examples show, however, state and federal agencies often consider nonenvironmental and financial factors when reviewing proposed infrastructure projects.

### Examples of potential federal opportunities

The U.S. Department of Energy, or DOE, has been working with Clean Line Energy Partners on a transmission project to deliver 3.5 gigawatts of renewable energy generation in midsouth and southeast Oklahoma. Using its authority under Section 1222 of the Energy Policy Act of 2005, the DOE conducted "due diligence on non-NEPA factors such as the Project's technical and financial

feasibility and whether the Project is in the public interest.”<sup>37</sup> For the Clean Line project, the DOE asked the applicant to provide a levelized cost of energy analysis that includes an assessment of the effect of a carbon price ranging from \$15 per ton in 2020 to \$60 per ton in 2040.<sup>38</sup> The DOE used its existing authority to obtain this analysis.

The presidential permitting process, which covers proposed energy facilities that cross the U.S. borders with Canada and Mexico, provides another potential forum for using a proxy price to inform decision-making. The relevant federal agencies have significant discretion when reviewing a permit application.

The U.S. Department of State, for example, has the authority and responsibility to approve or deny applications for petroleum pipelines that cross the U.S. border. The secretary of state can approve a permit application only after determining that the pipeline would serve the “national interest.”<sup>39</sup> No statute or regulation establishes criteria for the secretary’s national interest determination, which is made on behalf of the president and pursuant to the president’s constitutional authority. As a result, the secretary can consider any factors that the secretary believes are relevant to the national interest. For example, the secretary could consider the long-term financial viability of the project—as approximated by the proxy price—as one of many factors when making a determination. For the Keystone XL project, the Department of State identified several key factors as relevant in its decision, including the environmental effects of the proposed project and the relationship between the project and the country’s need to reduce reliance on fossil fuels.<sup>40</sup>

Beyond cross-border permitting, federal agencies review permit applications for domestic energy infrastructure projects and consider nonenvironmental factors. Under Section 7 of the Natural Gas Act, for example, prospective interstate gas pipelines must obtain a certificate of “public convenience and necessity” from the Federal Energy Regulatory Commission, or FERC. In addition to environmental factors, FERC looks at the possibility of overbuilding natural gas pipeline capacity, the applicant’s responsibility for unsubscribed capacity, and effects of a proposed pipeline on consumer rates.<sup>41</sup> If FERC used a proxy price as part of this analysis, the commission would be able to examine the effects of future carbon constraints on the proposed pipeline’s capacity and, therefore, its viability.

## Examples of potential state opportunities

At the state level, public utility commissions, or PUCs, at times require electric utilities to use a proxy price in investment proposals or applications for new power generation.

Minnesota law requires the Minnesota PUC to estimate the “likely range of costs of future carbon dioxide regulation on electricity generation.”<sup>42</sup> Electric utilities must use this price in all electricity resource acquisition proceedings. For example, in its “2016–2030 Upper Midwest Resource Plan,” Xcel Energy applied a \$21.50-per-ton tax as a base assumption in all of its modeling to examine the implications for resource choices. Xcel also modeled scenarios using the federal social cost of carbon.<sup>43</sup>

The Colorado PUC’s rules state that the “Commission may give consideration of the likelihood of new environmental regulations and the risk of higher future costs associated with the emission of greenhouse gases ... when it considers utility proposals to acquire additional resources during the resource acquisition period.”<sup>44</sup> In 2013, for example, the Colorado PUC required the Public Service Company of Colorado to “examine a scenario where a price is attached to carbon emissions, since fossil-fueled generation plants have long useful lives and may continue to operate in the future after the adoption of some level of carbon pricing.”<sup>45</sup> The PUC concluded that a \$20-per-ton price would be a reasonable starting value.<sup>46</sup>

# Potential paths forward

Given the number of agencies and jurisdictions involved in the energy infrastructure permitting process, it will require action by policymakers at many levels of government to integrate a proxy price into the process for reviewing energy infrastructure proposals. Both legislation and existing authorities could help policymakers advance the concepts outlined in this report.

- Congress should enact legislation that requires federal agencies with responsibility for permitting energy infrastructure projects to use a proxy carbon price to inform energy infrastructure decisions.
- Given Congress' current intransigence on climate change policy, legislation is unlikely to pass on federal proxy pricing. In the absence of legislation, the Obama administration or its successor should issue an executive order requiring federal agencies to use a proxy price when making decisions about infrastructure projects, the viability of which may be compromised in a carbon-constrained future. This executive order would complement executive orders already issued. (see text box)
- As a complementary effort, states with the responsibility to review and approve energy infrastructure permits should identify and leverage existing authorities that would allow them to use a proxy price to assess the long-term viability of projects in their jurisdiction. For example, state PUCs could update their regulations to require electric utilities and others to include a proxy price in any applications to add or modify energy-related infrastructure.

## Executive orders related to climate change and federal decision-making

A White House executive order that requires federal agencies to integrate a proxy carbon price into their energy infrastructure permitting decisions could complement existing executive orders. For example, proxy pricing when evaluating potential federal infrastructure investments—for direct investments and grants—is consistent with Executive Order 12893, which directs agencies to analyze expected costs and benefits. Specifically, this executive order, among other directives, requires federal agencies to base infrastructure investments on “systematic analysis of expected benefits and costs, including both quantitative and qualitative measures.”<sup>47</sup> It also says that agencies should consider costs and benefits “over the full life cycle of each project” to “enable informed tradeoffs among capital outlays, operating and maintenance costs, and nonmonetary costs borne by the public.”<sup>48</sup>

In addition, Executive Order 13653, signed by President Barack Obama in 2013, aims to build national climate resilience, including through the promotion of investment that takes climate risks into account. The executive order states that interagency groups “charged with coordinating and modernizing Federal processes related to the development and integration of both man-made and natural infrastructure ... shall be responsible for ensuring that climate change related risks are accounted for in such processes.”<sup>49</sup> The long-term financial risks associated with stranded fossil fuel assets arguably could fall under this framework.

A new executive order on proxy carbon pricing also could complement Executive Order 13677, which directs agencies to consider the goal of climate resilience in international development efforts and to pursue opportunities to promote low-carbon development.<sup>50</sup>

# Conclusion

Carbon pricing is gaining momentum around the world. More and more countries are imposing a price on carbon as an efficient way to cut their emissions and respond to climate change. Major multinational corporations are using a proxy carbon price in their business planning to avoid overinvestment in fossil fuel projects that could become liabilities as the world limits its carbon pollution. These corporations are working to protect their shareholders from unnecessary risks.

U.S. government officials, at both the state and federal levels, have a similar duty to protect Americans and the U.S. economy from the unnecessary risks that overcommitment to fossil fuel infrastructure poses. Several agencies at the state and federal levels share the responsibility of permitting energy infrastructure projects. This report recommends that these government officials use a proxy carbon price to measure the long-term viability of energy infrastructure projects in an increasingly carbon-constrained world. This will provide important information to regulators and key stakeholders as they examine whether a proposed project is compatible with the country's climate goals.

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The Center for American Progress is an independent, nonpartisan policy institute that is dedicated to improving the lives of all Americans, through bold, progressive ideas, as well as strong leadership and concerted action. Our aim is not just to change the conversation, but to change the country.

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As progressives, we believe America should be a land of boundless opportunity, where people can climb the ladder of economic mobility. We believe we owe it to future generations to protect the planet and promote peace and shared global prosperity.

And we believe an effective government can earn the trust of the American people, champion the common good over narrow self-interest, and harness the strength of our diversity.

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We develop new policy ideas, challenge the media to cover the issues that truly matter, and shape the national debate. With policy teams in major issue areas, American Progress can think creatively at the cross-section of traditional boundaries to develop ideas for policymakers that lead to real change. By employing an extensive communications and outreach effort that we adapt to a rapidly changing media landscape, we move our ideas aggressively in the national policy debate.

