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The Real Infrastructure Stimulus: Long-Term Investor Capital

BY DAVID HAARMEYER

Infrastructure has long been held up as the "Holy Grail" of stimulus. It is, the thinking goes, the investment that taxpayer funds can be channeled toward to miraculously generate jobs and get the economy humming. Despite the "leaky bucket" involved in moving dollars through the government bureaucracy and the likely influence of Washington's lobbying industry, it is assumed that every taxpayer dollar spent on infrastructure will generate more than a dollar in stimulus.

This is a long bet, but one that's made easier if you are spending "other people's money." Even if the multiplier is not big, or even positive, supporters say there is a benefit to repairing our crumbling roads, bridges, and waterworks. According to the American Society of Civil Engineers, the United States should sink $3.6 trillion into this undertaking. To be against stimulus in the form of publicly financed infrastructure investment is to be an austerity Scrooge and to miss the reality that these investments are prudent—adjusted for risks, their returns are positive. Yet this story fails to consider a few important real-world facts.

What if there already exists a significant pool of capital that is looking to invest in infrastructure voluntarily? Where, indeed, the capital providers not only recognize the net upside of these investments, but their very survival depends on the ability of the infrastructure service to deliver positive returns over the long run. And finally, what if this capital is long-term capital that matches the long-term lives of infrastructure assets? That is, what if the asset-liability match is perfectly aligned?

Sophisticated, long-term institutional investors such as pension funds, endowments/foundations, and insurance companies are increasingly looking beyond stocks and bonds to alternative investments to achieve higher returns, diversification, and inflation protection. Globally, these long-term investors manage more than $60 trillion in assets.

The appetite for alternative investments (e.g., private equity, hedge funds, commodities, infrastructure, and real estate) is growing rapidly. In 1995, pension funds allocated on average 5 percent of their capital to alternatives; today that share is close to 20 percent, according to Towers Watson.

Following private equity and real estate, infrastructure is increasingly seen by investors as a separate asset class, one that garners a dedicated allocation of capital. Investors can gain access either through unlisted infrastructure funds that pool capital to purchase a portfolio of assets or by investing directly if they have sufficient resources.

What is the attraction of infrastructure? The services it provides are often essential and there are few (if any) alternative providers, which creates a steady demand and thus a stable revenue stream. This essential service nature means the projects are also less affected by the ups and downs of the economy and stock market.

For institutional investors these attributes translate into stable, income-oriented returns, often inflation-linked, with low correlation with other asset classes. Because they have long economic lives and stable cash flows, infrastructure assets such as roads, bridges, and water supply facilities are well-suited to investors looking to match their long-term liabilities.

What is transformative about these investors is that they bring with them something that is absent in the present publicly financed model: clear ownership that assigns responsibility, provides an

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economic interest, and encourages good stewardship. Capital that has a fiduciary responsibility to its underlying fund contributors (e.g., pensioners, payers of insurance premiums) is productive capital—it has an incentive to address poor maintenance and user fees that don't cover costs, and thus it provides more sustainable investment and job creation than one-off, public debt, or tax-increasing schemes.

Some of the most active institutional infrastructure investors are based in Canada, Australia, and Europe, but not in the United States. These investors, such as Ontario Municipal Employees Retirement System, which invests over 15 percent of its $58 billion in assets under management in infrastructure, began first in their own backyards, but today are global.

Australia has a long tradition of institutional infrastructure investment, which took off in the 1990s with federal and state government privatizing of airports, toll roads, and gas and electricity assets. Importantly, the impetus wasn't just budgetary; it was also driven by the desire to raise service levels. Today, Australian institutional investors allocate more than $30 billion to infrastructure, including airports, seaports, toll roads, energy, and social infrastructure, with the average allocation of the eight largest infrastructure investors at about 7.4 percent, according to Colonial First State Global Asset Management.

Leo de Bever, one of the pioneers of institutional infrastructure investment and CEO of Alberta Investment Management (which manages $70 billion on behalf of pension, endowment, and government funds), noted recently that the "natural owner of an infrastructure asset is a pension or endowment fund that intends to hold the asset indefinitely." The long-term liabilities, low risk appetite, and tremendous pools of capital make these investors a perfect fit.

Thus, the upsides to relying on long-term investor capital for infrastructure are many and significant: productive infrastructure; real, long-lasting stimulus and jobs; savings for taxpayers; and stable returns for retirees and other institutional capital providers. *R*

Making the Social Cost of Carbon More Social

BY SUSAN E. DUDLEY, BRIAN F. MANNIX, AND SOFIE E. MILLER

On November 1, 2013, the White House released updated values for the "social cost of carbon" (SCC) to be used by various agencies when evaluating the benefits of emissions regulations, energy efficiency standards, renewable fuel mandates, technology subsidies, and other policies intended to mitigate global warming.

Use of a uniform SCC reflects an effort to bring some consistency to a vast portfolio of different policies aimed at reducing carbon emissions from sources ranging from power plants, to cars, to household products.

Perhaps more significant than the updated SCC values themselves is the administration's commitment to seeking public comment on them. Until now, despite President Obama's commitment to "creating an unprecedented level of openness in Government," the administration has rebuffed requests to subject the SCC and its underlying models and assumptions to public scrutiny.

President Obama has publicly committed to addressing climate change through an ambitious regulatory agenda, to be undertaken by multiple federal agencies using a wide range of existing statutory authorities. While the merits of this climate agenda as a whole are debatable, the use of a unified SCC makes sense. The SCC summarizes into a single number (more properly, a range of numbers) a vast array of information derived from scientific and economic research and modeling. All of this information is subject to disagreement and the relationships embedded in the calculation of the SCC are extraordinarily complex, presenting a daunting challenge to anyone trying to arrive at a consensus figure. (See "Pricing Carbon When We Don't Know the Right Price," Summer 2013.) Nonetheless, it is worthwhile to try. To the climate, all carbon dioxide molecules look alike, so any cost-effective collection of carbon-reduction policies must have the same implicit marginal cost. The use of a consistent set of SCC values government-wide can discourage government agencies from trying to outbid each other in their efforts to save the planet, resulting in inefficient policy choices.

Need for comment / The influential nature of the SCC value for a variety of future policies, as well as the difficulties and uncertainties of calculating the SCC, demand conscientious attention—including public comment and peer review—to the task of getting it right. Should benefits to other nations be included in the value? What is the appropriate discount rate for considering effects that may occur far in the future? What effects do different economic models and assumptions have on SCC values?

Rather than encouraging a robust discussion of these many important questions, last May the Obama administration quietly released a revised SCC as a "technical support document" (SCC-TSD) produced by an interagency working group. The Department of Energy relied on this revised SCC a month later to support a final regulation setting standards for microwave ovens. The May 2013 SCC of $41.1 per metric ton of carbon dioxide, which is almost double the value of $22.3 per metric ton that the DOE had

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used in its proposed rule, caused the department's estimate of the standard's benefits to increase by $438 million. The Landmark Legal Foundation petitioned for reconsideration, objecting that by making this change without providing the public an opportunity for comment, the DOE violated the Administrative Procedure Act, which has governed regulatory practice for over 65 years. The DOE subsequently sought comment on how it should respond to the petition.

We filed a comment with the DOE encouraging the government to solicit public comment and peer review on the updated SCC before incorporating it into rulemaking. Both the SCC-TSD and the DOE's decision to incorporate this highly influential scientific finding into its final microwave rule without the benefit of public comment lacked not only the transparency urged by the president, but procedures required by longstanding legislative and administrative directives.

President Obama has "committed to creating an unprecedented level of openness in Government" and identified three principles to achieve that commitment: transparency (which "promotes accountability by providing the public with information about what the Government is doing"), participation (which "allows members of the public to contribute ideas and expertise"), and collaboration. By releasing the SCC as a final decision in a "technical support document" and incorporating it in a final rulemaking without the opportunity for public comment, many objected that the administration not only disregarded those principles and undermined the president's commitment to open government, but violated the Administrative Procedure Act and established administrative policies.

The May SCC revision raised the estimated social cost of U.S. carbon dioxide emissions by about $100 billion per year. If the United States were using a carbon tax to address climate change, this would amount to a trillion-dollar tax increase over the next decade. Instead, that trillion dollars will be placed on the scale of cost-benefit analysis, weighing in favor of expanded regulation by the DOE, the Department of Transportation, the Environmental Protection Agency, and all of the other federal agencies engaged directly or indirectly in climate policy. The implications for the economy are troubling, particularly since—assuming they are real—few, if any, of those climate benefits will accrue to the United States.

The process of scientific inquiry revels in debate, discussion, and discourse. Public comment and peer review of how the government selected, weighed, and combined the integrated assessment climate models, what those models mean, and the appropriateness of the various assumptions and inferences made to deal with economic and scientific uncertainty will not only add credibility to future government climate policies, but encourage advances in scientific understanding of these complex issues. R

Sweeping Past Cape Wind

BY RYAN MURPHY AND SOPHIA MORALES

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Citizens of Massachusetts clearly prioritize green energy at the polls and in their lives. According to data collected in 2011 by The MassINC Polling Group, 87 percent of residents want to see more reliance on solar power, while 86 percent want to see more reliance on wind generation. According to preliminary data from the U.S. Energy Information Administration, about 6.5 percent of Massachusetts power is renewable or from other alternative sources, and the administration of Gov. Deval Patrick has set a goal of 25 percent by 2020. In Massachusetts, we even want our vices to be green: the planned Caesars Resort at Suffolk Downs "will be energy efficient, environmentally sustainable, and healthy for our employees and our guests."

The state's Cape Wind offshore wind farm project appeared to be an early innovator in green energy when it was first proposed in 2001. "We had a vision for Cape Wind because we wanted to demonstrate

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you could produce significant amounts of electricity, displace a lot of greenhouse gas emissions, create new green jobs, and start a pioneering effort to get people thinking about this offshore wind resource that we have," Jim Gordon of Cape Wind Associates wrote recently. The firm intends to construct state-of-the-art windmills off the coast of Nantucket Sound, offering a model for other New England energy producers to follow. According to its promoters, Cape Wind would be locally sourced energy, create many jobs for the Massachusetts economy, allow the state to close its dirtiest power plants, and reduce energy prices.

But many Cape Cod residents came out in full force against the project, denouncing the proposed 400-foot-tall windmills for cluttering the picturesque views of Nantucket Sound for those who own oceanfront property. To be sure, the opponents were a narrow, affluent group, but even after consideration of the costs and benefits for all stakeholders, it was very difficult to show the project would deliver overall benefits for the Massachusetts economy. The property value losses resulting from the project would not be negligible; our organization estimates that they would total about $1.35 billion. And under reasonable assumptions, tourism spending in Massachusetts would decline by $57–$123 million per year as a result of the altered Nantucket Sound seascape. But the state government eventually determined that the project would still be worth it; the $1.35-billion reduction in property values will allegedly be offset by the benefits of a sustainable energy future for Massachusetts. The project could begin construction in the coming months, though it is facing funding issues.

Leaving Cape Wind behind / While Cape Wind proponents have spent the last decade slowly answering public concerns and receiving further promises of public support, the world has left the project behind. It has become obvious that the project offers no net benefits for the state. The world of 2001 featured increasing energy prices, and coal-fired generation still comprised a significant proportion of the energy portfolio of Massachusetts. But in 2013 the alternative to Cape Wind isn't coal; it's natural gas. According to the EIA, less than 6 percent of electric power production in Massachusetts was coal-fired in 2012–2013, while in 2001 coal accounted for nearly 29 percent. Natural gas accounted for a little over 30 percent in 2001, but almost 69 percent in 2012.

Cape Wind's costs also compare unfavorably with other renewable sources and current Massachusetts electricity prices (9–10 cents per kilowatt-hour). TransCanada's Kibby Wind Farm currently sells its green energy for 10.5 cents per kWh. Quebec exports its hydroelectric power for as cheap as 6 cents. In contrast, Cape Wind has contracts in place that currently sell its power for 18.7 cents per kWh, and that price automatically increases by 3.5 percent per year. After 10 years, the price will be 26.4 cents per kWh. If this is the future of energy, the future is dystopian.

These excessive rates are just the most egregious example of the subsidies, both explicit and implicit, that Cape Wind will need to survive. Cape Wind also depends on federal tax credits. The Investment Tax Credit will likely earn Cape Wind about $780 million, and speculative estimates put the value of what it will receive from the Production Tax Credit well into the hundreds of millions of dollars. Cape Wind also has asked the federal government for a $300 million loan guarantee because it cannot find a private investor who takes its financials seriously. (For more on wind subsidies, see "The High Cost of Low-Value Wind Power," Spring 2013.)

There are many better options for green energy in New England than the Cape Wind project—including other wind projects and Canadian hydroelectric power. Massachusetts deserves better. *R*

OMB: Obscurity in Management and Budget?

BY JOSEPH ALDY, ART FRAAS, AND RANDALL LUTTER

Transparency in government has become increasingly important and is seen by many as a hallmark of the Obama administration. Unfortunately, the Office of Management and Budget is falling well short of the standards for transparency called for by the administration's Open Government Initiative.

Independent financial agencies have issued a large number of rules in recent years. Just to implement the Dodd-Frank financial reform act, they proposed 56 regulations in the year starting August 1, 2012—yet at the time they were issued, none of the rules were publicly identified as being "major." Responsibility for designating a rule as major lies not with the independent regulatory agencies, however, but with the OMB. According to Section 804 of the Congressional Review Act, a rule is "major" if the administrator of the OMB's Office of Information and Regulatory Affairs (OIRA) finds that its economic effects exceed specified thresholds. The government's silence about whether a rule being issued is major violates the intent—if not the letter—of the Congressional Review Act.

In fiscal year 2013, only one of the rules issued by the independent financial agencies provided any discussion of a major rule determination. That discussion, in the

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Swap Dealer and Major Swap Participant Recordkeeping, Reporting, and Duties Rule issued by the Commodity Futures Trading Commission, was a part of a dissent by CFTC Commissioner Scott O'Malia.

The practice of issuing major rules without identifying them publicly is not new. Only one of the 15 final major rules issued by the independent financial agencies in fiscal year 2011 contained any statement referring to a determination that the rule was major. The sole exception was an incidental revelation as part of a discussion of the rule's effective date. Further, there is no evidence that the OMB or OIRA played any role in the determination that the rules were major. Of more concern, there is no evidence that the OMB or OIRA played any role in determining that other rules issued by independent agencies were *not* major.

The OMB's approach is inconsistent with the fundamental principle that regulatory agencies need to distinguish publicly between big and small regulatory decisions to highlight rules that merit more intensive review by stakeholders and Congress. Last year, the CFTC and OIRA signed a memorandum of understanding providing for OIRA technical assistance in assessing benefits and costs of CFTC rules implementing the Dodd-Frank Act. Such interagency consultation ought to be extended to all regulations issued by the independent agencies. More generally, the OMB should require a quantitative, data-driven determination of whether important regulations are major rules. Such designations should be made public in *Federal Register* notices and included in all press releases about new rules, both proposed and final. Burying the designations in an annual report to Congress or relying on the Government Accountability Office to post the designation on a webpage weeks after promulgation of a final rule does not constitute sufficient transparency.

Regulatory practices that obscure which rules are major can be remedied by better use of authorities that Congress has granted to OIRA. Section 804 of the Congressional Review Act can and should serve as the basis for a consultation between the independent agencies and OIRA on the determination of whether a rule is major. Regular reporting of the results of such consultations and the routine identification of all major rules—both proposed and final—are necessary for the OMB to meet the standards of transparency in governance laid out by President Obama in 2009. *R*

White House Skirts the Law in Expanding Davis-Bacon

BY IKE BRANNON AND SAM BATKINS

The Obama administration did a small favor for unions last spring by declaring that land surveyors are henceforth covered by the Davis-Bacon Act, which requires that workers be paid the "prevailing" union wage when employed by a company doing construction or some other sort of manual work for the federal government.

It is perfectly understandable why the administration would do such a thing. Despite fervent union support in both of President Obama's campaigns, he has delivered few tangible favors to them. Card-check didn't happen even with a heavily Democratic House and Senate; the National Labor Relations Board's threat to keep closed Boeing's new non-unionized plant in South Carolina turned out to be an idle one, and the implementation of the Patient Protection and Affordable Care Act is giving more than a few unions heartburn about its implications.

However, the surveyor decision represents more than a mere bone being thrown to unions. Besides driving up costs for hundreds of businesses, its expansion likely violates numerous federal statutes, ignores the Administrative Procedures Act (APA), and uproots more than 50 years of precedent on how the government administers Davis-Bacon. It was also done without soliciting any input from the public or affected businesses.

Precedent / In 1962, the question arose whether Davis-Bacon covers surveyors, and the Kennedy administration concluded it did not. The secretary of labor, Arthur Goldberg, decided that preliminary survey work merely *affects* construction and is not covered by the act. Davis-Bacon would only cover surveyors if they "perform primarily manual work, such as clearing brush and sharpening stakes."

Solicitor of Labor Charles Donahue later cemented President Kennedy's policy on the matter, flatly stating that "preliminary surveys concerning construction are not subject to the Davis-Bacon Act." The policy of exempting surveyors remained for eight different administrations, but then unions began a lobbying push to have the Obama administration amend the law by fiat.

The lobbying worked. In 2013, the Labor Department responded to the International Union of Operating Engineers, with the acting deputy administrator of labor promising that "steps will be taken to ensure that … appropriate consideration will be given to survey crew workers employed by contractors and subcontractors."

The same day the Labor Department made that letter public, it issued "Memo 212," which said that Davis-Bacon would now apply "where surveying is performed immediately prior to and during actual construction." Memo 212 did not address Secretary Goldberg's determination that "preliminary survey work" would be

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exempt from Davis-Bacon. The memo also ignored any impact on small businesses and any consideration of costs and benefits.

The letter also asked contractors and subcontractors to provide data to Labor to help them determine the applicable "prevailing" union wage for the job. The problem with this is that the federal government has a process for data collection from states and private entities set forth by the Paperwork Reduction Act, which (among other things) requires the Office of Management and Budget to review the data request and ensure that it is not too burdensome. No review was completed for this data collection.

Although this might appear to be an esoteric labor law matter, members of Congress took note of the change. In July, both the Committee on Education and the Workforce and the Committee on Small Business wrote Mary Beth Maxwell, the acting deputy administrator, asking why the Labor Department overturned 50 years of precedent and requested all economic analysis that the administration had conducted regarding the change. It seems clear no such analysis exists.

The group most affected by the expansion of Davis-Bacon, the National Society of Professional Surveyors (NSPS), received notice of the change only when a Washington state member received a letter from the Labor Department. The NSPS complained that the department "made an arbitrary and capricious decision without adequate, or accurate, research and investigation." Even with regulatory guidance, agencies typically provide notice to regulated entities.

Legality / Administrative law may be an arcane and complex area, subject to countless interpretations and questions of fact, but it seems clear that the Labor Department simply ignored the APA when making the surveyor decision. The language on rulemakings could not be more precise: "General notice of proposed rulemaking shall be published in the Federal Register, unless persons subject thereto are named and either personally served or otherwise have actual notice."

The Department of Labor recently got its hand slapped by the courts for this sort of omission. Earlier in 2013, the D.C. Circuit Court of Appeals was asked in *Mortgage Bankers Association v. Department of Labor* to adjudicate whether loan officers are entitled to minimum wage and maximum hours provisions of the Fair Labor Standards Act. In 2006, the Bush administration concluded that they did not, and the Obama administration sought to reverse course. Because the Labor Department provided a definitive statement in the past upon which the private sector relied, the Court ruled unanimously that changing that position required the typical notice and comment process.

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The Labor Department is not completely ignorant of the rulemaking process. It recently issued a final rule to expand Fair Labor Standards Act (FLSA) protections to in-home health care employees. The rule will impose millions of dollars in deadweight losses and slash more than 11,000 jobs based on its own analysis, but the administration still at least went through the formality of following the APA and gave sufficient notice to the affected entities and solicited comments. The department even amended Davis-Bacon through the notice and comment process not so long ago when it clarified "site of work" definitions during the Clinton administration, which reduced Davis-Bacon coverage requirements for construction contractors and subcontractors.

Impact on small businesses / Surveying is a profession almost solely composed of small businesses. According to the U.S. Census, there are roughly a thousand establishments nationwide, with 85 percent employing fewer than 10 employees and 96 percent employing fewer than 50 employees.

Under the Regulatory Flexibility Act, agencies must determine whether a regulation has a significant economic impact on a substantial number of small entities. The expansion of Davis-Bacon will undoubtedly affect every one of those 1,000 small businesses, but the administration is silent as to whether that number is a significant one.

In its expansion of the FLSA for in-home health care providers, the Labor Department conceded the rule would have a significant economic impact on a number of small entities. While there may be no precise definition for "significant" in government-ese, for in-home care providers it translates to costs per business ranging from $1,000 to $5,200. It doesn't take much analysis to conclude that surveyors will incur wage increases costing them at least that much.

Paperwork nightmare / The costs of Davis-Bacon to taxpayers are well established. By forcing governments to pay vastly higher wages, the federal government will spend an additional $15.7 billion in the next decade because of the law, according to a study by the Congressional Budget Office. The Joint Economic Committee of Congress estimates that the law increases the cost of government construction by 22 percent—a dubious expenditure for a country supposedly in the midst of an infrastructure crisis.

Besides higher labor costs, the effort of ensuring compliance also costs the entities covered by Davis-Bacon. For instance, Davis-Bacon-related paperwork forces firms to spend more than 8.8 million hours each year completing 17 different federal forms to ensure compliance, according to the Office of Management and Budget. The estimated cost of doing that paperwork is approximately $200 million; expanding Davis-Bacon to more entities will only drive those figures higher.

Expanding Davis-Bacon to surveyors threatens to be a logistical hassle for newly covered businesses as well. The decision established that surveyors who normally spend more than half their time performing physical duties will generally satisfy the primary duty requirement. Thus, on some occasions surveyors will be covered under Davis-Bacon, and other times they will not be covered. For instance, if they arrive before construction, Davis-Bacon could apply, but if they arrive after work is complete, it might not apply. This compliance nightmare is already a familiar experience for regulated entities.

Dubious law / The rationale for the federal government paying construction workers and laborers more than they receive for other jobs has gone through several iterations since Davis-Bacon's expansion, none of which stand up to a cursory examination.

The law's existence means U.S. taxpayers pay more for government dams, roads, bridges, and buildings than would otherwise be the case. If we are to believe the mantra that we have a serious infrastructure problem in this country, such a law seems to be antithetical to solving it.

Davis-Bacon not only forces the government to pay more for labor, but it also results in higher compliance costs for businesses that do construction jobs for the government. Most of those costs are passed on to the government, of course, but the requirement also results in businesses having to hire more workers to do paperwork rather than build infrastructure. It represents socially unproductive labor.

Creating a whole new class of workers to be covered by the law makes little sense; to do it via subterfuge and in a legally dubious manner is worthy of outrage. R

The EPA Is Gambling with the Climate

BY BRIAN H. POTTS

In September, the Environmental Protection Agency proposed a rule that would require all newly constructed coal power plants in the United States to install carbon capture and storage (CCS) technology. CCS is a new technology that separates the primary greenhouse gas (carbon dioxide) from the power plant's exhaust and pipes it to underground reservoirs for storage. This proposal represents the first major step in President Obama's plan to regulate greenhouse gas emissions from power plants, which are this country's largest emissions source.

At first blush, this policy sounds like a meaningful effort to reduce carbon dioxide emissions from coal power plants, which alone represent about a third of all U.S. emissions. From a legal standpoint, however, the EPA's choice of CCS represents a gamble that could end up significantly delaying emissions reductions.

To understand why, it is necessary to consider three points. First, the future of coal is already bleak. New coal plant construction will likely wane in the coming years regardless of what the EPA does with its rule. Second, the policy is legally risky because CCS is a young and costly technology that the EPA probably does not have the authority to require. And third, if a court overturns the EPA's CCS mandate, the decision will significantly delay the next, more meaningful step in the president's plan: the regulation of existing power plants.

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Requiring CCS will not lower emissions / The EPA itself projects that requiring CCS "will result in negligible [carbon dioxide] emissions changes." That is because, even without a CCS mandate, it is unlikely that new coal power plants will be built in the United States for at least the next decade, given market conditions. If anything is built, it will be plants that burn natural gas (which are much cleaner) because natural gas prices are at historic lows and forecasted to stay that way (thanks to, among other things, the revolutionary extraction technique known as fracking). Natural gas prices would need to double or even triple for new coal plants to become viable again, with or without CCS. As such, what the EPA requires for new coal plants won't matter much from an emissions perspective.

Legally risky / Under the Clean Air Act, the EPA can only require technology that is both adequately demonstrated and can be installed at a reasonable cost. Yet a court could easily find that CCS meets neither of those criteria. In its proposal, the EPA points to a few small-scale pilot projects as proof that CCS is adequately demonstrated. However, there are no large-scale coal power plants using CCS anywhere in the world today. About two dozen large-scale CCS projects are in the planning or very early construction phase worldwide, but none are operational. In fact, Norway just recently abandoned its plan to install CCS at a large oil refinery, citing doubts over its commercial viability.

The EPA's position on cost is also tenuous. The agency has admitted that adding CCS to a new coal power plant would increase the plant's cost by about 80 percent. To put that figure in context, the most expensive environmental control technology the EPA has ever required for a new coal power plant is a sulfur dioxide scrubber, which increases the plant's cost by about 20 percent.

Indeed, the EPA's estimate of an 80 percent cost increase from CCS might be too low. One of the largest U.S. utilities, Southern Company, is working with the Department of Energy to build the first full-scale coal power plant with CCS. The demonstration project, located in Mississippi, is only about 75 percent complete and the project costs have already ballooned to about $5 billion—twice the amount Southern Company originally planned to spend.

Legal challenges to the EPA's proposal must be filed in the U.S. Court of Appeals for the District of Columbia Circuit, a court that has overturned numerous EPA rules in the last few years. The court will give the EPA some deference in determining which technologies are "adequately demonstrated" and cost effective, but it has never before found that such costs are reasonable or that technology in the construction phase is adequately demonstrated. The seminal D.C. Circuit decision on this issue, *Essex Chemical Corporation v. Ruckelshaus*, provides that to be "adequately demonstrated" a technology must "have been shown to be reasonably reliable, reasonably efficient, and … [not] exorbitantly costly." Given the current conservative leaning of the D.C. Circuit, it seems more likely than not that the EPA's CCS requirement will be overturned.

Delaying existing standards / Here's why all this matters: Section 111 of the Clean Air Act provides that the EPA cannot regulate existing power plants unless new power plants are also regulated. In other words, lawful new power plant standards are a prerequisite to regulating existing power plants.

Pursuant to President Obama's plan, the existing power plant rule is to be proposed in 2014 and finalized in 2015. The EPA is slated to finalize its new power plant proposal with the CCS requirement in September 2014. That means the D.C. Circuit's decision on CCS will come in 2015 or 2016, the exact timeframe that the EPA is planning to start regulating existing plants. If the court overturns the CCS mandate for new plants, existing-plant regulation will have to halt until the EPA replaces the new plant rule or until the U.S. Supreme Court decides the case. Either situation would delay the existing-plant standards for years.

Betting on CCS is not worth the risk. From a climate perspective, the existing-plant standards are what matter. Brad Plumer of the *Washington Post* analyzed various legal studies—including my own—and noted that the EPA's existing-plant standards could reduce power plant emissions by anywhere from 1 to 26 percent. I think the rules will end up on the lower end of that range, at about a 5 percent reduction. Regardless of the stringency, however, there is no dispute that existing-plant standards are where meaningful reductions could occur. The EPA's overzealousness in regulating the construction of future power plants means that these reductions may be significantly delayed.

The underlying rationale for the EPA's CCS policy is unclear. The EPA has already announced that it won't be requiring CCS for existing power plants, and so the policy is clearly not an effort to stand tough on new power plants in order to adequately regulate existing plants. It is possible President Obama is using the rule to make an international statement that all new coal power plants built worldwide should use CCS, but this seems like a poor reason to risk meaningful U.S. emissions reductions.

What should the EPA do? There are no other add-on control technologies like CCS. The EPA's only other option is to require that new coal power plants be built using the most efficient design, which is what the agency should do in its final rule. This position would be much more legally defensible because such plants are already operating in the United States today. Moreover, in the unlikely event that anyone builds a new coal power plant, at least the plant would be more efficient and lower-emitting than most of the plants currently operating. This change would probably have a negligible impact on emissions, and the EPA could always revise the new power plant rule and require CCS later down the line. Following this path would protect the agency's authority to regulate existing plants and would give the EPA and the industry more time to see if CCS really works and at what cost. R

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