ISSUE BRIEF

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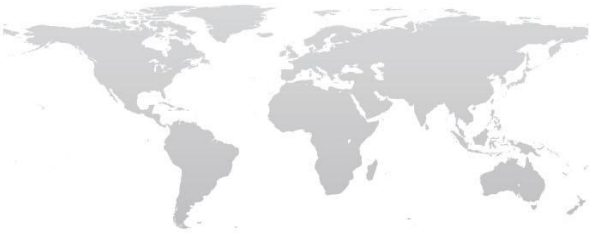
RESOURCES FOR THE FUTURE



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Introduction

In late 2007, Congress passed legislation[2] requiring—and providing $3.5 million in funding for—the US Environmental Protection Agency (EPA) to start a program for reporting of greenhouse gas (GHG) emissions from all sectors of the US economy. At the time, Democrats controlled both houses of Congress, and comprehensive climate policy at the federal level seemed possible within the near future, if not necessarily likely given the then uncertain outcome of the 2008 presidential election.

Since that legislation was passed, EPA has initiated a wide-ranging GHG reporting program that is now collecting its second year of data.[3] The result is the first and only nationwide facility-level database of GHG emissions.

But in the meantime, prospects for new federal climate legislation have dimmed significantly. The high-water mark came in 2010, with House passage of the Waxman-Markey bill,[4] which would have created a nationwide cap-and-trade system. But parallel legislation failed in the Senate. Republicans took control of the House in 2010, and while they dug in their heels against any new climate policy, political appetite for action among Democrats in Congress has diminished as well.

[1] Resident scholar, Resources for the Future.

[2] Consolidated Appropriations Act of 2008, H.R. 2764, 110th Cong. (2007) (enacted).

[3] See EPA, Greenhouse Gas Reporting Rule, Basic Information, online at http://www.epa.gov/ghgreporting/basic-info/index.html; see also Mandatory Greenhouse Gas Reporting, 40 C.F.R. § 98 (2012).

[4] American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009).

Had Congress passed comprehensive federal climate legislation, such as a cap-and-trade program or carbon tax, national reporting of facility-level GHG emissions data would have been a critical part of administering such a program. Without it, EPA's successful effort to develop a reporting program seems to be orphaned, without a policy purpose or payoff.

That view is too simplistic, however. The reporting program has meaningful informational value independent of a policy framework. Moreover, it can play an important role in support of both current and future policy at both the federal and state levels. This issue brief details the most significant of these contributions.

Background on GHG Reporting

The federal government has long tracked US GHG emissions. EPA has produced the *Inventory of US Greenhouse Gas Emissions and Sinks* for all years since 1990,[5] fulfilling US obligations under the UN Framework Convention on Climate Change. These reports are useful for measuring national and, to some extent, sectoral emissions, and ultimately for bargaining in the context of global climate talks. But they are a top-down approximation, not a bottom-up inventory. As such, they are not best suited for domestic policy. The *Inventory* documents do not indicate the GHG emissions attributable to any one facility, or even any one firm.

This information is necessary for any policy to limit GHG emissions. Under a traditional regulatory approach, knowing facility-level emissions tells emitters and regulators whether they are complying with the rules. Under cap-and-trade, such data determine how many allowances an emitter must acquire and surrender. And under a carbon tax, facility-level data determine the size of a firm's tax payment.

It is therefore not surprising that Congress in 2007 directed EPA to initiate a program for "mandatory reporting of greenhouse gas emissions above appropriate thresholds in all sectors of the economy of the United States" in the FY2008 Consolidated Appropriations Act.[6] EPA required no new authority from Congress to create such a program; Section 114(a) of the Clean Air Act gives the agency nearly unlimited authority to require emitters to "sample," "record," and "report" emissions, and to "provide such other information as the Administrator may reasonably require."[7] The 2007 legislation did, however, explicitly indicate Congress's intent for EPA to develop a GHG reporting program and supplied funding ($3.5 million) for the agency to do so.

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[5] See EPA, US Greenhouse Gas Inventory Report, available online at http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html.

[6] See FY2008 Consolidated Appropriations Act (cited in note 2).

[7] See CAA § 114(a).

On its face, nothing in the 2007 legislation funding the reporting program explicitly links it to future federal climate policy. In the context of contemporary policy discussions, however, it is hard to view it as anything other than an intentional effort to lay the groundwork for such a policy. Reported GHG emissions data would have informed Congress as it drafted legislation, giving it necessary information for setting caps, allocating allowances, and evaluating distributional consequences. Moreover, as noted above, facility-level data are necessary for any climate policy to function, and having such a program up and running in advance probably smooths the introduction of actual emissions limits.

After the 2007 Appropriations Act, EPA and Congress moved in opposite directions. As noted above, comprehensive federal climate legislation never passed Congress and reached the president's desk. Since the 2010 elections, short-term prospects for such legislation have nearly vanished. That may change in the future, but with climate a peripheral campaign issue in 2012, it is unlikely that legislation will become politically plausible for at least another election cycle.

Meanwhile, EPA has moved ahead, creating a broad national GHG reporting program. The 2007 Consolidated Appropriations Act directed EPA to propose a rule within 9 months and finalize it within 18.[8] The agency missed these deadlines, proposing the rule in April 2009[9] (about 16 months later) and finalizing it in October of the same year[10] (22 months later). The final rule was codified at 40 C.F.R. Part 98.

The resulting reporting program covers almost all sectors of the US economy. As indicated by the 2007 Appropriations Act, reporting is required only above "appropriate thresholds"—in other words, only large emitters must report. EPA adjusted the threshold during consideration of the rule, finally settling on 25,000 metric tons or more per year of GHGs (in CO_2-equivalent terms). The program requires upstream fuel refiners as well as downstream emitters to report.

Emitters were first required to report their 2010 emissions by September 2011. These data were released to the public in January 2012.[11] Emitters reported 2011 data in September 2012 and are required to do so on an ongoing annual basis.

The resulting dataset is the first bottom-up catalog of facility-level US emissions. Its importance should not be overstated—it is neither comprehensive nor entirely new. Some big emitting sectors, such as agriculture, are not covered, and emissions from the largest-emitting sector, electric power generation from fossil fuels, were already tracked under existing EPA reporting requirements. Nevertheless, most emitters included in the program are being tracked for the first

[8] See FY2008 Consolidated Appropriations Act (cited in note 2).

[9] See EPA, Greenhouse Gas Reporting Program Proposed Rule, 74 F.R. 16448 (2009).

[10] See EPA, Mandatory Reporting of Greenhouse Gases, Final Rule, 74 F.R. 56260 (2009).

[11] See EPA, Data Publication Tool, available at http://ghgdata.epa.gov/ghgp/main.do.

time. Moreover, the data in the reporting program are location-specific, making it possible to attribute emissions geographically.

Greenhouse Gas Reporting in Policy Context

The reporting program is significant in its own right. First, information itself has value: researchers and the public receive some benefit from being able to better understand emissions patterns and trends. Second, disclosure of environmental information can have real-world effects. A large body of research has developed around past environmental disclosure requirements, showing that they can affect firm behavior, stock price, and environmental outcomes. It is possible that disclosure of GHG emissions through the reporting program could have similar effects.

But the most significant role of the reporting program is likely to be its effect on policies aimed at reducing GHG emissions. As noted above, the program's roots are in congressional consideration of such a policy, and EPA's declared purpose of the reporting program is "to collect accurate and timely data on greenhouse gas (GHG) emissions that can be used to inform future policy decisions."[12] The remainder of this issue brief considers what those policy decisions are and might be.

REPORTING AND FEDERAL CLIMATE POLICY—THE CLEAN AIR ACT

Despite the failure of new climate legislation, significant federal-level policies to reduce GHG emissions have recently been put in place or come under consideration. The most important vehicle for these regulatory policies is the existing Clean Air Act (CAA), last revised substantially in 1990. In 2007, the Supreme Court ruled in *Massachusetts v. EPA* that GHGs are pollutants for CAA purposes, and that the agency therefore may regulate them (and must consider whether to do so).[13] Climate legislation considered by Congress would have stripped this authority out of the CAA, replacing it with a cap-and-trade program, but failure of those proposals—and other proposals to simply excise GHGs from the CAA—has left the statute as the primary vehicle for federal GHG regulation. Since 2009, EPA has moved to use its authority under the statute in a variety of ways, aimed at a variety of types of GHG sources.

The first and to date most significant CAA GHG regulation has been significantly tightened fuel economy standards for light- and heavy-duty vehicles. EPA finalized light vehicle standards for model years out to 2016 in 2010,[14] and for model years to 2025 in August 2012.[15] These new

[12] EPA, Greenhouse Gas Reporting Program FAQ, available online at http://www.ccdsupport.com/confluence/pages/viewpage.action?pageId=91750454.

[13] 549 US 497, 528–29 (2007).

[14] See EPA and DOT, Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, 75 FR 25324 (2010).

rules will result in significant cuts in GHG emissions from the transportation sector, according to EPA estimates.

GHG reporting will not play a role in administering the policy, however. Transportation emissions are tracked in the reporting program by reporting of upstream emissions from fuel refiners. This makes it possible to track emissions sector-wide but not at the vehicle or even fleet level. No motor vehicle even approaches the 25,000 tons/year threshold for the reporting program. This is an illustration of a larger policy problem: tracking emissions from disparate small sources is much more difficult than tracking them from concentrated large sources. Traditionally, policymakers have given up on tracking individual vehicle emissions, at least on an ongoing basis, relying instead on rules for manufacturers and periodic vehicle inspections. This remains the case for GHGs.

New Source Review

EPA's CAA regulatory program for GHGs is not limited to mobile sources, however. Under the act, new and modified stationary emissions sources are required to undergo a permitting process called New Source Review (NSR), sometimes also referred to as Prevention of Significant Deterioration (PSD). In this process, emitters must show that they will use best available control technology (BACT) to limit their emissions of identified pollutants. This determination is made on a case-by-case basis.[16] Emitters must also acquire operating permits under Title V of the CAA, though these are administrative and do not impose new substantive requirements. NSR and Title V review occur not only on construction of a new facility, but also on major modification of an existing one.

In 2010, EPA moved to require emitters undergoing NSR to demonstrate BACT for their GHG emissions. The CAA requires NSR for all facilities that emit more than 250 tons of a regulated pollutant. Since strict application of this requirement for GHGs would require many thousands of small facilities to get permits, EPA issued a so-called tailoring rule in 2010 limiting NSR requirements to large GHG emitters.[17] To date, the tailoring rule has survived legal challenge.

The rule creates a threshold similar to that for the GHG reporting program, but the two thresholds are set at different points. The latest revision of the tailoring rule requires NSR only for new facilities that will emit over 100,000 tons/year of GHGs (in CO_2-equivalent terms) or for modified

[15] See EPA and DOT, *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards* (2012), available at http://www.epa.gov/otaq/climate/documents/2017-2025-ghg-cafe-standards-frm.pdf (not yet published in the *Federal Register*).

[16] In some cases, not relevant to GHGs, emitters must meet a stricter standard of lowest achievable emission rate (LAER).

[17] See EPA, Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 75 F.R. 31514 (2010).

facilities that emit over 100,000 tons/year and will increase their emissions by at least 75,000 tons/year.[18] Compare these thresholds with the reporting program's 25,000 tons/year.

The simplest interaction between the reporting program and permitting review is that reporting program data allow EPA to easily determine whether an emitter exceeds the tailoring rule thresholds and must undergo review. The value of the reporting data in this regard is limited, however. First and most obviously, it applies only to modified sources—new sources, by definition, will not yet have reported emissions data (though it is possible that other sources of similar design would have reported data, which could be useful in making fine threshold judgments). Second, many large sources, most notably fossil fuel power plants, have continuous emissions monitoring systems (CEMS) and must already report their GHG emissions along with other data to EPA. These systems were put into place to enable regulation of other, "conventional" pollutants like sulfur dioxide.

Nevertheless, large industrial GHG emitters may not have previously reported their GHG emissions to EPA. Data from the reporting program—from both the facility in question and other, similar facilities—will help EPA make threshold determinations for permitting purposes.

The data will also likely be useful in BACT determinations themselves—sectorwide reported data allow EPA to evaluate which technologies can effectively reduce GHG emissions by comparing facilities. Since BACT is determined on a case-by-case basis, it is continually evolving, and annual data can speed that evolution, increasing regulatory pressure and perhaps private incentives to install more aggressive efficiency-improving technology.

Performance Standards

The CAA also grants EPA the authority to impose emissions performance standards on stationary sources. New source performance standards (NSPS) are set by EPA for regulated sectors, or source categories. This regulation overlaps with NSR permitting: new facilities must achieve emissions performance at least as good as the NSPS, *and* show that they employ BACT. In practice, the NSPS usually work as a floor or minimum standard, while BACT may (again, on a case-by-case basis) impose additional requirements. As with NSR permitting, NSPS also apply to modified facilities.

Beginning with a pair of settlement agreements reached in late 2010,[19] EPA has moved to set GHG NSPS for the two largest stationary source categories of GHGs: fossil-fueled electric power generators and petroleum refineries. To date, the agency has formally proposed standards only

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[18] See EPA Tailoring Rule Fact Sheet, available at http://www.epa.gov/NSR/documents/20120702fs.pdf.

[19] See Boiler GHG Settlement, Dec. 21, 2010, available at http://www.epa.gov/airquality/pdfs/boilerghgsettlement.pdf; see also Refinery GHG Settlement, Dec. 21, 2010, available at http://www.epa.gov/airquality/pdfs/refineryghgsettlement.pdf.

for the power sector, and no standards have been finalized.[20] Moreover, EPA's NSPS proposal is limited to new facilities only; modified facilities are specifically excluded, ostensibly because the agency lacks sufficient information to set GHG standards for them.

Because of these limitations, GHG reporting data have not yet played any role in setting or complying with NSPS. Even if modified power plants are eventually included, they already report their GHG emissions to EPA. NSPS will likely be issued for other sectors in the future, however, beginning with refiners. Just as with NSR permitting, GHG data will be useful in both developing and enforcing this regulation for modified sources.

The CAA also grants EPA joint authority with states to impose performance standards on *existing* sources not undergoing any modification.[21] Such existing source performance standards (ESPS) may rely more extensively on reporting program data. In the 2010 settlement agreements, EPA committed to issuing ESPS for the fossil fuel power and refining sectors, and once it has finalized NSPS for the power sector, it will be legally required to issue ESPS as well. Nevertheless, the agency has made no proposals to date and has claimed it has "no plans" to do so.[22]

When and if EPA and the states do issue ESPS, the resulting program, barring intervening congressional action, will be the first nationwide emissions-limiting regulatory program for stationary sources. The program may also be significantly more flexible than rigid NSPS or case-by-case permitting. ESPS have only rarely been issued by EPA in the past, as most pollutants from existing sources, unlike GHGs, are regulated under the National Ambient Air Quality Standards (NAAQS) program instead. Most legal analysts believe substantial program design flexibility is available to EPA and/or the states under ESPS, perhaps including forms of cap-and-trade.[23]

Whether or not EPA takes such a flexible approach, GHG reporting data will be useful in designing and administering ESPS regulation. For sectors that do not already report their GHG emissions, reporting data are likely to be used for determining compliance with the ESPS. If ESPS are set in emissions terms (a mass-based measure), the reporting data will directly measure compliance. If standards are set in efficiency/carbon intensity terms (a rate-based measure), reporting data will need to be combined with output data but remain a critical part of determining compliance.

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[20] See EPA, Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units, 77 F.R. 22392 (2012).

[21] CAA § 111(d).

[22] See Andrew Restuccia, EPA Chief Jackson: "No Plans" to Issue Climate Rules for Existing Power Plants, *The Hill*, Mar. 27, 2012, available at http://thehill.com/blogs/e2-wire/e2-wire/218433-epa-chief-jackson-no-plans-to-issue-climate-rules-for-existing-power-plants.

[23] See Gregory Wannier et al., Prevailing Academic View on Compliance Flexibility under § 111 of the Clean Air Act, RFF Discussion Paper 11-29 (2011), available at http://www.rff.org/Publications/Pages/PublicationDetails.aspx?PublicationID=21603.

Furthermore, because states are responsible for setting performance standards (and, to some extent, designing and enforcing ESPS regulation), facility-level GHG reporting program data that can be aggregated to the state level will be important. Only with these data will state regulators be able to effectively tailor design and enforcement of performance standards to local conditions, if they choose to do so. Previous national- and sector-level data reported to the United Nations Framework Convention on Climate Change (UNFCCC) are inadequate for this purpose.

The significance of ESPS regulation remains to be seen. If ESPS are imposed on the major GHG-emitting sectors, if the EPA-state implementation process goes smoothly, and if flexible compliance mechanisms are put in place, ESPS could become the key part of a true national GHG mitigation policy.[24] If that happens, data from the reporting program will play a key role. It is possible, however, that bureaucratic delay or congressional action could stall or kill the program.

REPORTING AND STATE CLIMATE POLICY

In part as a result of past federal inaction on climate, some states have moved to set up independent emissions reduction policies. The most popular such policies are aimed at increasing renewable energy generation, rather than limiting emissions directly. As such, GHG emissions data are not relevant to these policies. A few states, however, have adopted cap-and-trade policies aimed at such direct reductions. In principle, data from the federal GHG reporting program could provide important support for these state programs.

In practice, federal data have little if any value for those states that already or soon will have cap-and-trade programs. The largest group of such states is northeastern states in the Regional Greenhouse Gas Initiative (RGGI), which set up a cap-and-trade program beginning in 2009. This program is limited to emissions from the electric power sector. As noted above, fossil fuel power plants have long reported their GHG emissions independently of the new federal reporting program. Unless RGGI is expanded to other sectors, reporting program data will not be a meaningful input.

California, in contrast, is implementing an economy-wide GHG cap-and-trade system under its A.B. 32 law, passed in 2006.[25] In principle, reporting data would be useful for California. The California legislature recognized this in drafting A.B. 32, however, and charged state regulators with creating a statewide GHG reporting program. The resulting California reporting program

[24] See Nathan Richardson, Dallas Burtraw, and Art Fraas, The Return of an Old and Battle-Tested Friend: The Clean Air Act, *Resources* (2010) available at http://www.rff.org/Publications/Resources/Pages/The-Return-of-an-Old-Battle-Tested-Friend-176.aspx.

[25] See California Air Resources Board (CARB), A.B. 32 Climate Change Scoping Plan Document (2009), available at http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm.

began collecting data in 2008,[26] two years before the federal program. Indeed the California program was a valuable model for the design of the federal program. Early versions of the EPA program explicitly adopted elements of it, including its 25,000 tons/year reporting threshold.

The existence of this California program means the federal reporting program has limited value for the state's cap-and-trade system. Federal data may provide a useful check on state-reported data, though facilities are likely to use the same data collection processes for both programs. California regulators may also use federal reporting data for attribution of emissions to imported power or other goods and services in the future, though such border adjustment may face legal challenge under the Dormant Commerce Clause.

Federal reporting data are therefore likely to have limited value for states with existing cap-and-trade programs. But in the absence of federal action, other states may consider independent climate policies. Data on in-state emitters reported under the federal program reduce the administrative and start-up costs of such policies—states need not take on California's first-mover burden and set up their own independent reporting programs, since the federal program provides an off-the-shelf alternative. Real knowledge of in-state emissions at the sector and facility levels also makes designing the policy and balancing distributional trade-offs easier.

A number of states have expressed interest in or are already using EPA reporting data, including Iowa, Washington, and New Mexico, among others.[27] To some extent, these states are using data in the context of the federal programs discussed above—NSR and NSPS—for which the states share administrative responsibility with EPA. But some are using the data for independent policy purposes. Washington is building its own reporting program, calibrated with EPA data, and Iowa is using the data to identify potential emissions-reducing projects. In the current political climate, new state-level cap-and-trade programs appear unlikely. But that could change, perhaps long before the political climate at the federal level does. If so, reporting data will make starting and running such a program easier.

A RETURN TO FEDERAL CLIMATE POLICY?

While state programs may result in significant emissions reductions, and while they and EPA action under the CAA are the only viable near-term US climate policy, meaningful long-term and cost-effective emissions reductions require some form of national carbon price. GHG reporting data remain as useful for designing and administering such a future program as they were in 2007 when Congress first directed EPA to create the program.

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[26] See California EPA, Air Board Passes Two Major Building Blocks in State's Effort to Fight Global Warming, Dec. 6, 2007, available at http://www.arb.ca.gov/newsrel/nr120607.htm.

[27] See EPA, EPA s Greenhouse Gas Reporting Program (presentation), available at http://www.epa.gov/ttnchie1/conference/ei20/training/reporting.pdf.

Indeed, it will be more useful, since years of data will have been collected. Finer-grained, more accurate baselines can be drawn against which to measure policy progress. Better data also make distributional trade-offs easier to measure—and make it possible to critique lobbying and rent-seeking behaviors during the legislative process. In principle, reporting data even make it possible to set baselines and/or emissions caps at the individual facility level, though it is unclear whether doing so would yield either economic or equity benefits.

Predicting that climate policy will return to political relevance at any particular time is unwise, but it is hard to argue that it will never do so. The longer it takes, the more difficult the challenge of reducing US emissions will be—but, thanks to the reporting program, longer delays also mean richer data for program design.

Until either Congress or individual states reconsider climate policy options, researchers will lack concrete policy proposals to test and model. Nevertheless, the reporting program's information value is important. Knowing facility-level emissions enables not only economic analysis of current emissions patterns, but also, eventually, detailed analysis of trends over time. It also makes very fine-grained analysis of future policy possible. How would a hypothetical cap-and-trade program or a carbon tax affect not only the whole economy or specific sectors, but also subsectors and individual facilities? Does this change distributional or cost analysis? The answers to these questions will inform future policy.

Conclusions

The political ground shifted under the reporting program. It was envisioned as a key part of a nascent federal climate policy, but that policy fizzled while the reporting program was developed. Nevertheless, the program remains very useful. The informational and research value of the reporting data should not be minimized, especially in light of the real-world implications of past environmental disclosures programs. The data can and will support EPA regulation under the CAA, most notably of permitting of modified sources and performance standards for existing stationary sources. States are already actively using the data and are likely to become even greater consumers in the future.

Finally, the reporting data will prove important when federal climate policy again becomes politically realistic. It is not clear how long that will take, but however long it is, the reporting program may be looked at as the one lasting success from the 2007–2010 period when climate policy first seemed possible.