



DESIGNING A U.S. GREENHOUSE GAS EMISSIONS REGISTRY

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With the federal government now debating the best way to reduce greenhouse gas emissions on a national scale, policymakers must also address the need to collect the emissions data necessary to ensure the success of U.S. climate change policies. The first step in reducing emissions is to measure them. Without accurate and complete data on the sources of emissions and the amount they emit, the success of U.S. climate policies may be compromised.

In December 2007, Congress passed and President Bush signed into law the *Consolidated Appropriations Act, 2008*. The law includes a provision directing the U.S. Environmental Protection Agency to require mandatory reporting of greenhouse gas emissions from appropriate sources in all sectors of the U.S. economy. This policy brief explains the critical need for such a mandatory greenhouse gas emissions registry and reporting program and outlines key design elements to include in such a registry.

PURPOSE OF A U.S. GREENHOUSE GAS REGISTRY

Any effort to reduce greenhouse gas emissions must rely on data to track progress. An emissions registry is a database for collecting, verifying, and tracking emissions data from emitters, such as facilities or companies. Registries of different types can serve a variety of objectives and inform a variety of decision makers. Voluntary registries collect data from businesses and organizations seeking to demonstrate emissions reduction efforts, typically at the corporate level. Mandatory registries primarily serve regulatory purposes, such as tracking progress and ensuring compliance with regulatory programs, typically at the facility level. Registries also enable public disclosure, as exemplified by the public reporting of hazardous chemicals data under the Toxics Release Inventory.

In the context of greenhouse gases, any program that regulates emitters must depend on a mandatory registry that collects

SUMMARY RECOMMENDATIONS

A federal greenhouse gas emissions registry and reporting program will provide the foundation for effective climate change policies at the national, regional, state, and local levels. In the context of a cap-and-trade program, a registry is integral to the program's success. A well-designed registry should:

- Collect data at the facility level on a mandatory basis;
- Collect accurate, complete, transparent, consistent, and verified data in accordance with international standards;
- Collect emissions data from all facilities covered by a cap-and-trade program;
- Provide the infrastructure to support reporting from emission sources not regulated by a cap-and-trade program to support other policies and programs;
- Collect high-quality emissions data before a cap-and-trade program becomes operational;
- Collect information on both direct and indirect emissions;
- Harmonize with voluntary corporate-wide registries, such as the Climate Registry; and
- Make all emissions data available to the public.

data from those emitters. The U.S. Environmental Protection Agency (EPA) compiles a comprehensive national greenhouse gas inventory each year, which is critical for identifying aggregate and sectoral trends in national emissions, but does not attribute those emissions to individual parties. A program that regulates direct emitters of greenhouse gases must rely on data at the level of the direct emitter to track progress and ensure compliance.¹

For example, to manage the Acid Rain Program—a cap-and-trade system for sulfur dioxide (SO₂) emissions—EPA collects detailed SO₂ data from all regulated facilities under the program. Emissions data are measured continuously to ensure that facili-

ties do not exceed their emissions limit. Rigorous and transparent data collection documents emissions trends over time and builds public confidence in the emissions reduction program.

Currently there is only a patchwork of greenhouse gas data collection systems throughout the United States, rather than a single, comprehensive repository for emissions data. Existing data collection programs include:

- The Acid Rain Program, which requires that electric generating units regulated under the SO₂ cap-and-trade program also measure and report carbon dioxide (CO₂) emissions data to EPA;
- State-level mandatory reporting for large facilities in Maine, New Jersey, and Connecticut (and developing in California, New Mexico, Nevada, Oregon, etc.); and
- Voluntary corporate-wide registries, including the Climate Registry, the California Climate Action Registry, and the Department of Energy's 1605(b) Voluntary Reporting Program.

The majority of greenhouse gas emissions in the United States, such as emissions from industry, are not tracked at the direct emitter level.

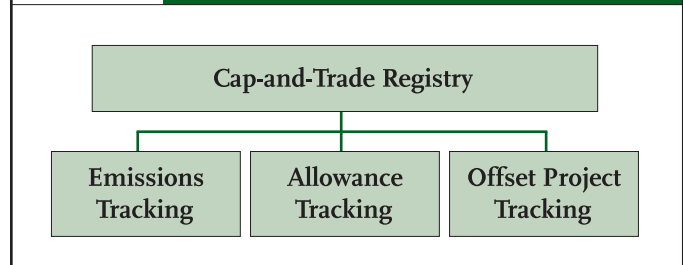
In contrast, mandatory emissions reporting is routine for other air pollutants regulated by the Clean Air Act. Facilities are required to regularly report emissions of "criteria" pollutants and hazardous air pollutants to EPA and state environmental agencies in order to track emissions and ensure compliance with regulatory programs.

In recent years, various states, including Maine, New Jersey, and Connecticut, have required facilities reporting criteria pollutant data to also include greenhouse gases in their emissions reports. California, New Mexico, Nevada, Oregon, and other states are currently developing mandatory greenhouse gas reporting requirements for large facilities in their states. A federal greenhouse gas registry and reporting program would ensure complete and consistent emissions reporting nationwide and establish a single repository for all greenhouse gas data, capable of supporting a wide range of climate change policies at the national, regional, state, and local levels.

Registry Function in a Cap-and-Trade Program

Cap-and-trade schemes have been a central focus of the recent U.S. climate policy debate. The success of a cap-and-trade program depends on the quality of the emissions data that underpins it. A cap-and-trade program must go hand in hand with an emissions registry to which affected facilities under the program regularly submit emissions data. A cap-and-trade registry must also collect and track information on emissions

FIGURE 1 Components of a Cap-and-Trade Registry



allowances and offset projects, if applicable. The focus of this policy brief is on tracking emissions only (see Figure 1).

Tracking emissions data is necessary to:

- Ensure compliance, such that each facility does not emit in excess of its allowances;
- Ensure that the emissions market functions effectively and efficiently by providing accurate and transparent data to market participants and the public;
- Allow regulators to distribute allowances properly; and
- Verify facilities' claims that they have achieved emissions reductions that may qualify for early action credit in the program.

Collecting data as early as possible is important. In order to allocate allowances and verify early action claims, regulators must rely on historical data collected prior to the beginning of the trading program or resort to estimating historical emissions based on incomplete proxy data. In the case of the Acid Rain Program, EPA began collecting emissions data two years before trading commenced and made allocation decisions based on data collected several years before trading began.²

A greenhouse gas cap-and-trade program should likewise begin collecting data from facilities before the start of the trading period. A trading program that begins in 2012 would benefit from emissions reporting beginning as early as 2009. Without high-quality historical data, allowances may be distributed incorrectly and claims of early action reductions may not be verifiable.³ The experience of the European Union's Emissions Trading Scheme illustrates the need to establish an emissions registry before implementing a greenhouse gas trading program (see Box 1).

KEY REGISTRY DESIGN ISSUES

When creating a greenhouse gas emissions registry and reporting program, policymakers must determine who will report and what data will be reported. This section outlines a few key issues to consider when designing a U.S. greenhouse gas emissions registry.

Coverage

At a minimum, the registry must collect emissions data from each facility expected to be covered by a cap-and-trade program. In a downstream cap-and-trade program, direct emitters would report their emissions to the registry. Downstream sources may include power plants and industrial facilities that exceed a certain size. Together, these facilities would likely represent about half of direct, downstream U.S. emissions (see Figure 2).

In an upstream program, providers of coal, petroleum products, natural gas, and certain chemical products, for example, would report their production or importation data to the registry. In this case, the registry may cover over 80 percent of U.S. emissions upstream,⁴ but would collect no direct emissions data downstream.

Alternatively, a cap-and-trade program may cover some sectors upstream and other sectors downstream. For example, a program may regulate the transportation sector upstream, at the point of fuel production (refineries), while regulating the electric power sector downstream, at the point of fuel combustion (power plants). In such a case, the registry would collect and track both direct emissions from downstream facilities and production data from upstream facilities.

Regardless of the design of the cap-and-trade program, the registry should be flexible enough to support mandatory reporting from additional emissions sources not regulated by the program. A single, unified national registry should be designed to support not only a federal cap-and-trade program, but also a diversity of other national, regional, state, and local emissions reduction programs all founded on the same emissions tracking system. The registry infrastructure should therefore allow for the reporting of emissions data from any type of source, both upstream and downstream, not only those covered by a particular cap-and-trade scheme.

Direct and Indirect Emissions

Each facility must report all regulated emissions under a cap-and-trade program to the registry. Covered gases may include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Reporting may include various types of direct emissions, including emissions from stationary fuel combustion, mobile fuel combustion, chemical processes, and fugitive sources.⁵

In addition to collecting direct emissions data from each reporting facility—that is, the greenhouse gases emitted

BOX 1

The Importance of Reliable Historical Data: The European Union Emissions Trading Scheme

Many EU Member States did not have rigorous data collection systems in place before setting national emissions caps and allocating allowances to emitters. Trading began in January 2005 in the absence of such data. The first release of verified emissions data did not occur until May 2006. These data revealed that the total number of allowances in the program (i.e., the cap) exceeded total emissions, such that there was not scarcity in the market. Accordingly, the market price of emissions allowances dropped dramatically (see

Figure). Since the first release of emissions data, several Member States have tightened their national caps. The experience of the EU-ETS shows that to help ensure a well-functioning market with sufficient scarcity and minimal price volatility, regulators should collect reliable emissions data before the start of a trading period. The EU-ETS also demonstrates the need for the frequent collection and public dissemination of emissions data to enhance the transparency and stability of the market.

EMISSIONS ALLOWANCE PRICE IN THE EU-ETS, 2005-2006

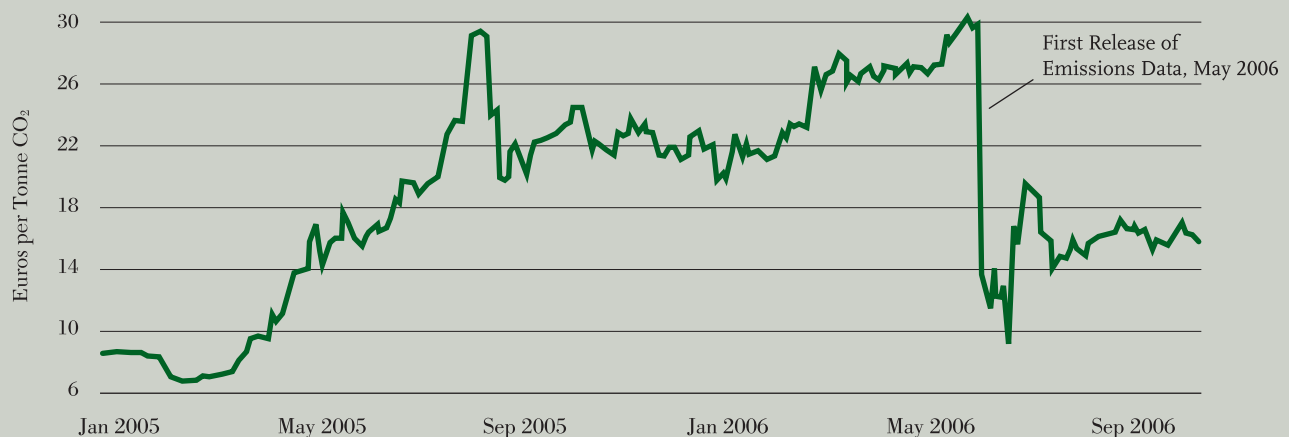
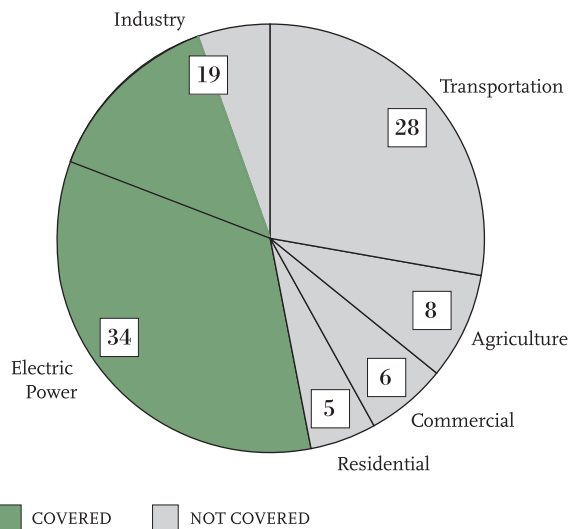


FIGURE 2 Direct U.S. Greenhouse Gas Emissions Likely Covered by Downstream Cap-and-Trade Registry



Values are percentages of total U.S. greenhouse gas emissions. 100% = 7,260 million metric tons of CO₂ equivalents (2005 data)
 Note: Industry accounts for 19% of direct U.S. emissions. Industry sector coverage in a registry is less than 19% because a reporting program would not cover small industrial facilities. The shaded portion in this graph is not precise. Exact coverage depends on the level of emissions thresholds and which industry sectors are covered.

Source: U.S. EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2005 (2007) and WRI analysis of sector coverage

on-site—policymakers could also require facilities to report indirect emissions data—that is, activities occurring on-site that generate emissions off-site. For example, a manufacturing facility that uses purchased electricity causes emissions to increase at a power plant as a result of its electricity use. The increase in direct emissions at the power plant represents the manufacturing facility’s indirect emissions.

Collecting indirect emissions data may not be useful for a cap-and-trade program, but would provide additional information on energy use and emissions throughout the economy. Electricity generation and consumption account for 34% of U.S. emissions (see Figure 2). While generation alone may be directly regulated by a cap-and-trade program, generation only provides half of the picture. With indirect emissions data, the registry could track demand-side trends in electricity use at industrial or commercial facilities that would not be captured by collecting data from electricity generators alone. Such data would provide a more complete picture of the climate impact of the electricity end-use sectors. In the industrial sector, for example, indirect emissions of carbon dioxide from electricity use are as significant as direct emissions from fuel combustion. In the commercial sector, indirect emissions from electricity

use are four times greater than direct emissions from fuel combustion (see Figure 3).

For these reasons, California’s mandatory greenhouse gas reporting program requires facilities to report their use of purchased electricity as well as purchased steam, heating, and cooling. Collecting this information will allow California to track emissions associated with electricity and energy use throughout the economy, at both the generation and end-use phases, and will ultimately help reduce emissions associated with both electricity production and consumption.

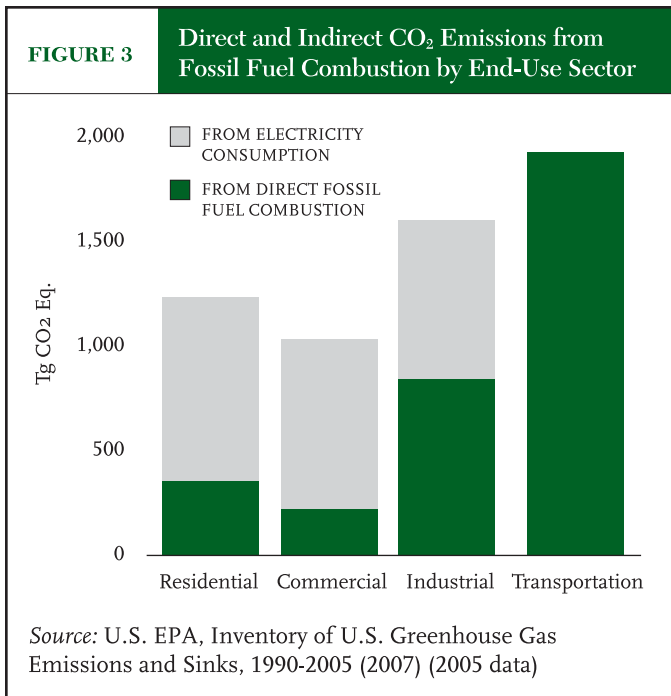
In an upstream cap-and-trade program, fuel providers, such as petroleum refineries, natural gas processing plants, and fuel importers, would report fuel production or importation data to the registry. This information is equivalent to indirect emissions data because the direct emissions occur when the fuel is combusted by the end user. In an upstream system, the design of the cap-and-trade program therefore requires the collection of data associated with indirect emissions.

If the registry collects data on indirect emissions, those data must be clearly distinguished from direct emissions data, such that direct and indirect emissions are not double counted. Double counting would overstate total emissions when both types of data are aggregated. To address this problem, the registry could collect electricity use data in kilowatt-hours or fuel production data in units of fuel without converting data into estimated emissions. Using this approach, the only reported emissions data are direct emissions. The registry could also use the accounting framework developed by the WRI/WBCSD *Greenhouse Gas Protocol Corporate Accounting and Reporting Standard* to ensure that direct and indirect emissions data remain distinct.

Emissions Monitoring and Verification

Emissions monitoring forms the foundation of the registry. Reported data should be accurate, complete, transparent, consistent, and verified. Accurate monitoring ensures that each tradable allowance in a cap-and-trade program is a true representation of the emissions quantity it claims to represent. Such assurance is fundamental in a trading program where emissions become tradable commodities with monetary value.

All sources and gases must be quantified either through direct measurement, such as continuous emissions monitoring systems (CEMS) used by the Acid Rain Program, or through calculations using emission factors and activity data, such as fuel use or production data. Monitoring guidelines may incorporate a tier system that ranks methodologies according to their level of accuracy and prescribes which tiers to use. For example, the European Union Emissions Trading Scheme (EU-ETS)



requires that reporting facilities use the tier with the highest level of accuracy unless it is technically infeasible or excessively costly, as determined by the regulatory agency. Alternatively, monitoring guidelines may specify a single quantification approach that must be used for each source.

For a cap-and-trade market to function properly, monitoring guidelines must ensure consistent measurement of emissions such that “a ton is a ton” throughout the program, whether it is emitted in Alaska or Florida and whether it is emitted from a power plant, a manufacturing facility, or a vehicle. While efforts have been made to standardize and harmonize existing voluntary and mandatory reporting, there is not a single consistent standard for emissions measurement at the federal level. A federal registry should ensure the consistent collection of emissions data across sectors and throughout the country.

Consistency with state-level efforts is central to ensuring a smooth transition to a federal trading program from emerging state and regional trading programs such as the Regional Greenhouse Gas Initiative, the Western Climate Initiative, the Midwestern Greenhouse Gas Accord, and California’s mandatory greenhouse gas scheme. Consistency would also facilitate future integration if state programs continue to develop in parallel with a federal effort. To link emissions markets, the currency of tradable allowances must be consistent between markets. Such consistency hinges on how the emissions are measured. New federal registry guidelines should build upon the work of the Climate Registry, a joint initiative of over 40 U.S. states and tribes

to measure and collect greenhouse gas data using a common standard and a unified emissions reporting system. Harmonization where possible between a federal reporting program and the Climate Registry’s protocols would facilitate linkages with state and regional programs, as well as reduce the reporting burden on businesses reporting to multiple programs.

Consistency with international standards is likewise central to future linkages with international greenhouse gas trading markets, such as the EU-ETS or emerging programs in Canada, Australia, and New Zealand. Monitoring guidelines must be harmonized between programs to ensure that tradable allowances have a common currency across borders. Consistency hinges on following a common international standard such as the Intergovernmental Panel on Climate Change’s *Guidelines for National Greenhouse Gas Inventories*.

Reported emissions data must also be verified to ensure that emissions data are accurate and complete. The EU-ETS and California’s mandatory reporting program both require independent third-party verification of emissions, such that reporting entities must contract with private firms to verify the accuracy of reported data.⁶ Alternatively, the regulatory agency may itself verify that reported data are accurate and complete. Under the Acid Rain Program, for example, EPA conducts extensive quality assurance checks on submitted data and performs periodic on-site audits of facilities.

Verification for greenhouse gases may be more complex and labor-intensive than under the Acid Rain Program because greenhouse gases involve more pollutants, more sectors, and more diversity of emissions sources. As a result, some role for private verifiers may be appropriate. A third approach to verification is for the regulatory agency to contract with private verifiers to help the agency conduct site visits and ensure data quality. In this case, reporting entities would not contract with third-party verifiers, but private verification firms would instead work for the agency.

Policymakers should consider whether to require third-party verification; whether the regulatory agency should verify reported emissions data; or whether the agency should have discretion to contract with private firms to verify emissions data. Third-party verification is typically a necessity of voluntary programs because they lack the regulatory oversight and enforcement mechanisms of mandatory programs. Third-party verification may not be necessary for mandatory programs if the regulatory agency has sufficient capacity to verify reported emissions data, either through direct agency verification or with the assistance of private firms.

Public Disclosure

All emissions data submitted to the registry should be made publicly available on the Internet in a transparent and timely fashion. Public disclosure is necessary to:

- Ensure an efficient and well-functioning emissions market by providing market participants with transparent, up-to-date information;
- Build public confidence in regulatory programs by transparently documenting compliance and emissions trends; and
- Provide public accountability, such that public perception becomes an additional driver for companies and facilities to reduce emissions.

The early volatility of the EU Emissions Trading Scheme demonstrates that for a trading program to function properly, emissions data must be published regularly (e.g., quarterly) to provide transparency and up-to-date information to market participants (see Box 1). To ensure up-to-date information, the Acid Rain Program collects and publishes hourly data from regulated units on a quarterly basis.

The experience of the Toxics Release Inventory (TRI) demonstrates the potential for public disclosure to stimulate emissions reductions. By requiring the public reporting of facility-level chemical releases, TRI is credited with encouraging voluntary reductions in those releases through public pressure and accountability.

Businesses may have concerns about publicly reporting confidential information that could cause competitive harm if published. For example, certain data may reveal information on production methods or process efficiency. For this reason, fuel input data reported under the program could be kept confidential and used only by regulators to verify the accuracy of submitted data.⁷ Emissions data are less likely to present competitive risks than input data and will provide the most benefit to the public and market participants.⁸ Under certain circumstances, regulators may consider granting specific exemptions from publicly releasing data. To the extent possible, public disclosure of data should be maximized to ensure market efficiency, public confidence, and public accountability.

Corporate-Wide Reporting

Registries that support regulatory programs typically collect data at the level of individual facilities or combustion units. Reporting at the level of a corporation or organization serves additional functions beyond supporting regulatory programs.

Because a regulatory program such as cap-and-trade directly regulates only a subset of economy-wide emissions, emissions

reduction opportunities exist outside the sectors and facilities covered by the program. Sectors not likely to be directly regulated under a cap-and-trade program include transportation, agriculture, forestry, landfills, commercial buildings, and small manufacturing (see Figure 2). Companies with emitting activities outside of the scope of direct regulation may not reduce emissions voluntarily unless they are able to credibly document their reduction efforts. A public greenhouse gas registry that collects complete, accurate, transparent, and verified emissions data allows companies to present a credible public record of their emissions. In doing so, a corporate-wide registry may stimulate emissions reductions beyond the scope of direct regulation and throughout the entire economy.

Corporate-wide reporting also serves needs that a cap-and-trade registry alone cannot fulfill. Reporting at the corporate level serves the needs of investors, consumers, and public advocates interested in corporate financial risk and corporate responsibility. To serve these purposes, reporting from only those facilities covered by a cap-and-trade program would not provide the same benefits as complete corporate-wide reporting. As a result, a mandatory facility-level registry will not eliminate the need for a corporate-wide reporting platform. Voluntary corporate-wide registries that currently exist in the United States include the Climate Registry (supported by over 40 U.S. states and tribes as well as states and provinces in Canada and Mexico), the California Climate Action Registry, and the Department of Energy's 1605(b) Voluntary Reporting Program.

Policymakers should determine how a federal mandatory registry relates to corporate-wide reporting and consider potential linkages with existing voluntary registries. Options include:

- Require mandatory corporate-wide reporting from companies in addition to facility-level reporting;
- Collect corporate-wide data on a voluntary basis through a voluntary module within the federal registry, distinct from the mandatory, facility-level module;
- Adopt and integrate an existing voluntary registry, such as the Climate Registry, as the voluntary, corporate-wide module of the federal registry;
- Collect no voluntary or corporate-level data, but allow mandatory facility-level data submitted to the registry to be exported to voluntary registries and programs; and
- Establish no connection between the federal registry and any voluntary registries and instead exist independently of all corporate-level reporting initiatives.

Investors and other stakeholders are increasingly advocating for mandates requiring publicly traded companies to disclose their financial risks related to climate change. Policymakers should consider whether mandatory corporate-level reporting should be implemented and administered by EPA, as part of its mandatory greenhouse gas registry, or by the Securities and Exchange Commission (SEC). If the SEC implements such requirements, EPA should consider how its facility-level registry intersects with new SEC rules for greenhouse gases.

If the federal registry does not collect corporate-level data, it should at a minimum allow data to be exported to other registries and programs, such as for facilities covered by a cap-and-trade scheme that are also part of reported corporate inventories. Allowing data transfer would help integrate greenhouse gas reporting and reduce the burden on reporting companies. In such a case, registries and programs importing data from the mandatory registry would need to track facility-level data. The Climate Registry is the only voluntary registry that requires data collection at the facility level. The Climate

Registry also uses the same data infrastructure and reporting software as existing EPA programs.

SUMMARY RECOMMENDATIONS

A mandatory greenhouse gas emissions registry and reporting program at the federal level will provide the foundation for effective climate change policies at the national, regional, state, and local levels. In the context of a cap-and-trade program, a registry is integral to the program’s success.

A rigorous and well-designed registry should:

- Collect data at the facility level on a mandatory basis;
- Collect accurate, complete, transparent, consistent, and verified data in accordance with rigorous monitoring and verification guidelines based on international standards;
- Collect emissions data from all facilities covered by a cap-and-trade program;

TABLE 1 Examples of Facility-Level Greenhouse Gas Reporting Programs and Proposals				
Design Issue	California Mandatory GHG Reporting	EU Emissions Trading Scheme	Lieberman-Warner America’s Climate Security Act (as of 11/29/07)	The Climate Registry’s Voluntary Program
Coverage	<ul style="list-style-type: none"> • Electric generating facilities • Cogeneration facilities • Oil refineries • Cement plants • Hydrogen plants • Electric retail providers and power marketers • Stationary combustion sources over 25,000 tonnes CO₂ per year 	<ul style="list-style-type: none"> • Combustion sources over 20 MW • Oil refineries • Coke ovens • Manufacturers of metal ore, iron & steel, cement, lime, glass, ceramics, and pulp & paper 	<ul style="list-style-type: none"> • Facilities that use over 5,000 tons of coal per year • Natural gas processing plants and importers of natural gas • Producers or importers of petroleum- or coal-based fuel • Producers or importers of greenhouse gas chemicals that will emit over 10,000 tonnes CO₂-e per year • Facilities that emit over 10,000 tonnes CO₂-e per year of HFCs as a byproduct of HCFC production • Any other facility, at the discretion of EPA (unless owned by a small business and under 10,000 tonnes CO₂-e) • Any vehicle fleet emitting over 10,000 tonnes CO₂-e, at the discretion of EPA (unless owned by a small business) 	Voluntary participants report all corporate- or organization-wide emissions at the facility level
Gases covered	• Six gases	• Six gases (Phase II; 2008-2012)	• Six gases	• Six gases
Direct emissions	<ul style="list-style-type: none"> • Stationary combustion • Process • Fugitive 	<ul style="list-style-type: none"> • Stationary combustion • Process 	<ul style="list-style-type: none"> • Stationary combustion • Process • Fugitive 	<ul style="list-style-type: none"> • Stationary combustion • Process • Fugitive • Mobile combustion
Indirect emissions	<ul style="list-style-type: none"> • Electricity use • Steam, heating, cooling use 	None	<ul style="list-style-type: none"> • Electricity use • Fossil fuel production 	<ul style="list-style-type: none"> • Electricity use • Steam, heating, cooling use
Verification	• Third-party verification required	• Third-party verification required	<ul style="list-style-type: none"> • Verification by EPA • EPA may use third-party verifiers 	• Third-party verification required
Public disclosure	<ul style="list-style-type: none"> • All emissions data public • Other data public unless confidential 	<ul style="list-style-type: none"> • All data public unless confidential 	<ul style="list-style-type: none"> • All emissions data public unless national security risk • Other data public unless security risk or confidential 	<ul style="list-style-type: none"> • All emissions data public unless confidential

- Provide the infrastructure to support reporting from emission sources not regulated by a cap-and-trade program to support other policies and programs;
- Collect high-quality emissions data before a cap-and-trade program becomes operational;
- Collect information on indirect as well as direct emissions to more completely track energy use and facilitate reductions in electricity demand;
- Integrate all U.S. greenhouse gas reporting by harmonizing to the extent possible with voluntary corporate-wide registries, such as the Climate Registry; and
- Make all emissions data available to the public.

Such a registry will serve a critical and enduring role in the U.S. effort to address climate change.

NOTES

1. Direct emissions occur at the point where emissions are released to the atmosphere, such as a smokestack or vehicle tailpipe.
2. EPA made allocation decisions based on the heat input of electric generating units rather than historical emissions data. Heat input served as a reasonable proxy for emissions because all affected facilities were power plants. In the case of greenhouse gases, no such proxy data exists that would apply to all sectors, gases, and sources. Allocation decisions would be best informed by first collecting actual emissions data from facilities (though auctioning allowances rather than allocating them for free would be less dependent on such data).
3. Mandatory emissions reporting should precede regulatory implementation of a cap-and-trade program, but need not precede passage of legislation by Congress that establishes a cap-and-trade program. Legislators may decide on an overall cap and general methods for distributing allowances before a registry is established.
4. Emissions coverage varies depending on which industries are covered and how far upstream the point of regulation occurs.
5. Fugitive emissions include uncontrolled releases not emitted through an exhaust pipe, stack, or vent, such as equipment leaks, HFC emissions from refrigeration and air conditioning equipment, and methane leaks from natural gas transport.
6. The EU-ETS relies on third-party verification to ensure consistent emissions reporting across all its Member States, each of which may not have sufficient capacity to verify reported emissions within government agencies. California's mandatory reporting program requires third-party verification in order to maintain consistency with established programs such as the EU-ETS and the voluntary California Climate Action Registry.
7. The public reporting of fuel use data is not likely to cause confidentiality concerns in the electric power sector. EPA's Emissions & Generation Resource Integrated Database (eGRID) contains public fuel use and CO₂ emissions data at the power plant level.
8. For example, facility-level CO₂ emissions data are publicly available for facilities covered by the EU-ETS and the U.S. Acid Rain Program.

ABOUT THE AUTHOR

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ACKNOWLEDGMENTS

The author is grateful to Suzie Kocchi (U.S. Environmental Protection Agency), Doug Thompson and Rajinder Sahota (California Air Resources Board), Michelle Manion (NES-CAUM), and David Thornton (Minnesota Pollution Control Agency) for reviewing earlier drafts of this publication. He would also like to thank John Larsen, Alex Perera, Lydia Weiss, Jonathan Pershing, Jennifer Layke, Pankaj Bhatia, Greg Fuhs, and Kate Zyla of WRI for their feedback.

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