Environmental Leadership Programs:

Toward an Initial Assessment

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Abstract

Over the past decade, the U.S. EPA and states have developed Environmental Leadership Programs (ELPs) to recognize and encourage facilities with strong environmental performance. ELPs offer benefits, including recognition and limited regulatory flexibility, to facilities that demonstrate that they comply with environmental regulations, set environmental performance goals that go beyond compliance, and report to agencies about their progress in meeting those goals. This article provides a descriptive account of the 18 most longstanding ELPs. We find that in addition to improving environmental quality, agencies seek to use these programs to achieve social goals such as reducing costs, improving relationships, and changing culture at facilities and agencies. Agencies collect significant amounts of information from participants about their activities under the auspices of these programs, but generally this information is not useful for program evaluation purposes. Data typically lack aggregational and inferential value: they do not share critical features that would allow them to be added up across all members and used in empirical analysis to assess program efficacy. Data weaknesses are significant, if not even surprising, given the aspirations for ELPs to facilitate policy learning and the claims that ELPs are delivering important benefits. This article charts the course for the kind of data collection and analysis that will needed to understand whether ELPs contribute to the goals agencies have set for them.

Environmental Leadership Programs: Toward an Initial Assessment[*]

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The U.S. environmental regulatory system has contributed to significant improvements in the quality of air, water, and land over the past several decades.[1] Increasingly, however, this system elicits criticisms for a number of failings. Some longstanding environmental problems targeted by regulation continue to persist, while new problems, such as global climate change, grow ever more serious.[2] In addition, many observers perceive that the current system is excessively costly, rigid, and adversarial.[3] Others argue that existing environmental policy fails

[*] The authors are grateful for the cooperation they received from numerous federal and state officials responsible for administering environmental leadership programs. They would also like to acknowledge helpful comments on this project from Jay Benforado, Hetal Jain, Chuck Kent, Tim Larson, Eric Ruder, Andy Teplitzky, and Allen White, as well as the participants in a workshop on "Performance-based Environmental Programs: Better Ways to Measure and Communicate Results" sponsored by the U.S. Environmental Protection Agency, the Multi-State Working Group on Environmental Performance, and the Environmental Council of the States and held at Harvard University's John F. Kennedy School of Government. Angela Helman at Industrial Economics provided access to data on state programs and much helpful guidance. Although the research described in this article has been funded in part by the United States Environmental Protection Agency contract EP-W-05-047 to the authors, it has not been subject to the Agency's review and therefore does not necessarily reflect the views of the Agency, and no official endorsement should be inferred. The analysis and views expressed herein are the authors' alone and not those of EPA, Industrial Economics, nor the institutions with which the authors are affiliated.

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[1] CLARENCE J. DAVIES & JAN MAZUREK, POLLUTION CONTROL IN THE UNITED STATES: EVALUATING THE SYSTEM (1998).

[2] EPA'S 2007 REPORT ON THE ENVIRONMENT: HIGHLIGHTS OF NATIONAL TRENDS. PEER REVIEW AND PUBLIC COMMENT DRAFT, *available at* http://www.epa.gov/indicators/docs/roe-hd-draft-08-2007.pdf (last visited October 11, 2007).

[3] *See* MARIAN R. CHERTOW & DANIEL C. ESTY, THINKING ECOLOGICALLY: THE NEXT GENERATION OF ENVIRONMENTAL POLICY (1997), NEIL GUNNINGHAM & PETER GRABOWSKY, SMART REGULATION: DESIGNING ENVIRONMENTAL POLICY (1998), Eric W. Orts, *Reflexive Environmental Law*, 89 NW. U. L. REV. 1227, 1231 (1995), Richard B. Stewart, *A New Generation of Environmental Regulation?*, 29 CAP. U. L. REV. 21114 (2001).

to motivate firms to find new ways to improve their environmental performance and has become largely irrelevant to business activities such as resource consumption and end-of-life product disposal that can have profound environmental impacts.[4] As a practical matter, the existing system may simply be too large to manage: nearly 400,000 facilities are subject to hazardous waste permitting rules and more than 150,000 facilities require air permits.[5]

In response to the limitations and challenges of traditional environmental regulation, federal and state environmental agencies are experimenting with voluntary programs as tools to achieve overarching environmental policy goals.[6] The term "voluntary program" can mean many things. It can mean private sector programs to improve environmental performance beyond what regulations require or in areas not addressed by regulation at all.[7] The term "voluntary program" can also refer to non-mandatory, government-sponsored initiatives seeking to encourage facilities to go beyond compliance. At the federal level, the U.S. EPA has established dozens of voluntary programs that are "designed to motivate people and organizations to take actions, not required by regulation, that benefit the environment."[8]

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[4] *See* DANIEL J. FIORINO, THE NEW ENVIRONMENTAL REGULATION (2006).

[5] EPA, ENFORCEMENT & COMPLIANCE HISTORY ONLINE (ECHO), *available at* http://www.epa-echo.gov/echo/compliance_report.html (last visited Dec. 20, 2007).

[6] EPA, EVALUATION REPORT: PARTNERSHIP PROGRAMS MAY EXPAND EPA'S INFLUENCE (Office of the Inspector General, Report No. 2007-P-00003, 2006), FIORINO, *supra* note 4, RICHARD D. MORGENSTERN AND WILLIAM A. PIZER, REALITY CHECK: THE NATURE AND PERFORMANCE OF VOLUNTARY ENVIRONMENTAL PROGRAMS IN THE UNITED STATES, EUROPE, AND JAPAN (2007).

[7] ASEEM PRAKASH & MATTHEW POTOSKI, THE VOLUNTARY ENVIRONMENTALISTS: GREEN CLUBS, ISO 14001, AND VOLUNTARY ENVIRONMENTAL REGULATIONS (2006).

[8] EPA,VOLUNTARY PROGRAMS COULD BENEFIT FROM INTERNAL POLICY CONTROLS AND A SYSTEMATIC MANAGEMENT APPROACH 4 (2007), *quoting from* EPA Charter for Coordinating and Managing EPA's Voluntary Programs. These government initiatives fall into five general types: educational, financial assistance, recognition, product certification, or partnerships. CARY COGLIANESE & JENNIFER NASH, BEYOND COMPLIANCE: BUSINESS DECISION MAKING AND THE US EPA'S PERFORMANCE TRACK 107 (2006) [hereinafter BEYOND COMPLIANCE].

This article reports findings from an empirical study of a certain kind of partnership program which EPA and states have called environmental leadership programs (ELPs).[9] ELPs are voluntary partnerships between regulatory agencies and private-sector facilities,[10] though the government agencies generally set the terms of these partnerships. In other words, the government establishes criteria that facilities must meet in order to qualify for membership in the partnership program. Businesses that are interested in participating in ELPs apply for membership, and then, acting a bit like a college admissions department, the government decides which businesses can join the ELP and receive the benefits government bestows upon ELP members.[11]

ELPs are seen to share a common set of entry criteria and requirements for members.[12] In order to participate in most such programs, facilities must comply with environmental regulations—but compliance alone is not sufficient. ELPs call on facilities to set environmental performance goals that go beyond what regulations require in areas that regulations address explicitly, such as releases of sulfur dioxide. They also call on facilities to set goals in areas that environmental regulations have not yet generally addressed, such as energy use, water use, the quantity of solid waste generated, or habitat loss. Businesses must report to agencies on a

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[9] *See, e.g.,* Mark Stoughton & Elizabeth Levy, *Voluntary Facility-level Sustainability Performance Reporting: Current Status, Relationship to Organization-level Reporting, and Principles for Progress*, 21 PACE ENVTL. L. REV. 243, 266 n. 5, 269 n. 10 (2004) (describing environmental leadership programs); George B. Wyeth, *"Standard" and "Alternative" Environmental Protection: The Changing Role of Environmental Agencies*, 31 WM. & MARY ENVTL. L. & POL'Y REV. 5, 41-43 (2006) (describing features of leadership programs). These programs are also sometimes called performance-based environmental programs or performance tracking programs. To the extent that these alternative terms connote that these programs require businesses to achieve any specified level of environmental performance, they are a misnomer. Even the label "leadership" could be misleading, if it is taken to mean that members of these programs necessarily have achieved levels of environmental performance superior to their industry peers. For our purposes, we use the leadership label simply as a concise way to refer to programs exhibiting the kinds of characteristics discussed in the text.

[10] Nonprofit and government organizations can also participate in many of these programs, however due to the fact that most members are business entities, we use terms like "private-sector facilities" or "businesses" to refer to the members of ELPs, simply for the ease of our readers.

[11] FIORINO, *supra* note 4, at 133-149, 171-73; PRAKASH & POTOSKI, *supra* note 7.

[12] The criteria mentioned in this paragraph are described in more detail in Parts II.B & II.C *infra*.

regular basis about their progress in meeting those goals, and in some cases they must share performance information with surrounding communities as well. Most ELPs require facilities to implement some form of environmental management system (EMS), and some require that facilities receive external certification that their EMS meets prevailing standards. In return for meeting these requirements, agencies recognize members and in some cases offer additional benefits such as limited regulatory flexibility or less frequent inspections.

The U.S. EPA's National Environmental Performance Track, established in 2000, exemplifies what we mean by an ELP.[13] Over 500 facilities belong to this national program that recognizes and rewards businesses that meet specific membership requirements established by the agency.[14] Member facilities must have a demonstrated record of complying with environmental laws, a commitment to go beyond compliance with these laws, an independently certified EMS, and a pattern of outreach to their local communities. In return, EPA provides these facilities with positive publicity, opportunities for networking with agency officials and business leaders, and certain types of relief from regulatory and administrative burdens. Performance Track is hardly alone; 22 states have implemented programs in the late 1990s or early 2000s that share many of the same features as Performance Track.[15] According to EPA, "Performance Track and its state counterparts aim to transform the way that government and industry address environmental issues and solve problems."[16]

[13] *See* EPA, NATIONAL ENVIRONMENTAL PERFORMANCE TRACK, *available at* http://www.epa.gov/performancetrack/ (last visited Mar. 14, 2008). For a description of Performance Track, see Appendix 1.
[14] *See* EPA, MEMBERS, *available at* https://yosemite.epa.gov/opei/ptrack.nsf//faMembers?readform (last visited Mar. 14, 2008).
[15] Several of these state programs were actually established before EPA created its Performance Track. FIORINO, *supra* note 4, at 172. Industrial Economics, Inc. provided us with a list of state ELPs currently in operation. The list included basic information about each program including the program's name, start date, and number of members. For a description of each state program, see EPA, STATE PERFORMANCE-BASED PROGRAM DIRECTORY (2007).
[16] U.S. Environmental Protection Agency, Performance Track Fifth Annual Progress Report 31 (2007).

Over the past decade, ELPs have won considerable support from government officials, business leaders, and even scholars.[17] EPA Administrator Stephen Johnson has declared that Performance Track "has proven to be an important catalyst for helping EPA change the way businesses look at their role in environmental protection" and that it is "delivering impressive environmental results."[18] Both Performance Track and the Wisconsin Green Tier programs have been recognized by Harvard University's Kennedy School of Government as among the nation's most noteworthy governmental innovations.[19] Wisconsin Governor Jim Doyle described his state's Green Tier program as "essential to demonstrating that environmental results and economic gains can be achieved together."[20]

ELPs have now matured into established programs. ELPs in 17 states have been in place for five years or more, and eight have recently or will soon mark their 10-year anniversaries.[21] As such, the data these programs have been collecting about their members' activities over the years might now be useful in evaluating the extent to which ELPs succeed in improving the

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[17] *See, e.g.*, FIORINO, *supra* note 149 (2006) (noting that EPA's Performance Track has been "endorsed strongly by administrators Whitman, Leavitt, and Johnson"); U.S. Environmental Protection Agency, What Members Have to Say About Performance Track (2006), *available at* http://www.epa.gov/perftrac/downloads/MemberTestimonials3_06.pdf (providing testimonials for Performance Track from over ten industry representatives); Marc Allen Eisner, *Corporate Environmentalism, Regulatory Reform, and Industry Self-Regulation: Toward Genuine Regulatory Reinvention in the United States*, 17 GOVERNANCE 145, 155 (2004) (noting that "if properly designed and implemented one would expect that this experiment could produce some positive results" and could help "provide a context for innovations that could be disseminated across the corporate economy"); Dennis D. Hirsch, *Second Generation Policy and the New Economy*, 29 CAP. U.L. REV. 1, 646 (2001) (suggesting "that Oregon's performance track program is functioning as a bridge between the environmental regulatory system and a new form of industrial production"); Alfred R. Light, *Environmental Federalism in the United States and the European Union: A Harmonic Convergence?*, 15 ST. THOMAS L. REV. 321, 341 (2002) (characterizing EPA's Performance Track as "[a] symbol of the new 'second generation' approach" to environmental policy).

[18] Stephen Johnson, Remarks Delivered at National Environmental Performance Track Awards Dinner, Atlanta, Georgia, May 9, 2006, *available at* http://yosemite.epa.gov/opa/admpress.nsf/8d49f7ad4bbcf4ef852573590040b7f6/d38cc2f12730a7188525716c006f0388!OpenDocument

[19] U.S. Environmental Protection Agency, Three EPA Programs Nominated for Government "Oscars" (March 30, 2006), *available at* http://yosemite.epa.gov/opa/admpress.nsf/8822edaadaba0243852572a000656841/09d2dfd224b8298f852571410059871a!OpenDocument; Wisconsin Department of Natural Resources, News Release: Wisconsin's Green Tier Program finalist for Harvard Innovation Award (May 4, 2006), *available at* http://dnr.wi.gov/org/caer/cea/environmental/media/pressreleases/20060504pressrelease.pdf.

[20] Wisconsin Department of Natural Resources, *supra* note 19.

[21] *Id.*

environmental protection system -- as well as for understanding how government can communicate with the public about the successes these programs have achieved. After all, one of the purported benefits of ELPs is that they can enhance information available to regulators and the public.[22]

Surprisingly, ELPs have yet to be subject to any formal empirical evaluation. To date, scholarly work has mainly just described the design of a few of these programs or considered why certain businesses participate in them.[23] For example, one of the first academic discussions of ELPs consisted of two case studies of state ELPs: Wisconsin's Environmental Cooperation Pilot Program (a predecessor to the state's Green Tier program) and Oregon's Green Permits program.[24] A subsequent study summarized the features of ELPs in six additional states, raising questions about the membership criteria these programs used.[25] A related study has considered

[22] *See, e.g.*, David Monsma, *Sustainable Development and the Global Economy: New Systems in Environmental Managemen*t, 24 VT. L. REV. 1245 (2000) ("Measuring, reporting, and knowing the environmental performance levels of an operation in near real-time is what the regulator and public want and need to know. Overall, if a performance track is put in place, it would produce more complete and accurate information."); FIORINO, *supra* note 4, at 148 (describing Performance Track as aiming to "improve the ability of government and firms to measure performance").

[23] *See, e.g.*, FIORINO, *supra* note 4; Stoughton & Levy, *supra* note 9; Wyeth, *supra* note 9; MARC ALLEN EISNER, GOVERNING THE ENVIRONMENT: THE TRANSFORMATION OF ENVIRONMENTAL REGULATION (2007). In some of our other research, we are studying empirically why businesses join ELPs -- though even this work does not represent an evaluation of ELP's impact on firms' environmental outputs or other performance metrics. *See, e.g.*, Cary Coglianese & Jennifer Nash, *The U.S. EPA's National Environmental Performance Track: What is it Tracking? What Role is it Performing?*, HARV. ENVTL. L. REV. (forthcoming 2008); Cary Coglianese & Jennifer Nash, Government Clubs: Theory and Evidence from Voluntary Environmental Programs, in MATTHEW POTOSKI & ASEEM PRAKASH, EDS., VOLUNTARY PROGRAMS: A CLUB THEORY APPROACH (forthcoming 2008). The EPA's Office of Inspector General (IG) has conducted an internal review of the federal Performance Track, but even though the IG's report might be considered an "evaluation" in a certain sense, it does not purport to meet the standards for a systematic empirical evaluation seeking to identify the impacts the program has caused in environmental quality. U.S. ENVIRONMENTAL PROTECTION AGENCY, PERFORMANCE TRACK COULD IMPROVE PROGRAM DESIGN AND MANAGEMENT TO ENSURE VALUE (Office of the Inspector General, Report No. 2007-P-00013, 2007).

[24] JERRY SPEIR, GREEN PERMITS AND COOPERATIVE ENVIRONMENTAL AGREEMENTS: A REPORT ON REGULATORY INNOVATION PROGRAMS IN OREGON AND WISCONSIN (National Academy of Public Administration report, 2000). Both programs were created by a state statute granting environmental regulators flexibility when issuing permits to program members. *Id*.

[25] Jerry Speir, *EMSs and Tiered Regulation: Getting the Deal Right*, in REGULATING FROM THE INSIDE: CAN ENVIRONMENTAL MANAGEMENT SYSTEMS ACHIEVE POLICY GOALS?, (Cary Coglianese and Jennifer Nash, eds., 2001). Speir's review questioned whether EMS adoption was a sufficient indicator of sound environmental performance to form the basis for a membership criterion in state programs and argued that preferential treatment

reasons for many state ELPs' slow membership growth, ultimately recommending that program designers pay greater attention to defining environmental "leadership," offering adequate incentives, and establishing effective approaches to measurement and evaluation.[26]

No one has yet attempted to use the information ELPs collect about members' environmental activities and accomplishments to evaluate these programs formally. Both the National Research Council and the U.S. EPA's Office of the Inspector General have called for careful review of the role of voluntary environmental programs,[27] and so have academics.[28] To their credit, researchers have produced a steadily growing number of studies of other types of voluntary environmental programs -- just not yet on environmental leadership programs.[29] This gap is all

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should instead be triggered by "a system of information based on performance indicators" that states were "only beginning to build." *Id*., at 217.

[26] Michael Crow, *Beyond Experiments*, May/June THE ENVIRONMENTAL FORUM (2000), at 20.

[27] National Research Council, *Decision-Relevant Science for Evidence-Based Environmental Policy, in* DECISION MAKING FOR THE ENVIRONMENT: SOCIAL AND BEHAVIORAL SCIENCE RESEARCH PRIORITIES (Garry D. Brewer and Paul C. Stern, eds., 2005); EPA, EVALUATION REPORT: PARTNERSHIP PROGRAMS MAY EXPAND EPA'S INFLUENCE (Office of the Inspector General, Report No. 2007-P-00003, 2006); EPA,VOLUNTARY PROGRAMS COULD BENEFIT FROM INTERNAL POLICY CONTROLS AND A SYSTEMATIC MANAGEMENT APPROACH (Office of the Inspector General, Report No. 2007-P-00041, 2007).

[28] Kathryn Harrison, *Talking with the Donkey: Cooperative Approaches to Environmental Protection*, 2 JOURNAL OF INDUSTRIAL ECOLOGY, 51 (1999), Daniel Press and Daniel Mazmanian, *The Greening of Industry: Combining Government Regulation and Voluntary Strategies*, in ENVIRONMENTAL POLICY: NEW DIRECTIONS FOR THE 21ST CENTURY (Norman Vig and Michael Kraft, eds. 2006), Cary Coglianese and Lori D. Snyder Bennear, *Program Evaluation of Environmental Policies: Toward Evidence-Based Decision Making*, in DECISION MAKING FOR THE ENVIRONMENT: SOCIAL AND BEHAVIORAL SCIENCE RESEARCH PRIORITIES (Garry D. Brewer and Paul C. Stern, eds., 2005).

[29] *See, e.g.*, K. Segerson and T. Miceli. *Voluntary Environmental Agreements: Good or Bad News for Environmental Protection?* 36 JOURNAL OF ENVIRONMENTAL ECONOMICS AND MANAGEMENT, 109 (1998); M. Khanna and L. Damon, *EPA's Voluntary 33/50 Program: Impact on Toxic Releases and Economic Performance of Firms* 37 JOURNAL OF ECONOMICS AND MANAGEMENT 1 (1999); Madhu Khanna, *Non-Mandatory Approaches to Environmental Protection*, 15 JOURNAL OF ECONOMIC SURVEYS 291 (2001); ALFRED A MARCUS, DONALD A. GEFFEN, & KEN SEXTON, REINVENTING ENVIRONMENTAL REGULATION: LESSONS FROM PROJECT XL (2002); Jennifer Nash, *Tiered Environmental Regulation: Lessons from the StarTrack Program, in* INDUSTRIAL TRANSFORMATION: ENVIRONMENTAL POLICY INNOVATION IN THE UNITED STATES AND EUROPE (Theo de Bruijn and Vicki Norberg-Bohm, eds. 2005); Matthew Potoski and Aseem Prakash, *Covenants with Weak Swords: ISO 14001 and Firms' Environmental Performance* 24 JOURNAL OF POLICY ANALYSIS AND MANAGEMENT 745 (2005); Shanti Gamper-Rabindran, *Did the EPA's Voluntary Industrial Toxics Program Reduce Emissions? A GIS Analysis of Distributional Impacts and By-Media Analysis of Substitution.* 52 JOURNAL OF ENVIRONMENTAL ECONOMICS AND MANAGEMENT 391 (2006); Jason Scott Johnston, *The Promise and Limits of Voluntary Management-Based Regulatory Reform: An Analysis of EPA's Strategic Goals Program, in* LEVERAGING THE PRIVATE SECTOR: MANAGEMENT-BASED STRATEGIES FOR IMPROVING ENVIRONMENTAL PERFORMANCE (Cary Coglianese and Jennifer Nash, eds. 2006); Jorge Rivera, Peter de Leon, and Charles Koerber, *Is Greener Whiter Yet? The Sustainable Slopes Program After Five Years* 34 THE POLICY STUDIES JOURNAL 195 (2006). For a detailed review of the literature on

the more surprising because ELPs would appear to be rich with data. Many ELPs require facilities to submit annual reports about their activities as a condition of membership. EPA and several states use the data they collect to showcase individual members' accomplishments and to make statements about the environmental benefits of the program overall. Yet to our knowledge, neither government analysts nor academic researchers have so far sought to make use of these data more systematically to assess ELPs' impact on their objectives.

To understand whether these programs are working well, the first step is to determine what their objectives are. Then, and only then, can it become possible to assess whether there exists a relationship between the program's objectives, its activities, and the information collected about its performance. We therefore undertake in this paper to identify more clearly the objectives of ELPs and begin to trace out the relationship between objectives, activities, and information. Although our purpose in this article is not to address the degree to which ELPs do (or do not) actually achieve their environmental or social objectives, we do engage here in an important and necessary step toward any such evaluation by assessing the extent to which these programs are delivering on their potential to generate the informational foundation upon which important policy learning can occur.[30] Drawing on an empirical study of the 17 oldest state ELPs and the federal Performance Track, we seek to identify the principal objectives attributed to ELPs, document their major activities and methods of communication, and assess the types of evaluation questions that ELP data may (or may not) be able to help researchers answer in assessing these programs.

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voluntary programs, see JENNIFER NASH & TIM LARSON, PERFORMANCE-BASED ENVIRONMENTAL PROGRAMS: LITERATURE REVIEW (2007) (on file with the authors).

[30] FIORINO, *supra* note 4, at 148-149, 163-165, 223 (emphasizing the important contributions performance tracking programs can make to policy learning).

I. Bringing Data to Bear on ELPs' Potential

In launching Performance Track in 2000, former EPA Administrator Carol Browner emphasized that the program "breaks with the past" and "will bring cleaner, cheaper and smarter results."[31] A growing chorus of supporters argue that ELPs, whether state or federal, can overcome major limitations of the existing system of environmental protection and forge the way to a new system of environmental policy.[32] The existing system is said to be too costly, inflexible, and narrowly focused on controlling a few, older environmental problems to the detriment of addressing newer problems or larger ecosystem impacts.[33] In this Part, we begin by elaborating four ways that ELPs' may help surmount the limitations of current environmental laws. We then explain our research strategy for assessing the design and information collection of 18 of the longest established ELPs.

ELPs first purported advantage is their potential for spurring facilities to address a broad range of pressing environmental problems, whether ones that are currently subject to regulation (such as emissions of volatile organic compounds) or ones that are not (such as water and energy consumption). By encouraging facilities to implement EMSs, ELPs may help set in motion internal processes by which business managers identify their significant environmental impacts, establish goals for reducing them, and monitor their progress toward achieving those goals. Those processes of planning, acting, and monitoring can endure beyond the tenure of any one

[31] Carol Browner, U.S. Environmental Protection Agency Administrator, Remarks Delivered on Performance Track Launch (June 26, 2000), *available at* http://yosemite.epa.gov/opa/admpress.nsf/d41dcc0e24d31638852572a00065af98/9bfa2a1fa3765d998525701a0052e332!OpenDocument.
[32] FIORINO, *supra* note 4, at 173 ("Performance tracking programs stretch the model of the old regulation …[They] are designed to change the regulatory system."). *See also supra* note 23.
[33] *See* CHERTOW & ESTY *supra* note 3; DAVIES & MAZUREK *supra* note 1.

employee, becoming embedded into everyday routines even as personnel and production processes change.[34]

While ELPs most clearly and directly have the potential to change the environmental performance of facilities that sign up as members, these programs also may strengthen environmental practices generally, even among facilities that do not join. According to EPA, ELPs have the potential to "improve [environmental] capabilities across the board" [35]—among "top-performers," but also along "mainstreamers" and "laggards."[36] EPA calls such a phenomenon "shifting the curve toward better performance."[37] ELPs could shift the environmental performance curve if "mainstreamers" or "laggards" tried to meet ELP entry requirements in order to receive the benefits agencies bestow upon ELP members. ELPs might even influence the practices of facilities that had no interest in becoming members, if facilities and agencies came to view ELP entry criteria as norms for exemplary environmental performance.[38]

ELPs second potential advantage is their ability to achieve environmental gains at a lower cost. Critics of the current regulatory system accuse it of being grossly inefficient, requiring government to enforce arbitrary, uniform rules that compel firms to invest in expensive technologies and time-consuming paperwork, often contributing little to environmental quality.[39] ELPs seek to overcome the costliness of environmental regulation by offering discrete forms of

[34] Cary Coglianese and Jennifer Nash, *Environmental Management Systems and the New Policy Agenda, in* CARY COGLIANESE AND JENNIFER NASH, EDS., REGULATING FROM THE INSIDE: CAN ENVIRONMENTAL MANAGEMENT SYSTEMS ACHIEVE POLICY GOALS? (2001).
[35] EPA, AIMING FOR EXCELLENCE: ACTIONS TO ENCOURAGE STEWARDSHIP AND ACCELERATE ENVIRONMENTAL PROGRESS, REPORT OF THE EPA INNOVATIONS TASK FORCE 6 (1999).
[36] *Id.* at 5.
[37] *Id.* at 6.
[38] For a discussion of how external pressures shape a firm's internal norms and culture, see ANDREW HOFFMAN, FROM HERESY TO DOGMA 40 (1997).
[39] *See* Stewart, *supra* note 3.

regulatory flexibility to participating businesses.[40] The U.S. EPA and some of the states have taken steps to reduce the paperwork burdens associated with regulatory compliance, lessen the probability that participating facilities will be subjected to government inspections, and enhance the flexibility of methods used to comply with environmental performance requirements.[41] In addition to lowering bureaucratic costs and streamlining bureaucratic requirements, ELPs enable businesses to pursue innovative and more cost-effective pollution reduction strategies because they give firms flexibility to select their own voluntary performance commitments.

ELPs third purported advantage lies in their potential for overcoming the adversarialism that surrounds traditional environmental regulation. Instead of the usual perception that businesses get pitted against government, environmental groups, and local communities, ELPs seek to forge partnerships, foster cooperation, and build trust.[42] Government regulators use ELPs to shift away from their exclusively punitive image and offer carrots instead of just sticks.[43] By fostering trust and cooperation, ELPs also promise to expand possibilities for learning and creative problem-solving.[44] In many ELPs, participating facilities disclose information about their internal management practices, affording government the chance to understand better the constraints and challenges businesses face.[45] By building a climate of openness, ELPs may

[40] Browner, *supra* note 31 (noting that Performance Track members would find "their costs will be lower, their administrative operations will be streamlined").

[41] *See, e.g.*, EPA, NATIONAL ENVIRONMENTAL PERFORMANCE TRACK, MACT INCENTIVE FACT SHEET, *available at* http://www.epa.gov/performancetrack/benefits/regadmin/mact_factsheet.pdf (accessed March 14, 2008); VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY. POLLUTION PREVENTION 2005, *available at* http://www.deq.virginia.gov/p2/pdf/report05.pdf, accessed March 14, 2008; EPA, LETTER FROM JOHN PETER SUAREZ AND JESSICA L. FUREY TO VARIOUS EPA STAFF OFFICES, October 23, 2003, *available at* http://www.epa.gov/performancetrack/benefits/oeca.pdf (accessed March 14, 2008); Texas Commission on Environmental Quality. 2006. Summary of Incentives for Clean Texas Members, *available at* http://www.cleantexas.org/docs/IncentivesSummaryApril2006.doc (accessed March 14, 2008).

[42] FIORINO, *supra* note 4.

[43] *See* LESTER SALAMON, THE TOOLS OF GOVERNMENT: A GUIDE TO THE NEW GOVERNANCE (2002); John Braithwaite, *Rewards and Regulation*, 29 J. L.& SOC. 12 (2002).

[44] FIORINO, *supra* note 4, at 223.

[45] Coglianese, Cary, Richard Zeckhauser, and Edward Parson, *Seeking Truth for Power: Informational Strategy and Regulatory Policy Making*, 89 MINNESOTA LAW REVIEW 227 (2004).

foster the dissemination of ideas for solving emerging environmental problems or implementing innovative business practices.[46] ELPs may also stimulate improved relationships between business facilities and their local communities. Some ELPs, like EPA's Performance Track, require facilities to develop processes to engage with local residents as a condition of membership.[47] Facilities involved in ELPs may adopt more collaborative ways of interacting with communities outside their fence-lines, reducing costly conflicts and enhancing public trust.

Relatedly, ELPs' fourth advantage may come from fostering changes in the prevailing cultures in both business and government. Critics argue that the current regulatory system fails to address the values and social structures that underlie environmental degradation and that must be addressed for lasting change to take root.[48] ELPs may better stimulate cultural change if they encourage facility managers interact more frequently with those outside their organizations who hold different values and worldviews.[49] Changing the culture of facilities could result in fundamental value shifts where environmental protection assumed greater importance alongside traditional business goals.[50] If ELPs could influence a facility's internal culture, it could foster changes in what people take for granted in their organizations: deeply held yet frequently unstated assumptions that shape workers' everyday tasks.[51] Through a similar process, ELPs

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[46] FIORINO, *supra* note 4, at 148; Cary Coglianese and Jennifer Nash, *Toward a Management-Based Environmental Policy?, in* CARY COGLIANESE AND JENNIFER NASH, EDS., REGULATING FROM THE INSIDE: CAN ENVIRONMENTAL MANAGEMENT SYSTEMS ACHIEVE POLICY GOALS? (2001).

[47] EPA, PERFORMANCE TRACK PROGRAM GUIDE (2005).

[48] JOHN EHRENFELD, BEYOND SUSTAINABILITY: WHY AN ALL-CONSUMING CAMPAIGN TO REDUCE UNSUSTAINABILITY FAILS, *available at* http://www.changethis.com/25.03.BeyondSustain (last visited Mar. 18, 2008).

[49] Jennifer Nash and John Ehrenfeld, *Codes of Environmental Management Practice: Assessing Their Potential as Tools for Change* 22 ANNU. REV. ENERGY ENVIRON. 487 (1997).

[50] John Ehrenfeld, *Cultural Structure and the Challenge of Sustainability, in* BETTER ENVIRONMENTAL DECISIONS: STRATEGIES FOR GOVERNMENTS, BUSINESSES, AND COMMUNITIES (Ken Sexton, Alfred A. Marcus, K. William Easter, and Timothy D. Burkhardt, eds., 1998).

[51] NEIL GUNNINGHAM, ROBERT A. KAGAN, AND DOROTHY THORNTON, SHADES OF GREEN: BUSINESS, REGULATION, AND THE ENVIRONMENT (2003), JENNIFER HOWARD-GRENVILLE, CORPORATE CULTURE AND ENVIRONMENTAL PRACTICE: MAKING CHANGE AT A HIGH-TECHNOLOGY MANUFACTURER (2007).

may help in changing the culture of agencies, perhaps stimulating more innovative decision-making and breaking down barriers that stand in the way of policy learning.[52]

ELPs' four potential advantages explain why policymakers and scholars have viewed them so enthusiastically. Yet in order to know whether ELPs actually deliver some or all of their potential, government decision makers will need careful empirical evaluation studies. As a necessary step toward such research, we have undertaken this study to assess the collection, availability, and communication of evaluation-relevant data by 18 well-established ELPs. In an important sense, our study seeks to evaluate the degree to which ELPs have succeeded in generating information needed to engage in "systematic lesson drawing"[53] about these programs.

Of the 24 ELPs currently in operation (one federal program and 23 programs in 22 states), we examined the federal EPA's National Environmental Performance Track as well as ELPs operating in the following 17 states: Colorado, Georgia, Idaho, Louisiana, Maine, Michigan, Missouri, New Mexico, North Carolina, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Vermont, Virginia, and Wisconsin.[54] As noted, we selected these states because their ELPs had all been in place for five years or longer, a reasonable length of time for a program to become established and begin to attract members.[55] Table 1 identifies and provides descriptive information about each of the programs in our sample.

Many of the state programs have multiple "tiers" or levels of participation, each with its own separate requirements and rewards. Where appropriate, we used the tier as our unit of analysis, which meant that instead of just 18 programs, we actually collected and analyzed data

[52] FIORINO, *supra* note 4, at 172-173.
[53] *Id*. at 163, 165.
[54] INDUSTRIAL ECONOMICS, INC., BASIC INFORMATION ON PERFORMANCE-BASED PROGRAMS (2007) (on file with the authors).
[55] Technically, Georgia's and Wisconsin's programs could have been considered as slightly younger than five years at the time of our study, as both program began in their current form in 2004. However, both these programs were based on earlier, similar programs that had their start prior to 2002. Given their histories, then, we chose to include these two state programs in our study.

on a total of 48 tiers. Moreover, in separate work entirely independent from this study, analysts at Industrial Economics, Inc., classified each tier in each program (or the entire program, if it did not have tiers) into one of five categories: (1) Advocate, (2) On-Ramp, (3) Middle, (4) Tracking, and (5) Stewardship.[56] They based their classification on requirements for membership, with On-Ramp tiers being the least demanding on participating facilities and Stewardship tiers being the most demanding. Programs in the Tracking and Stewardship categories shared characteristics equivalent to or more demanding than the US EPA's Performance Track. (Advocate tiers -- which simply recognize those who agree to be supportive of the ELP -- are qualitatively different from other tier types, which recognize those who have met varying levels of membership requirements for environmental management and compliance.)[57]

Table 2 lists each program's tiers and their corresponding category according to the Industrial Economics classification schema. Later in this paper, we use these tier categories to construct three subsamples for analysis: one sample of all programs and tiers, one subsample of programs and tiers in the top three categories (Middle, Tracking, and Stewardship categories), and one subsample of programs and tiers in the top two categories (Tracking and Stewardship categories).

[56] INDUSTRIAL ECONOMICS, INC. *supra* note 54.

[57] Our sample included two advocate tiers, in Georgia and Tennessee. Members of Georgia's advocate tier, known as "Champions," include cities, environmental organizations, professional associations, universities, and other organizations. They are expected to promote the state's ELP by engaging in activities that encourage facilities to join. GEORGIA DEPARTMENT OF NATURAL RESOURCES, PROGRAM LEVELS AND CRITERIA, *available at* http://www.p2ad.org/documents/pp_criteria.html (last visited Mar. 18, 2008). Members of Tennessee's advocate tier, known as "Prospects," include schools, households, businesses, and other organizations. An entity becomes a "Prospect" when it sends a sign up card to the state expressing interest in the Tennessee Pollution Prevention Partnership. TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION, TENNESSEE POLLUTION PREVENTION PARTNERSHIP (P3) MEMBERS, *available at* http://www.state.tn.us/environment/ea/tp3/tp3_members.shtml (last visited Mar. 18, 2008).

To begin our research, we gathered all of the documents we could find about each program in our sample. During September and October 2007, we collected the following information from program websites:

- program application forms and annual reporting templates
- application and annual reporting instructions, if available
- other program materials such as descriptions of benefits, notices of meetings organized by the program, and press releases
- program legislation (for programs based on a specific authorizing statute)
- reports prepared on an annual basis by some state agencies and EPA summarizing their program's activities and impacts.

After completing our document review for each program and tier, we contacted the key managers for all of the programs.[58] Our telephone conversations were conducted in an unstructured format, though with each covering a common set of topics: program goals, activities (including communications strategies), and data collection.[59] In asking about goals, we attempted to determine the extent to which environmental and social goals appeared salient and motivated program activities.[60] Interviews ranged in length from 20 to 80 minutes, and we

[58] One of us also participated in two EPA-organized workshops held during the spring of 2007. The first, on May 8, 2007, in New Orleans, Louisiana, was held in conjunction with the National Environmental Partnership Summit. The second, on June 18, 2007, in Madison, Wisconsin, was part of the annual meeting of the Multi-State Working Group on Environmental Performance. At each workshop, EPA asked participants to describe the goals of ELPs. Participants, who represented state environmental agencies, private sector firms, U.S. EPA, environmental advocacy organizations, and private consulting groups, offered a wide range of responses, including directly benefiting the environment, improving the environmental performance of non-participants, and cost saving.

[59] We conducted interviews on a "not for attribution" basis. In the sections of this paper where we discuss interview results, we have removed factual details in order not to reveal the identities of the people with whom we spoke. For this same reason we do not include quotations from the U.S. EPA Performance Track managers, since that program is sufficiently distinct that quotations could disclose interviewees' identities.

[60] For example, we would ask something like, "What are the goals of your program?" If the interviewee did not mention any of the social goals we that dominated discussions at the EPA workshops in New Orleans and Madison (and described *supra* in note 58), we asked follow up questions, such as: "Is improving multi-stakeholder relationships a goal?;" "Is changing the culture at facilities and agencies a goal?;" and so on. We coded responses so

maintained detailed notes of responses. After each interview, we coded the responses according to explicit criteria developed as a research team. The information we collected offer a picture of what ELPs set out to do, how they go about accomplishing their objectives, and how they measure and communicate results.

II. Findings from the ELP Study

Each ELPs offers at least a slightly different set of goals, activities, communication strategies, and data collection practices. But until now, we have only been able to surmise what these programs have been designed to accomplish, what they do, and what we can learn from the data they collect. This article is the first comprehensive analysis of all the established state and federal ELPs, and it is the first to document what these programs in fact seek to accomplish as reflected in their publications and their managers' responses to interview questions. To capture the richness of the variation in our data, as well as to organize our findings along significant common themes, we have grouped our findings into six sections: program goals; activities required to join; activities required to maintain membership; activities undertaken by agencies; communication; and data collection.

A. Program Goals

Program goals shape and reflect the priorities of ELPs. Our research examined the extent to which improving environmental quality was an explicit goal of the programs we studied, and

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as to distinguish those given at the interviewee's initiative from those given in response to any of our follow-on prompts.

to what extent ELP goals may extend beyond delivering direct environmental benefits or striving to move the overall environmental performance curve. We attempted to determine whether other goals -- specifically, improving multi-stakeholder relationships, changing culture at facilities and agencies, and cost savings -- showed up in program documents and were on the minds of the program managers we talked with. While this second group of goals, which we call "social goals," might not lead to immediate improvements in environmental performance, they could set the stage for more profound changes over time.

For Performance Track and each state program in our sample, we recorded whether the goal statements found in program documents or that emerged in our conversations with program managers fit into any of our five general categories: (1) direct environmental benefits; (2) shifting the environmental performance curve; (3) improving multi-stakeholder relationships; (4) changing business or agency culture; and (5) cost-savings. Each program, of course, could have more than one of these goals.

Programs' goal statements were usually straightforward and easy to categorize. Other times, though, determining whether a program shared each of our five goals was more difficult. For example, the goal of one program was stated as: "to reduce pollution in the state and make everyone aware of their impact and create networks." This statement most clearly addresses the goal of improving environmental quality, as it begins with the unambiguous phrase "to reduce pollution." In addition, the goal statement includes phrases that suggest, albeit indirectly and not as clearly, the goals of changing facility culture ("to make everyone aware of their impact") and improving multi-stakeholder relationships ("create networks"). As a general rule, if program documents or a program official clearly identified as a goal one of our five goals, we coded that clear goal as a program goal. Thus, in the example, we concluded that the program definitely

shared the goal of improving environmental quality. When program statements indirectly or ambiguously identified as a goal one of our five goals, we coded it as a program goal only if we found additional mention of that goal in another source. Thus, in the example the goal statements "to make everyone aware of their impact" and "create networks" were alone insufficient to conclude that the program shared the goals of changing facility culture and improving multi-stakeholder relationships. To be able to conclude these were program goals, we looked for corroborating evidence in other program documents and in our conversations with program managers.

In the course of each interview, we would be sure to ask specifically about any of the goals not mentioned in the documentation or mentioned by the manager without prompting. For each goal we determined a program had, we kept a record of whether our supporting evidence for that goal came from program documents, unprompted comments from the managers, or comments prompted by a pointed question about a specific goal.

We also distinguished "goals" from "activities." In many cases, program statements would expressly identify as "goals" items that were more properly considered activities or some other means of achieving a larger goal. For example, one state program listed as a goal "providing pollution prevention education and public recognition" to participants. Another explicitly stated that its goal was "to provide… regulatory incentives to member facilities." These kinds of statements only beg the question of why states would engage in the activities of providing incentives, recognition, or pollution prevention education. In our coding, we considered statements such as these to be evidence of *activities*, not goals.

With this understanding of our coding in mind, Table 3 and Figure 1 summarize our principal findings with respect to goals. Our observations about program goals include the following:

- Each of the five goals we examined was a goal of at least 10 of the 18 programs in our sample, a clear majority. Yet only the goal of improving the environment was regularly cited in program documents or mentioned by program officials without prompting. Each of the other four goals was rarely cited in program documents and typically came up in our conversations with program officials only after we prompted them.
- The most commonly cited goal, then, was improving the environment. Documents for all 18 programs in our sample mentioned this goal of environmental improvement. This goal also came up, without our prompting, in almost every conversation with program officials. The following are typical responses we heard when we asked about the goals of the program:
    - "To encourage business to move beyond compliance to becoming stewards of the environment."
    - "To recognize companies that are going above and beyond."
    - "To increase the number of facilities that have systems in place to better manage their environmental impacts beyond compliance.
    - "To encourage innovation that leads down the path to achieving better environmental results."
- The second most commonly cited goal of our sample of programs was changing the culture at facilities and agencies, a social goal. But although it was a goal for 14 of

the 18 programs, it appeared in only four of these programs' documents, and it never came up in our conversations with program officials before we prompted them. Typical was one program manager who did not mention the goal of culture change until prompted—but then was emphatic that the program was run independently from the state environmental agency as a way of indicating that the program is not the "enemy" of business. Across our interviews, "culture change" was a broad concept. When prompted about culture change, some program managers spoke of the relationship between business and government, rather than what might be considered the culture within a regulatory agency. For others, the term evoked a discussion about how the ELP might be changing the culture within member facilities.

- Other goals—reducing costs at facilities and agencies and improving multi-stakeholder relationships, and moving the environmental performance curve— were infrequently cited in program documents and were rarely emphasized by program managers without prompting in our interviews. A majority of program managers agreed that these were goals, however, once we named them explicitly. For example, one program manager noted that his program is "really about pollution prevention and sustainability," but that other goals, once mentioned by us, are "important parts of it." When we asked specifically about cost savings as a goal, another program manager said, "Absolutely. Pollution prevention always has payback." Yet another answered, "[Cost savings] are not an explicit goal, but we do ask [facilities to provide information] about that in their annual reports. Some cost savings from alternative compliance are very significant." In contrast, one ELP manager said that cost savings was not a goal since implementing an EMS "was not always cost effective," and

another program manager felt that his program "can't force these" other goals and that culture change only occurs over time as a byproduct of the program.

B. Activities Required to Join

No matter what the goal, ELPs with fewer members will have a smaller impact, all other things being equal. As such, a central challenge for government agencies is to set entry criteria so as to engage enough of the right facilities whose participation will contribute to agency goals.[61] Most ELPs limit membership to facilities with certain characteristics. Many programs restrict participation to facilities with strong compliance histories. Many require facilities to have implemented an EMS, or to have plans to do so. Programs we studied varied with respect to the stringency of entry criteria—such as the number of years a facility had operated without a compliance problem, or the level of sophistication of its EMS. For many states, the mere existence of an EMS was not sufficient for entry; the facility had to have established targets and objectives in line with agency priorities for pollution prevention and continuous improvement.

Fourteen of the programs we studied had multiple tiers with varying levels of entry stringency. For some tiers, programs limited membership to facilities deemed to be top performers, while for other tiers less stellar facilities were encouraged to participate as a means to engage them and encourage them to consider undertaking significant beyond-compliance activities.

Just as we did to identify program goals, we reviewed program documents and interviewed program managers to learn about the activities required for facilities to join each

[61] PRAKASH & POTOSKI, *supra* note 7.

program tier. Based on this information, we determined whether facilities were required to engage in each of five common activities: (1) compliance with environmental regulations; (2) implementation of an EMS; (3) independent certification of the EMS; (4) specific environmental performance commitments, and (5) specific commitments to community engagement.

Often the coding of these requirements, like the coding of goals, was straightforward. At other times, coding required we make consistent judgment calls. For example, we coded "yes" for "compliance with environmental regulations" even if a facility was allowed to have minor non-compliance problems, or even if it could have more substantial compliance problems if accompanied by a plan to resolve the issue. As long as program documents or officials indicated that substantial compliance was expected, we treated compliance as an activity required for membership in the tier. For example, one state reviews applicants' compliance histories over a five-year period to determine their eligibility but emphasizes that records "need not be spotless" and does not specify the precise number or nature of compliance issues that it allows. Another, in contrast, defines its compliance standard in detail and takes into account compliance issues at the corporate level as well as at the facility. Both levels of compliance screening merited a "yes" designation in our coding.

We also coded "yes" for implementation of an EMS as long as the program tier required facilities to have an environmental plan that included the "plan-do-check-act" system that is the hallmark of a traditional EMS. This meant that we also coded "yes" in cases where a program tier stipulated that a facility must have fully implemented an EMS before being accepted into the tier—as well as in the case of a tier requiring adoption of an EMS within the members' first year in the program. On the other hand, we did not code "yes" for EMS implementation when another program's tier required a facility merely to have in place an environmental policy and a

plan for environmental improvement, since this requirement did not call for all elements of the "plan-do-check-act" model that usually constitutes an EMS.

We analyzed the data for each of three subsamples based on tier types. Table 4 shows our data, and Table 5 shows our results. Our primary observations about the activities required to join our sample of ELPs include the following.

- A vast majority of program tiers (85.4 percent of all program tiers and all program tiers in the highest two tier categories) required potential members to be in compliance with environmental regulations. As noted above, however, compliance did not always have to be complete. Typically, minor episodes of non-compliance, particularly when accompanied by plans to return to compliance, were permissible. For example, one state program tier required a "commitment to regulatory compliance," which included a pledge to resolve any outstanding compliance issues. Similarly, another program required applicants to certify simply that they have "no outstanding unresolved violations."
- A vast majority of all program tiers (85.4 percent) required potential members to make environmental performance commitments. Exceptions were rare; when they occurred, they were typically at the lowest tier of a program. For example, to participate in one state's Advocate tier, prospective members needed only to complete a form with their name, contact information, and membership category (school, household, or business) and send it to the state. Another state's initial tier was in reality a reward for past environmental achievements and did not require any future commitments for membership.

- Most program tiers and all program tiers in the highest two tier categories required potential members to have an EMS in place. EMS requirements varied, however, from adoption of a recognized EMS standard such as ISO 14001 or the Responsible Care Management System, to development of a non-standard EMS tailored to the facility's needs and resources. Moreover, just over half of the programs and tiers that mandated EMSs also require these EMSs to be independently certified.
- A minority of all program tiers (41.7 percent) required members to make community engagement commitments. Program tiers in the highest tier categories were substantially more likely to require community engagement commitments.
- Program tiers in higher tier categories were more likely to require each of the five activities shown in Tables 4 and 5. Each of the five activities was required by a majority of the program tiers in the highest three tier categories and by no fewer than 11 of 13 of the program tiers in the top two tier categories. Note, however, that among 13 of the 15 states in our sample with tiered ELPs, the highest tiers had the fewest members.[62]

C. Activities Required to Maintain Membership

Each of the ELPs we studied established requirements that facilities needed to meet or maintain after they have been admitted. These requirements revealed what agencies expect of their facility partners. As above, we reviewed program documents and interviewed program managers to learn about the activities required for facilities to maintain membership in each

[62] The exceptions were Colorado and Maine.

program. Based on the information we gathered, we determined whether member facilities were required to engage in each of five common requirements to maintain membership: compliance (or continued compliance) with environmental regulations, continuation or development of an EMS, reporting on performance, progress toward achieving any commitments made in the facility's application, and community engagement.

As with our other categories, some statements of the requirements for continued membership were clearer than others. As with entry requirements, we coded "yes" for "compliance with environmental regulations" even if minor episodes of non-compliance were permitted, as long as program documents or officials stated that substantial compliance was required. In terms of "progress toward achieving commitments," we coded "yes" only if program documents or conversations with program officials indicated that progress was specifically required.

We analyzed the data for each of three subsamples based on tier types. Table 6 shows our data, and Table 7 shows our results. Our primary observations include the following:

- Performance reporting was almost universally required for continued membership, but the form of this performance reporting could vary. For example, in one state, the primary way that members communicated their progress was through an email or slide presentation at the program's biannual meetings. In another, members submitted success stories. In still other cases, members filled out detailed reports of their levels of pollution and community activities.
- A vast majority of program tiers (75.6 percent of all program tiers and 91.7 percent of program tiers in the highest two tier categories) required continued compliance with environmental regulations, although, as noted above, minor episodes of non-

compliance were typically permissible. For example, in one state program, a member could experience a compliance issue as long as they promptly disclosed it and developed a plan for correcting it. The manager of another state program noted that a facility's membership in the program would be threatened if they had an "environmental black eye," but not for less consequential instances of noncompliance.

- A minority of program tiers, even in the highest tier categories, expected that members show progress toward achieving their commitments.[63] Many ELPs were premised on the view expressed in the following statement from one program's website: "[The program] does not penalize a facility for lack of improvement as long as [it] is making a good faith effort to improve performance and continues to meet other program criteria (e.g. consistent record of compliance, and EMS criteria specific to each tier.)" Many ELPs required facilities not showing any progress to explain why they were not. Only one ELP manager told us that members categorically "must make progress."
- Program tiers in higher tier categories were more likely to require each of the five activities for continued membership shown in Tables 6 and 7. For example, four of the five activities were required by more than 75 percent of program tiers in the highest two categories, but only two of five activities were required by more than 75 percent of all program tiers.

[63] If program documents did not include specific language mandating progress, and if program managers did not mention progress as a requirement for continued membership, we concluded that progress was not necessary.

We should note that even in those cases where continued compliance or demonstrated progress toward commitments were required for facilities to remain in a ELP, we were unable to confirm if ELP managers enforced these requirements. We did not ask managers what they did when confronted with members failing to make progress or in noncompliance. We do know, though, that members admitted to some programs (such as U.S. EPA's Performance Track) are occasionally asked to leave or will not have their memberships renewed.

D. Activities Undertaken by Agencies

In addition to establishing tier entry requirements, screening members, and ensuring that members continue to meet program requirements throughout their tenure, government agencies themselves undertake a variety of activities under the auspices of ELPs. We reviewed program documents and questioned program managers to learn about these activities. Based on this information, we determined whether agencies engaged in any of four common categories of activities: (1) offering opportunities for members to interact with government officials, the community, and each other; (2) providing mentoring opportunities; (3) providing incentives; and (4) sharing information.

We coded "yes" for a broad variety of specific activities within each of the four categories. We coded "yes" for "opportunities for members to interact" even if an agency provided such opportunities infrequently or only for a subset of members. For example, one state offered members the opportunity to meet with environmental agency officials to discuss possible incentives—but provided few other chances for interacting. Some states, in contrast, emphasized formal and informal meetings of members, potential members, and agency officials

as their programs' most frequent and important activities. We coded "yes" for "providing incentives" for a wide category of possible incentives, ranging from public recognition to the presentation of an award to regulatory relief. Likewise, we coded "yes" for "information sharing" if the notion of sharing knowledge came up in program documents or in our conversations with program officials, regardless of the means used to do so (for example, through site visits, the distribution of literature, etc.).

Table 8 and Figure 2 present our findings. Our primary observations about the activities undertaken by agencies were as follows.

- All 18 programs offered incentives to members. Most program tiers recognized members as strong environmental performers, sent them a certificate, and allowed them to use the program's logo. Some programs went further, providing discounts to members on permit fees, extensions to the duration of permits, and expedited permitting. Some provided a single point of contact within the agency to handle all of a member's permits. Still others offered "customized variances" in which states granted flexibility with respect to certain rules at a facility's request (after careful deliberation to determine that the request would not adversely affect environmental quality), as well as reduced inspection frequency and reduced reporting.
- All but one program explicitly encouraged information sharing, particularly in the areas of pollution prevention and EMS development. Before facilities were admitted to one state's program, for example, program managers visited the site for an "opportunities assessment" when they suggested specific "best practices" that would improve the plant's environmental performance. All members in another program

were eligible for free technical assistance. Many programs promised chances for "making contacts and sharing successful project ideas," as stated in one website.

- Most programs (15 of 18 programs for sure and possibly one more[64]) provided opportunities for members to interact with representatives of government, other firms, and the community, although the degree to which agencies emphasized these opportunities varied. One program manager told us that his program facilitates numerous "incredibly dynamic" working sessions at which companies share experience about reducing their environmental impacts. "It's a marriage made in heaven," he said, referring to when two members discovered at a working session that one plant's waste could be an input to the other's manufacturing process. Another told us that networking sessions organized by his program allowed facilities to "borrow wheels instead of inventing them." Successful sessions were not the rule, however. The manager of another program told us that networking sessions "never really took off" in her state due to lack of interest on the part of facilities.
- A bare majority of programs offered mentoring activities in which members helped prospective members improve their environmental performance. Serving as a mentor was required of members in at least two state program tiers.

E. Communication

One key activity undertaken by agencies was communication. As already noted above, programs expected members to communicate performance information, and agencies were

[64] We received conflicting information from different sources about opportunities for interaction in the Texas program.

engaged in various networking and recognition activities that help foster learning and diffusion of information. All of the programs in our sample had developed websites that included basic information about the program such as its purpose and major activities. In addition, some agencies communicated with facilities through site visits and technical assistance. Others organized annual meetings for members. To learn about other methods of communication, we reviewed program documents and interviewed program managers. Based on this information, we determined whether programs engaged in each of several common methods of communication: publishing annual reports about the program on program websites, posting data on individual members on program websites, holding public meetings, and issuing press releases.

We were careful to distinguish between two types of information programs might post on their websites. We coded "yes" for "annual reports about the program posted on website" as long as the program posted some sort of regular report about aggregate trends among its members, even if its report was incomplete. We coded "yes" for "information on individual members posted on website" as long as the program posted some data about at least a subset of members, even if the data posted did not include all the information submitted by members to the program. For example, some programs posted on their websites facilities' annual performance reports as well as reports for the program's accomplishments overall. We coded "yes" for both categories for each of these programs. Another program only posted facility reports, while still another only posted a report for the entire program. We gave the former program a "yes" for "information on individual members posted on website" and the latter program a "yes" for "annual reports posted on website."

Table 9 and Figure 3 present our findings. Our primary observations about programs' communication activities were as follows.

- Among our sample of programs, the most common method used to communicate program results was through press releases. Fourteen of 18 programs issued press releases. Some programs utilized the news media for publicity more than others. Documents available for one program noted that that the news media had published more than 50 stories about its activities, not including stories about individual facilities joining the program. Another program manager worked with the business editors of city newspapers to arrange for weekly columns highlighting the program's members.
- A majority of programs (11 of 18 programs for certain and possibly one more[65]) posted on their websites some information about individual members. Only six programs (and possibly one more[66]) posted annual program reports, however. One program manager told us that she was not sure "what to do with" the information facility managers submitted to her in their annual reports. "In most cases, companies are doing their own showcasing all on their own," she said. "It's difficult for us to make statements about program benefits since everyone tracks things differently."

F. Data Collection

Data collection serves multiple purposes. Facilities that are required to collect and submit data must establish internal procedures for measuring progress toward beyond-compliance commitments. They must share information with agencies and community groups

[65] We received conflicting information from different sources about the availability of online information in the Louisiana program.
[66] We received conflicting information from different sources about the availability of annual program reports for the Louisiana program.

they might otherwise mostly ignore or communicate with in a more limited fashion. The information they disclose provides a window on internal operations and commitments. Of course, other important purposes of data collected by ELPs include performance measurement, communication of results, and program evaluation. We specifically investigated the suitability of these data for evaluating program effectiveness.

In our review, we assessed the data collected by our sample of programs on five dimensions: (1) relevance; (2) quality; (3) aggregational value; (4) inferential value; and (5) accessibility. Table 10 summarizes the criteria we used to assess each dimension.

We considered first whether data submitted by facilities and collected by agencies were *relevant* to the stated goals of the program. Ideally, the data directly captured the goals of the program. For example, when a program's goal was to improve the environmental performance of facilities, information about such things as facility emissions and resource consumption would be relevant to collect. If a goal was to improve the relationship between businesses and the community, relevant data—whether qualitative or quantitative—would focus on such things as public attitudes toward local businesses.

We also considered data *quality*, that is, the degree to which data were credible and reliable. High-quality data were collected in accordance with clear instructions and their quality and completeness were verified. Examples of verification processes used by many programs included third-party EMS verification, site visits, application advisory councils, and review by program staff. Also, many programs required senior-level plant officials to sign off on their facility's data, which provided a further possible indication of credibility to the submitted data.

In order to evaluate program effectiveness overall, data submitted by different facilities needs to be aggregated. As such, data will be most useful for evaluation (that is, will have high

aggregational value) when it is submitted in standard units and includes normalization factors.[67] In our review, we noted whether programs' applications and annual reports required facilities to present information in a standardized and normalized format.

We also considered the *inferential value* of the data, that is, whether they could be used to draw broader conclusions about the impact of the program.[68] For data to have inferential value, they need to be coupled with an appropriately measured baseline to which the data can be compared. One type of baseline is temporal, that is, data collected before as well as after the establishment of a ELP. Another type is comparative or cross-sectional, which calls for the same data from a comparison group of facilities not participating in or affected by the ELP. Information about the comparison group could presumably be gathered by a program office within an agency (such as information on toxic releases from EPA's Toxics Release Inventory), or obtained from other sources (such information about energy usage from utility companies).

Finally, we considered data *accessibility*. Only data that are accessible can be used for evaluation. As such, we asked: Are data easily accessed by members of the public in a timely manner? Is all information collected made available or only select portions?

As with other features, we reviewed program documents and interviewed program managers to assess the relevance, quality, aggregational value, inferential value, and availability of the data collected by our sample of state programs. We looked separately at the data collected in support of each of the five typical program goals outlined earlier in this report for each tier of

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[67] Absolute reductions in pollution are what ultimately matter for environmental and public health protection. Normalized reductions matter only for purposes of determining program effectiveness. For example, suppose overall pollution decreases. The only way to know whether a program caused the decrease is to control for a number of factors, especially some measure of output. The program might be effective if pollution per unit output decreases. But it is almost certainly not effective if pollution per unit output increases, in which case the reduction in total pollution is due to a decrease in output, not to the program. Similarly, suppose overall pollution increases. If pollution per unit output decreases, then the overall pollution increase is probably due to the increase in output. In other words, the program might actually be effective, just not effective enough to overcome the growth in output.

[68] On the several challenges of drawing causal inferences in the context of environmental innovation, see Coglianese & Bennear, *supra* note 28.

each of our state programs. In each category, we assessed scores of "H" for high, "M" for medium, and "L" for low, based on the criteria shown in Table 10. If a particular program tier did not collect any data in support of a given goal, we coded it as "not applicable."[69]

We analyzed the data for each of three subsamples based on tier types. Tables 11, 13, and 15 show the scores we assigned to each data characteristic, and Tables 12, 14, and 16 shows aggregate statistics for each of the subsamples. Our primary observations include the following:

- Programs collected more data to measure "direct environmental benefits" than for any other goal. 89.6 percent of all program tiers and 100 percent of the program tiers in the highest two tier categories collected at least some data that could be used to track environmental benefits.

[69] We assigned ratings of "H," "M," or "L" based on the following considerations. With respect to relevance, if a program or tier gathered data that measured a goal or outcome directly, we assigned a rating of "H." If it gathered data that measured a proxy of the goal or outcome, we assigned "M." If it did not gather any relevant data, we assigned "n/a" for not applicable. With respect to *quality*, we took into account the following five considerations: (1) whether the program offered clear instructions for data collection and reporting, (2) whether it required an EMS that would presumably guide data collection, (3) whether the agency had established a screening process for review of data accuracy and completeness, (4) whether the program conducted site visits to verify data or the EMS, and (5) whether someone at the facility certified the accuracy of the data. For each consideration, we gave each program or tier a "Yes" or "No" determination. When we assessed the quality of data relevant to direct environmental benefits we weighted each of these considerations equally so that for each "Yes" the program or tier earned one point. A score of 0-1 became a rating of "L," a score of 2-3 became a rating of "M," and a score of 4-5 became a rating of "H." When we assessed the quality of data relevant to improving stakeholder relationships and cost savings for facilities and agencies, however, we determined that the first criterion—clear instructions for data collection and reporting—should weigh more heavily than the others such that no program or tier that offered *little* guidance for how facilities should collect or report these data could earn greater than a rating of "M" for quality, and no program or tier that offered *no* guidance could earn greater than a rating of "L." We reasoned, for example, that programs or tiers that merely included a column on their annual reporting form with the heading "cost savings," without any information about how facilities should calculate that number, would likely collect data that was neither reliable nor credible. With respect to *aggregational value*, programs or tiers that reported data in standard units using normalizing factors earned a rating of "H." Programs or tiers that reported either in standard units or using normalizing earned a rating of "M." Programs or tiers that used neither standard units nor normalizing earned a rating of "L." With respect to *inferential value*, if the program provided both longitudinal data and cross-sectional data it earned a rating of "H." If it provided some longitudinal data, such as performance over time, or the possibility of some cross-sectional data, such as compliance information for non-participants, it earned a rating of "M." If it provided neither longitudinal nor cross-sectional data it earned a rating of "L." With respect to *accessibility*, we considered whether the program or tier provided all available data to the public on individual members' participation, in which case it earned a rating of "H;" some data, in which case it earned an "M;" or no data, for a rating of "L."

- The data collected to measure direct environmental benefits scored "high" on relevance across all program tiers. The quality of these data, however, was more varied: among all program tiers, more tiers scored "medium" or "low" on data quality than scored "high." As one manager noted, "People try hard, but they turn in 'junk information.' They write down kilograms but they mean liters. As a first step, I always do an 'ocular analysis' to flag things that just don't make sense." Another commented that he had "no way of knowing" if the submitted information is correct. "Mostly we take people's word for it. This is a good faith program," he explained. Other program managers were more sanguine, however. One manager reported that he believes the data members send to him, because the members check the information internally and certify its accuracy. Another manager trusted the data "one hundred percent" because his state is small and all the members knew each other—and him.
- Moreover, the aggregational and particularly the inferential value of the data measuring environmental impacts were generally much lower, even among program tiers in the highest tier categories. For example, as shown in Table 12, less than one-third of all program tiers, and less than one-half of program tiers in the highest two tier categories, scored "high" on the aggregational value of their data. Moreover, no tier in any tier category scored "high" on the inferential value of their data. In other words, programs collected direct measures of environmental impacts, but these measures usually lacked some of the essential characteristics needed to draw conclusions about the aggregate performance of members and particularly the efficacy of the programs. For example, one state program requires applicants to

provide detailed and relevant information, with documentation, about their past achievements and future goals, but it does not require standardized units or normalization and does not follow up with mandatory annual reports that could provide data over time. In some cases, improving data's aggregational value by requiring facilities to standardize and normalize information might conflict with program goals. As noted in one program's annual report, "Tradition might suggest a prescribed format [for reporting by facilities], but that level of prescription is what [our program] challenges us to minimize."

- Many program tiers (exactly half of all program tiers and 11 of 13 of those in the highest two tier categories) collected some measures of improvement in multi-stakeholder relationships. Though the data they collected averaged "medium" in quality, the data cannot confidently be used to assess the impacts of the programs on multi-stakeholder relationships. As shown in Table 14, no program tier collected data that measured "high" on either aggregational or inferential value. Moreover, far more tiers scored "low" than "medium" on aggregational and particularly inferential value, even among tiers in the highest two tier categories.
- Almost half the program tiers collected highly relevant measures of cost savings for facilities and agencies. These data were most often "low" in quality, however, and as with data collected to measure multi-stakeholder relationships, they cannot confidently be used to assess the overall cost savings provided by the programs. As shown in Table 16, all the program tiers that collect data on cost savings score "Medium" on the aggregational value of the data, and most of them score "Low" on the inferential value of the data.

- In 2006 EPA surveyed Performance Track members to assess the program's impact on environmental performance, relationships with external stakeholders, and culture change (EPA 2006b). Other than through this survey, no program in our sample collected data to measure progress toward the goals of shifting the environmental performance curve and changing the culture of facilities and agencies, even those programs that cited them as goals. We did not include tables showing the characteristics of data collected in support of these two goals: the table would have been completely full of "not applicables."
- Making data accessible was a challenge for many programs. For each of our three subsamples of tiers for each of the three goals discussed above, a majority of tiers that collected data scored "medium" or "low" on its accessibility. Moreover, at least as many program tiers scored "low" on data accessibility than scored "medium." The primary reason for these lower scores was that most programs did not post facility applications and annual performance reports on their websites, even though the documents were generally available upon request. "Companies don't want others to see their environmental impacts and aspects," one manager explained. More commonly, programs posted selected information, aggregate statistics, or "success stories" that include some data online. For example, one state program posted narratives about its members on its website but did not post the environmental performance data that it collected through its members' detailed annual reports. Selected success stories can certainly provide a basis for useful communication and diffusion of innovations, but for evaluation purposes they are usually of little value since they are not a representative sample of all the facilities affected by the program.

We found that ELPs varied considerably in the amount and type of information they collected. Some programs were information-rich, while others gathered relatively little information about members' activities. If the quantity and type of information collected by these programs is central to their ability to contribute to systemic policy learning, then clearly some programs are doing better than others.

Of course, differences in information collection should not be taken to suggest any judgment about the impact or value of the program in terms of environmental protection or the achievement of what we have called ELPs' social goals. We also recognize that the cost of collecting and analyzing data that would meet the criteria we have outlined in Table 10 is beyond the highly constrained budgets that many states have given their ELPs. The average number of staff members for the 17 state programs in our sample was about two, a number so small that it suggests that these programs have not been designed to collect and analyze extensive data collection. Moreover, even though programs that collect large amounts of high-quality data will be easier to evaluate, this does not necessarily mean they are more effective in achieving their goals. Some programs with few resources dedicated to data collection could perhaps have more significant impacts. Those impacts would just be immeasurable ones.

III. Implications for Systematic Policy Learning

When considered in the aggregate, our principal findings provide insight into larger questions of ELPs' structure and their evaluation. In this section, we draw upon our findings to

discuss three issues: variation among programs, the match between program activities and goals, and the role and use of data in learning from and about ELPs.

A. Variations among Programs

Our principal findings reveal significant variation in the range of goals, activities, methods of communication, and data collection undertaken by ELPs. Although EPA and scholars have treated these programs as belonging to a single category of policy instruments, in reality ELPs are a diverse collection of programs.

The greatest similarities can be found in U.S. EPA's Performance Track and the highest tier programs in states such as Georgia, Tennessee, Texas, and Virginia. Performance Track exhibits all the characteristics we coded for and collects data that generally score between "High" and "Medium" on our criteria. The highest tiers in Georgia's "Partnership for a Sustainable Georgia" and in Texas's "Clean Texas" program aimed at all five of our goals, required nine of ten requirements for joining and staying in the program, engaged in four of five of our coded agency activities and two or three methods of communication, and gathered data that generally scored between "High" and "Medium" on our criteria. The highest tiers of Tennessee's "Pollution Prevention Partnership" program and Virginia's "Environmental Excellence Program" shared a similar number of characteristics as the programs in Texas and Georgia and gathered data that averaged "Medium" according to our criteria.

Other programs, though, only scored high in specific categories of coded characteristics. For example, six other programs shared four or five of our hypothesized goals; the highest tiers of eight programs required four or five of our common activities for joining the program; and the

highest tiers of a similar but not identical set of six programs collected data that averaged at least "medium" on our criteria. These other programs did not, though, match our criteria across the board as fully as Performance Track and the highest tiers of the state programs noted above.

On the other hand, a number of the state programs, even at their highest tiers, shared less than half of the characteristics we coded for. This is perhaps not surprising, since some of these programs, such as New Mexico's "Green Zia Environmental Excellence Recognition Program," were just one-time award programs that largely recognized past environmental achievements and collected limited data to document them. Others, such as Idaho's "GEMStars" program and Louisiana's "Environmental Leadership Program," are ongoing membership programs that shared a few of the characteristics in each of our categories and collected data that meet a few of our criteria -- but were not very expansive in scope or in their activities compared to other programs.

It is critical to reiterate that our findings in this study, and particularly the summaries in the paragraphs above, do not speak to how effective the programs are at achieving their goals. It is entirely possible that the programs that met most of our coded characteristics and collected data that scored well on our criteria, such as Performance Track and the programs in Georgia, Tennessee, Texas, and Virginia, have not met their objectives as well as other programs. We simply cannot say. Our analysis has been intended to provide insight into the structure and functioning of ELPs and the characteristics of the data they collect, all as a prelude to systematic program evaluation research. Future research on ELPs must clearly take into account the variation in the programs. Researchers can and should assess how the differences we have documented might influence these programs' effectiveness in terms of achieving environmental and social goals.

B. Mapping Activities to Goals

Another way our study could be used to inform future research on program effectiveness is by linking program activities to program goals. An effective program presumably needs to be one in which its activities support its stated goals. In this study, we did not assess the effectiveness of program activities nor did we empirically investigate the links among activities and goals. Nonetheless, we can pose a series of suggestions as to how program activities and goals are currently linked.

For example, it can be supposed that the activity most connected with the goal of providing direct environmental benefits will be having members set environmental performance goals and making progress toward achieving them. Most program tiers (85.4 percent overall) require environmental performance goals. But far fewer tiers (just 32.9 percent overall, in fact, and only 41.7 percent of tiers in the highest two tier categories) mandate that members show progress toward meeting these goals. Thus, even though it seems that the initial membership requirements of many programs connect well with the goal of improving environmental quality, the activities required to maintain membership in these programs frequently do not.

The goal of improving multi-stakeholder relationships may well be best advanced when ELPs require members to engage the community as well as when they provide regular opportunities for members to interact with government officials, other companies, and the community. Few program tiers (41.7 percent overall, although far more at the higher tier categories) require potential members to establish community engagement goals or commitments, and even fewer (40.5 percent overall and 75 percent in the highest two tier

categories) require members to engage the community to maintain membership. On the other hand, most programs (at least 15 of 18) provide opportunities for interaction among stakeholders.

A government activity closely connected with the goal of shifting the environmental performance curve might be the provision of mentorship opportunities. Over half of the programs in our sample provide such opportunities. Thus, it would seem that some but not all programs are engaged in an activity that could shift the environmental performance curve. Another program feature that might help shift the performance curve could be the establishment of several different membership tiers. Fourteen state programs in our sample have more than one tier, but the U.S. EPA's Performance Track and three state programs in our sample do not. The existence of multiple tiers may encourage facilities that would like to improve, even though they might not yet have the resources or expertise to show a high level of achievement.

An activity quite plausibly connected with the goal of changing the culture at facilities and agencies is the implementation of an EMS. Almost two-thirds of all program tiers, and all tiers in the highest two tier categories, required facilities to have an EMS to join the program and to maintain or develop an EMS as a condition for continued membership. Thus, it seems that program requirements for some but not all programs could plausibly be said to support the goal of changing facility culture.

An activity connected with the goal of reducing costs for facilities and agencies might be the provision of regulatory flexibility incentives to members. While all programs provided some incentives to members, such as recognition, only some of the program tiers offered specific forms of regulatory flexibility, where cost savings would presumably be available.

These observations suggest that notwithstanding the various goals attributed to ELPs, they have not been consistently designed to achieve all of these goals. To be sure, our

postulations about the connections between different activities and different goals are by no means complete or definitive. However, they do show how our empirical findings about activities and goals can point the way for future analysis and program evaluation.

C. Data Collection

Finally, a central purpose of our study has been to assess the characteristics of the data programs collect from their members. As discussed previously, we observed that most of the data collected pertain to facilities' environmental performance. While we have no basis to doubt that these indicators are usually of reasonable quality and trustworthiness, in a number of states data are simply not scrutinized or audited very closely. Moreover, due to limitations in aggregational and inferential value, these data cannot generally be used to draw inferences about program efficacy.

Nonetheless, the data being collected may be useful in a number of other ways. For example, program managers and independent analysts can use these data to characterize what member facilities are doing. In raw form, they can publicize individual facilities' data to highlight good (or bad) cases. In many programs, such as U.S. EPA's Performance Track, officials can aggregate the data at the program level to describe the collective environmental performance of members. When environmental data in multiple years are available—and often they are—they can show trends in the performance of members over time. Even if the data cannot show that these trends are caused by the program itself (because of the absence of a control group of non-participants against which to measure these trends), the data are nevertheless often interesting and suggestive of potential change.

If governments want ELPs to gather data that could be used to assess program effectiveness over time, they would do well to aim to meet all of the characteristics identified in Table 10. Data collection and reporting requirements should be designed to maximize relevance, quality, aggregational value, and inferential value. When it comes to environmental performance indicators, where most programs currently fall short is in ensuring the aggregational and inferential value of the data. Meeting these criteria so may require taking steps to mandate standard units and normalization factors—as well as to collect data over time for both member facilities and, crucially, similar non-member facilities.

To measure progress toward other, social goals, ELPs have much more to do. Measuring improvements in multi-stakeholder relationships and changes in facility and agency culture requires defining and identifying relevant variables that measure the goals as closely as possible (a challenging task in itself) and then collecting quantitative or qualitative measures for these variables from member and non-member facilities over time.[70] The task will probably be difficult but it should not be impossible. Only its completion would permit analysts to judge, with any degree of confidence, the effectiveness of these ELPs in terms of their social goals. A focused consideration of methods for measuring social goals, as well as measuring shifts in the environmental performance curve, is beyond the scope of this paper but is planned for subsequent stages of the larger research project of which this paper is the first part.

To be sure, whether any particular program ought to engage in this data collection effort is another question entirely. It is true that program effectiveness cannot be determined without such an effort. But collecting the requisite data, particularly for the social goals, will likely be costly and time consuming. It may impose burdens on program members that could discourage

[70] *See* Jonathan Borck, Cary Coglianese, & Jennifer Nash, Evaluating the Social Effects of Performance-Based Environmental Programs(2008) (manuscript on file with the authors).

participation in what are, after all, voluntary programs.[71] Moreover, the conclusions from the resulting analysis may not end up being valuable or useful enough in terms of what agencies or the public would actually do with that information. Information collection, after all, has its own costs too, and these costs may well not be justified in some cases, especially if the data will go unanalyzed or will be ignored. In this article, we have demonstrated what needs to be done better to determine the effectiveness of ELPs, but the research we have undertaken for this article cannot tell us whether it ought to be done.

Conclusion

Over the past decade, the U.S. EPA and states have developed ELPs to address an array of environmental and social goals. Although many of these programs have been in place for five years or longer, little systematic research exists about their goals, operations, communications, and data collection practices. This article, based on a review of program materials and interviews with key program managers, makes an important contribution by providing a descriptive account of the US EPA's Performance Track Program and the most longstanding ELPs across 17 states.

While improving environmental quality stands out as the most important goal of ELPs, a majority of the programs we studied exhibited some agreement with broader environmental and social goals as well. Ten of the 18 programs indicated support for the goals of shifting the environmental performance curve, reducing costs, improving relationships, and changing culture at facilities and agencies. While a majority of programs share these goals, they generally seemed

[71] BEYOND COMPLIANCE, *supra* note 8.

secondary. Program documents infrequently mentioned them, and program officials rarely identified them as goals until we asked them explicitly.

Most program tiers required potential members to comply with environmental regulations, to have an EMS in place, and to set environmental performance goals. But those requirements were not maximally stringent. Typically programs permitted minor episodes of non-compliance, and only a minority of programs required potential members to certify their EMSs through an independent audit. A few tiers did not require compliance with environmental regulations for continued membership, even among tiers in the highest categories. Moreover, a majority of program tiers, even at the highest levels, did not explicitly require that members demonstrate progress toward their commitments.

Unlike members' activities, programs were more uniform in the types of activities undertaken by the program staff themselves. All programs provided some type of incentive to members, and almost all programs facilitated information sharing and provided opportunities for members to interact with program officials and other stakeholders.

Programs used various methods of communication and sometimes made facility performance data available to the public. A majority of programs issued press releases about members of programs and posted at least some information about individual membership on program websites. The U.S. EPA and five states posted members' applications and annual performance reports on their websites, and about one-third published annual reports about the overall impact of their programs.

We found that most program tiers in our sample collected highly relevant data to track the goal of improving the environment, and about half of the program tiers collected somewhat relevant data to track the goal of improving multi-stakeholder relationships and highly relevant

data to track the goal of reducing costs for facilities and agencies. But we also found that, with the exception of the U.S. EPA's Performance Track, no programs collected data to measure the goals of changing the culture at facilities and agencies and moving the environmental performance curve, even though both are important goals identified as such by officials from a majority of the programs. In other words, the collection of environmental performance data was common, but the collection of measures of other stated goals of ELPs was infrequent or entirely nonexistent.

Our study has assessed three important characteristics of the data collected by programs to track progress toward their goals: the quality of the data, the aggregational value of the data, and the inferential value of the data. We used a simple but comprehensive rubric to assign a score of "high," "medium," or "low" on each characteristic to the data collected in support of each program goal by each program tier. Our assessment of programs' data addresses whether the data collected by programs could be credibly used to analyze program effectiveness.

We found that the data collected are of reasonable quality but usually possessed only limited aggregational and inferential value and thus are of limited value in assessing program efficacy. On average, the data collected by programs scored "medium" on quality: most programs' structures and designs provided some but not all potential safeguards for ensuring high-quality data. What the data typically lacked was aggregational and inferential value. In other words, they did not share critical features that would allow them to be added up across all members in a particular program tier and used in empirical analysis to assess program efficacy appropriately. There were exceptions, of course: the data from some programs or program tiers actually scored "high" or "medium" on all characteristics. On the whole, however, the data

collected by programs in our sample cannot be credibly be used to assess most programs' effectiveness.

These general data weaknesses are significant, if not even surprising, given the aspirations for ELPs to facilitate policy learning and the claims that ELPs are delivering important environmental benefits.[72] The reality is that government has not been collecting the data needed to be able to determine whether ELPs are truly making a difference in achieving their goals. The mere fact that ELP members report making reductions in their environmental footprints does not answer the question of whether ELPs caused these reductions to come about. After all, businesses do have other reasons to go beyond compliance with existing environmental regulations, including the incentive to try to stave off future regulations.[73] Some, if not all, of the changes may have occurred for other reasons. As such, the empirical inquiry we have provided in this article charts the course for the kind of data collection and analysis that will needed to understand whether ELPs truly amount to a positive force for change or are merely symbolic gestures distracting attention from the search for more meaningful solutions to today's environmental problems.

[72] *See supra* notes 18 & 23. *See also* EPA Innovation Action Council, Everyday Choices: Opportunities for Environmental Stewardship (2005), *available at* http://www.epa.gov/NCEI/pdf/rpt2admin.pdf ("EPA has used challenge programs successfully…spurring environmental improvement on a facility-wide basis (Performance Track)").

[73] *See* FOREST REINHARDT, DOWN TO EARTH: APPLYING BUSINESS PRINCIPLES TO ENVIRONMENTAL MANAGEMENT (2000); THOMAS P. LYON & JOHN W. MAXWELL, CORPORATE ENVIRONMENTALISM AND PUBLIC POLICY (2004)

Appendix I

The U.S. EPA's National Environmental Performance Track

Established in 2000, Performance Track is considered one of the U.S. EPA's most successful partnership programs. According to agency documents, the goals of the program are to deliver measurable environmental results, shift the environmental performance curve, and collaborate more effectively by "building partnerships, measuring results more systematically, and creating opportunities for more learning and sharing of information."

To qualify for membership in Performance Track, a facility must meet four criteria. It must:

- have implemented an environmental management system (EMS), and the EMS must have been independently assessed
- have a record of sustained compliance with environmental laws and regulations
- demonstrate specific past environmental achievements and commit to achieving measurable environmental results that go beyond compliance, and
- provide information to the local community on its environmental activities

To join Performance Track, a facility must complete an application that provides information about its size, sector, EMS, past achievements, future goals, and public outreach and reporting. A key component of the application is the section in which the facility describes its goals for improving its environmental performance in the future. Large facilities must establish four such goals in areas ranging from energy conservation to solid waste reduction, while small facilities need only establish two. A facility must also complete an "Environmental Requirements Checklist" indicating the environmental regulations to which it is subject.

Once admitted, a facility must annually submit to EPA a performance report that provides detailed information about its progress toward achieving its goals. EPA requires that facilities report on their progress in absolute terms (pounds of pollutant reduced) as well as on a normalized basis (pounds of pollutant reduced taking into account changes in production). EPA recognizes Performance Track members as top performers, presents opportunities to interact with high-level EPA administrators, limits routine agency inspections, and offers a package of administrative and regulatory incentives.

EPA posts members' applications and annual performance reports on its website. It annually prepares a report that summarizes members' contributions to environmental protection. According to the agency's most recent report, Performance Track members have collectively reduced the water they use by about 3.5 billion gallons. They have reduced greenhouse gas emissions by more than 97,000 tons and increased their use of recycled materials by 135,000 tons. They have also protected more than 14,000 acres of land.

Membership in Performance Track currently stands at about 500 facilities from across a wide variety of industrial sectors and from nonprofit and governmental organizations.

Table 1. Programs in Our Sample

	program inception	number of members as of July 2007	number of tiers or membership levels	FTEs assigned to program
United States EPA National Environmental Performance Track	2000	450	1	19
Colorado Environmental Leadership Program	1998	30	3	1
Georgia Partnership for a Sustainable Georgia	2004, based on an earlier program started in 1998	118	4	6
Idaho GEMStars	1998	20	3	2
Louisiana Environmental Leadership Program	2000	92	1	1
Maine STEP-UP	2000	13	3	0.5
Michigan Clean Corporate Citizen	1997	121	1	1.5
Missouri Environmental Management Partnership	2002	4	4	<1
New Mexico Green Zia Environmental Excellence Recognition Program	1998	4	3	1
North Carolina Environmental Stewardship Initiative	2002	71	3	4.25
Oklahoma Environmental Performance and Recognition Program	2001	0	3	1
Oregon Green Permits Program	1999	3	3	0
South Carolina Environmental Excellence Program	1998	30	1	0.4
Tennessee Pollution Prevention Partnership	2000	613	4	4
Texas Clean Texas	1998	380	4	3
Vermont Business Environmental Partnership	1998	33	2	1
Virginia Environmental Excellence Program	2000	396	3	2
Wisconsin Green Tier	1995; relaunched in 2004	11	2	4

Table 2. Programs Tiers and Tier Types

	Tier or Membership Level	Tier Type or Category	number of members as of July 2007
United States EPA National Environmental Performance Track	*not applicable*	tracking	450
Colorado Environmental Leadership Program	Bronze Achiever Silver Partner Gold Leader	on-ramp middle tracking	10 0 20
Georgia Partnership for a Sustainable Georgia	Champion Bronze Silver Gold	advocate on-ramp middle stewardship	32 63 14 9
Idaho GEMStars	Initial Tier Middle Tier Highest Tier	on-ramp middle middle	20 0 0
Louisiana Environmental Leadership Program	*not applicable*	middle	92
Maine STEP-UP	Commitment Track Leadership Track Sustainability Track	middle middle/tracking stewardship	1 12 0
Michigan Clean Corporate Citizen	*not applicable*	middle/tracking	121
Missouri Environmental Management Partnership	Partner Certified Partner Advanced Partner Certified Advanced Partner	middle middle tracking tracking	0 2 1 0
New Mexico Green Zia Environmental Excellence Recognition Program	Commitment Level Achievement Level Environmental Excellence Award	on-ramp middle tracking	4 0 0
North Carolina Environmental Stewardship Initiative	Partner Rising Steward Steward	on-ramp middle/tracking tracking/stewardship	52 13 6
Oklahoma Environmental Performance and Recognition Program	Commitment Level Achievement Level Excellence Level	on-ramp on-ramp middle	0 0 0
Oregon Green Permits Program	Participant Achiever Leader	middle tracking stewardship	0 3 0
South Carolina Environmental Excellence Program	*not applicable*	on-ramp/middle	30
Tennessee Pollution Prevention Partnership	Prospect Level Pledge Level Partner Level Performer Level	advocate on-ramp middle middle/tracking	418 181 30 2
Texas Clean Texas	Bronze Member Silver Member Gold Member Platinum Member	on-ramp middle middle/tracking stewardship	263 0 7 10
Vermont Business Environmental Partnership	Environmental Partner Environmental Leader	middle tracking	31 2
Virginia Environmental Excellence Program	Environmental Enterprise (E2) Exemplary Environmental Enterprise (E3) Extraordinary Environmental Enterprise (E4)	middle middle tracking	250 135 11
Wisconsin Green Tier	Tier 1 Tier 2	on-ramp middle	10 1

Table 3. Program goals

	Do program goals include:				
	direct environmental benefits	improvements in multi-stakeholder relationships	moving the environmental performance curve	culture change at facilities and agencies	cost savings for facilities and agencies
United States EPA National Environmental Performance Track	Y(DM)	Y(DM)	Y(DM)	Y(DP)	Y(P)
Colorado Environmental Leadership Program	Y (DM)	Y (P)	N (D)	Y (P)	Y (P)
Georgia Partnership for a Sustainable Georgia	Y (DM)	Y (M)	Y (M)	Y (D)	Y (D)
Idaho GEMStars	Y (DM)	N (P)	Y (D), N (P)	N (P)	Y (M)
Louisiana Environmental Leadership Program	Y (DM)	N (P)	N (P)	N (P)	Y (M)
Maine STEP-UP	Y (DM)	N (P)	N (P)	N (P)	N (P)
Michigan Clean Corporate Citizen	Y (DM)	N (D)	N (D)	Y (P)	Y (DP)
Missouri Environmental Management Partnership	Y (DM)	Y (DM)	Y (D), N (P)	Y (DP)	Y (DP)
New Mexico Green Zia Environmental Excellence Recognition Program	Y (DP)	N (DP)	N (DP)	Y (P)	N (DP)
North Carolina Environmental Stewardship Initiative	Y (D)	Y (DP)	Y (P)	Y (P)	Y (D), N (P)
Oklahoma Environmental Performance and Recognition Program	Y (D)	N (D)	N (D)	Y (D)	N (D)
Oregon Green Permits Program	Y (DM)	Y (P)	Y (P)	Y (P)	N (D)
South Carolina Environmental Excellence Program	Y (DP)	Y (P)	Y (P)	Y (P)	N (P)
Tennessee Pollution Prevention Partnership	Y (DM)	Y (M)	Y (P)	Y (P)	Y (P)
Texas Clean Texas	Y (DM)	Y (D), N (P)	Y (P)	Y (P)	Y (P)
Vermont Business Environmental Partnership	Y(DM)	Y(P)	Y(P)	Y(P)	Y(P)
Virginia Environmental Excellence Program	Y(DM)	Y(P)	Y(P)	Y(P)	Y(P)
Wisconsin Green Tier	Y(DM)	Y(DP)	N(P)	N(P)	Y(DP)

Key: D indicates information came from descriptive materials.
M indicates that a program manager mentioned the information during the interview without a prompt from us.
P indicates that a program manager mentioned the information during the interview following a prompt from us.

Figure 1. Typical Program Goals:
How Many Programs Share Them?

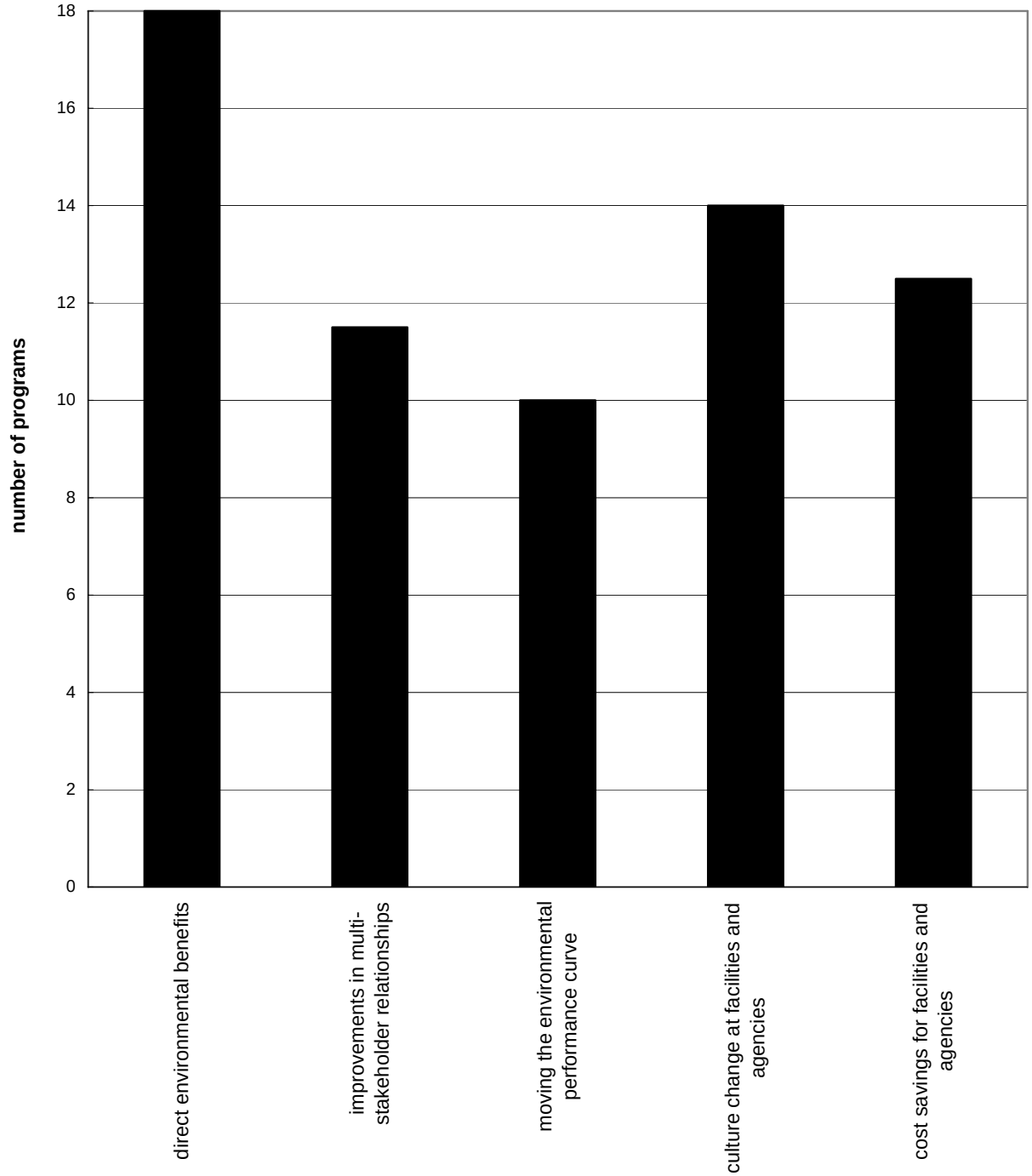

Table 4. Activities Required to Join Programs, by Program and Tier

	Tier or Membership Level	Requirements to join program				
		compliance with regulations	EMS	independent EMS certification	environmental performance commitments	community engagement commitments
United States EPA National Environmental Performance Track	*not applicable*	Y	Y	Y	Y	Y
Colorado Environmental Leadership Program	Bronze Achiever	Y	N	N	N	N
	Silver Partner	Y	N	N	Y	N
	Gold Leader	Y	Y	Y	Y	N
Georgia Partnership for a Sustainable Georgia	Champion	N	N	N	N	N
	Bronze	N	N	N	Y	N
	Silver	Y	N	N	Y	Y
	Gold	Y	Y	Y	Y	Y
Idaho GEMStars	Initial Tier	Y	N	N	Y	N
	Middle Tier	Y	N	N	Y	N
	Highest Tier	Y	N	N	Y	N
Louisiana Environmental Leadership Program	*not applicable*	Y	N	N	Y	Y
Maine STEP-UP	Commitment Track	Y	Y	Y	Y	N
	Leadership Track	Y	Y	Y	Y	Y
	Sustainability Track	Y	Y	Y	Y	Y
Michigan Clean Corporate Citizen	*not applicable*	Y	Y	N	Y	N
Missouri Environmental Management Partnership	Partner	Y	Y	N	Y	N
	Certified Partner	Y	Y	Y	Y	N
	Advanced Partner	Y	Y	N	Y	Y
	Certified Advanced Partner	Y	Y	Y	Y	Y
New Mexico Green Zia Environmental Excellence Recognition Program	Commitment Level	N	N	N	N	N
	Achievement Level	N	Y	N	N	N
	Environmental Excellence Award	Y	Y	N	N	Y
North Carolina Environmental Stewardship Initiative	Partner	Y	N	N	Y	N
	Rising Steward	Y	Y	Y	Y	N
	Steward	Y	Y	Y	Y	Y
Oklahoma Environmental Performance and Recognition Program	Commitment Level	Y	N	N	Y	N
	Achievement Level	Y	Y	N	Y	N
	Excellence Level	Y	Y	N	Y	N
Oregon Green Permits Program	Participant	Y	Y	N	Y	Y
	Achiever	Y	Y	Y	Y	Y
	Leader	Y	Y	Y	Y	Y
South Carolina Environmental Excellence Program	*not applicable*	Y	Y	N	Y	Y
Tennessee Pollution Prevention Partnership	Prospect Level	N	N	N	N	N
	Pledge Level	N	N	N	Y	N
	Partner Level	Y	N	N	Y	N
	Performer Level	Y	Y	N	Y	Y
Texas Clean Texas	Bronze Member	Y	N	N	Y	Y
	Silver Member	Y	Y	Y	N	N
	Gold Member	Y	Y	Y	Y	Y
	Platinum Member	Y	Y	Y	Y	Y
Vermont Business Environmental Partnership	Environmental Partner	N	N	N	Y	N
	Environmental Leader	Y	Y	Y	Y	N
Virginia Environmental Excellence Program	Environmental Enterprise (E2)	Y	N	N	Y	N
	Exemplary Environmental Enterprise (E3)	Y	Y	N	Y	N
	Extraordinary Environmental Enterprise (E4)	Y	Y	Y	Y	Y
Wisconsin Green Tier	Tier 1	Y	Y	N	Y	N
	Tier 2	Y	Y	Y	Y	Y

Table 5. Activities Required to Join State and Federal ELPs

Activity Required to Join	all programs, all tiers (48 tiers)	Middle, Tracking, and Stewardship tiers (35 tiers)	Tracking and Stewardship tiers (13 tiers)
compliance with regulations	85.4%	94.3%	100%
EMS	62.5%	77.1%	100%
independent EMS certification	37.5%	51.4%	84.6%
environmental performance commitments	85.4%	91.4%	92.3%
community engagement commitments	41.7%	51.4%	84.6%

Table 6. Activities Required to Remain in Programs, by Program and Tier

	Tier or Membership Level	Requirements to maintain membership in program				
		compliance with regulations	maintain or develop EMS	performance reporting	progress toward achieving commitments	community engagement
United States EPA National Environmental Performance Track	*not applicable*	Y	Y	Y	Y	Y
Colorado Environmental Leadership Program	Bronze Achiever	not applicable	N	N	not applicable	N
	Silver Partner	Y	Y	Y	Y	N
	Gold Leader	Y	Y	Y	Y	N
Georgia Partnership for a Sustainable Georgia	Champion	N	N	Y	N	N
	Bronze	Y	Y	Y	N	N
	Silver	Y	Y	Y	N	Y
	Gold	Y	Y	Y	N	Y
Idaho GEMStars	Initial Tier	N	N	Y		N
	Middle Tier	N	N	Y	not applicable	N
	Highest Tier	N	N	Y		N
Louisiana Environmental Leadership Program	*not applicable*	Y	N	Y	N	N
Maine STEP-UP	Commitment Track	Y	N	Y	N	N
	Leadership Track	Y	N	Y	N	N
	Sustainability Track	Y	N	Y	N	N
Michigan Clean Corporate Citizen	*not applicable*	Y	Y	Y	N *	N
Missouri Environmental Management Partnership	Partner	Y	Y	Y	Y	N
	Certified Partner	Y	Y	Y	Y	N
	Advanced Partner	Y	Y	Y	Y	Y
	Certified Advanced Partner	Y	Y	Y	Y	Y
New Mexico Green Zia Environmental Excellence Recognition Program	Commitment Level Achievement Level Environmental Excellence Award	Not applicable. Facilities apply each year.				
North Carolina Environmental Stewardship Initiative	Partner	N	Y	Y	N	N
	Rising Steward	N	Y	Y	Y	N
	Steward	N	Y	Y	Y	Y
Oklahoma Environmental Performance and Recognition Program	Commitment Level Achievement Level Excellence Level	Information not available.				
Oregon Green Permits Program	Participant	Y	Y	Y	N	Y
	Achiever	Y	Y	Y	N	Y
	Leader	Y	Y	Y	N	Y
South Carolina Environmental Excellence Program	*not applicable*	Y	Y	Y	Y	Y
Tennessee Pollution Prevention Partnership	Prospect Level	N	N	N	N	N
	Pledge Level	N	N	N	N	N
	Partner Level	Y	N	Y	N *	N
	Performer Level	Y	Y	Y	N *	Y
Texas Clean Texas	Bronze Member	Y	N	Y	N	Y
	Silver Member	Y	Y	Y	N	N
	Gold Member	Y	Y	Y	N	Y
	Platinum Member	Y	Y	Y	N	Y
Vermont Business Environmental Partnership	Environmental Partner	N	N	Y	N	N
	Environmental Leader	Y	Y	Y	N	N
Virginia Environmental Excellence Program	Environmental Enterprise (E2)	Y	Y	Y	N	N
	Exemplary Environmental Enterprise (E3)	Y	Y	Y	N	Y
	Extraordinary Environmental Enterprise (E4)	Y	Y	Y	N	Y
Wisconsin Green Tier	Tier 1	Y	Y	Y	N	N
	Tier 2	Y	Y	Y	Y	Y

* In each of these cases, we received conflicting information from different sources. In Table 7, we counted each of these as one-half "yes" and one-half "no."

Table 7. Activities Required to Maintain Membership in State and Federal ELPs

Activity Required to Maintain Membership	all programs, all tiers (48 tiers)	Middle, Tracking, and Stewardship tiers (35 tiers)	Tracking and Stewardship tiers (13 tiers)
compliance with regulations	75.6%	84.4%	91.7%
maintain or develop EMS	66.7%	75.0%	91.7%
performance reporting	92.9%	100%	100%
progress toward achieving commitments	32.9%	38.3%	41.7%
community engagement	40.5%	46.9%	75.0%

Note: Percentages are calculated excluding any activities determined to be "not applicable," as shown in Table 6.

Table 8. Program Activities

	Does the program offer:			
	opportunities to interact with representatives of government, other firms, and the community	mentoring	incentives to members	information sharing
United States EPA National Environmental Performance Track	Y	Y	Y	Y
Colorado Environmental Leadership Program	Y	Y	Y	Y
Georgia Partnership for a Sustainable Georgia	Y	Y	Y	Y
Idaho GEMStars	Y	Y	Y	Y
Louisiana Environmental Leadership Program	Y	N	Y	Y
Maine STEP-UP	Y	Y	Y	Y
Michigan Clean Corporate Citizen	Y	N	Y	Y
Missouri Environmental Management Partnership	Y	N	Y	Y
New Mexico Green Zia Environmental Excellence Recognition Program	Y	Y	Y	Y
North Carolina Environmental Stewardship Initiative	Y	Y	Y	Y
Oklahoma Environmental Performance and Recognition Program	N	N	Y	Y
Oregon Green Permits Program	N	N	Y	N
South Carolina Environmental Excellence Program	Y	Y	Y	Y
Tennessee Pollution Prevention Partnership	Y	Y	Y	Y
Texas Clean Texas	N *	N *	Y	Y
Vermont Business Environmental Partnership	Y	Y	Y	Y
Virginia Environmental Excellence Program	Y	N	Y	Y
Wisconsin Green Tier	Y	N	Y	Y

* In each of these cases, we received conflicting information from different sources. In Figure 2, we counted each of these as one-half "yes" and one-half "no."

Figure 2. Typical Program Activities:
How Many Programs Share Them?

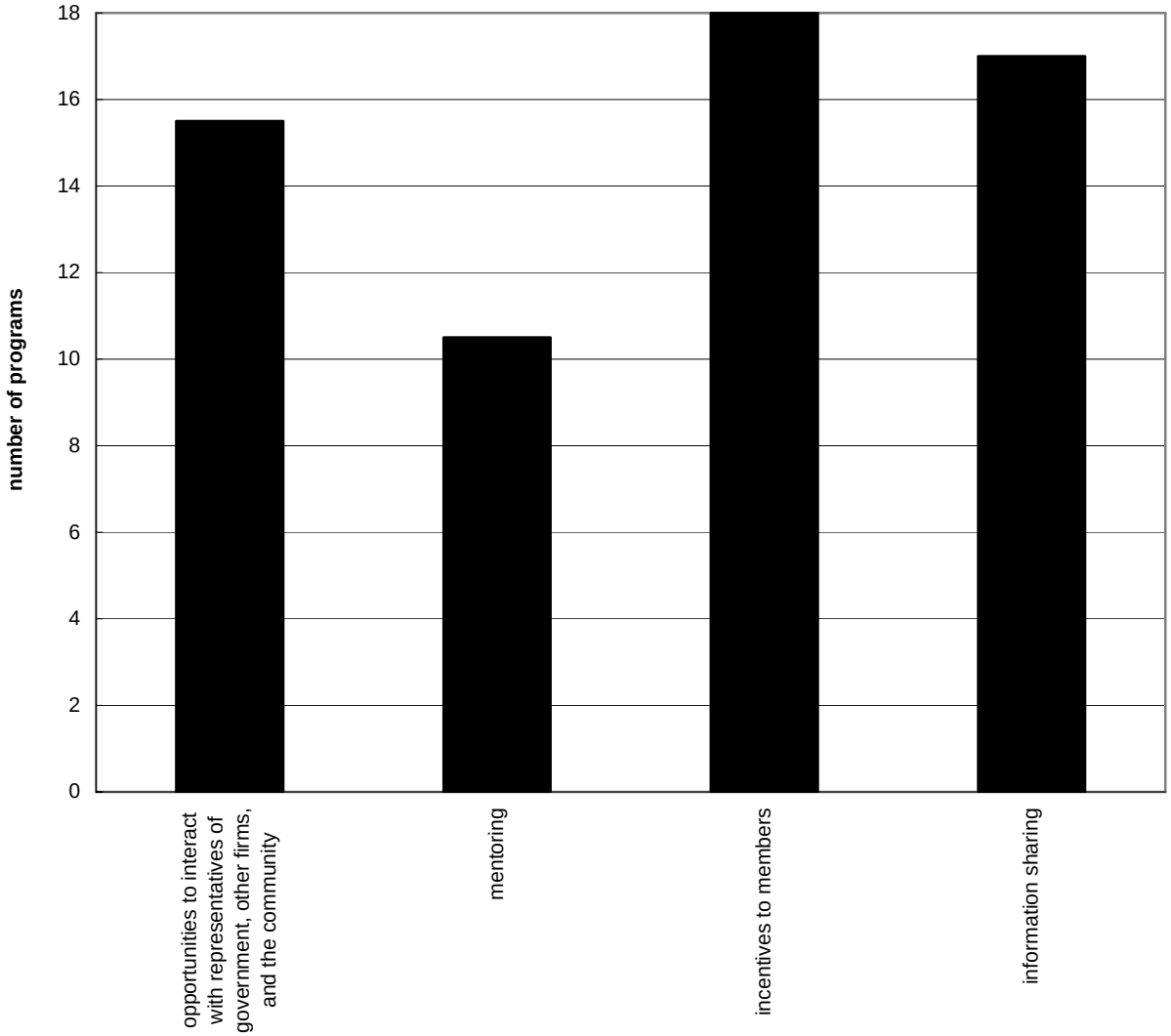

Table 9. Program Communication Strategies

	Does the program communicate its results thorough:			
	annual reports about the program posted on website	information on individual members posted on website	public meetings	press releases
United States EPA National Environmental Performance Track	Y	Y	Y	Y
Colorado Environmental Leadership Program	N	Y	N	Y
Georgia Partnership for a Sustainable Georgia	N	Y	Y	Y
Idaho GEMStars	N	Y	N	Y
Louisiana Environmental Leadership Program	Y *	Y *	N	Y
Maine STEP-UP	N	N	N	Y
Michigan Clean Corporate Citizen	Y	Y	N	N
Missouri Environmental Management Partnership	N	Y	N	N
New Mexico Green Zia Environmental Excellence Recognition Program	Y	Y	N	Y
North Carolina Environmental Stewardship Initiative	Y	Y	Y	Y
Oklahoma Environmental Performance and Recognition Program	N	N	N	N
Oregon Green Permits Program	N	Y	N	N
South Carolina Environmental Excellence Program	N	N	Y	Y
Tennessee Pollution Prevention Partnership	N	Y	Y	Y
Texas Clean Texas	N	N	Y	Y
Vermont Business Environmental Partnership	N	N	Y	Y
Virginia Environmental Excellence Program	Y	N	Y	Y
Wisconsin Green Tier	Y	Y	Y	Y

* In each of these cases, we received conflicting information from different sources. In Figure 3, we counted each of these as one-half "yes" and one-half "no."

Figure 3. Typical Methods of Communication:
How Many Programs Share Them?

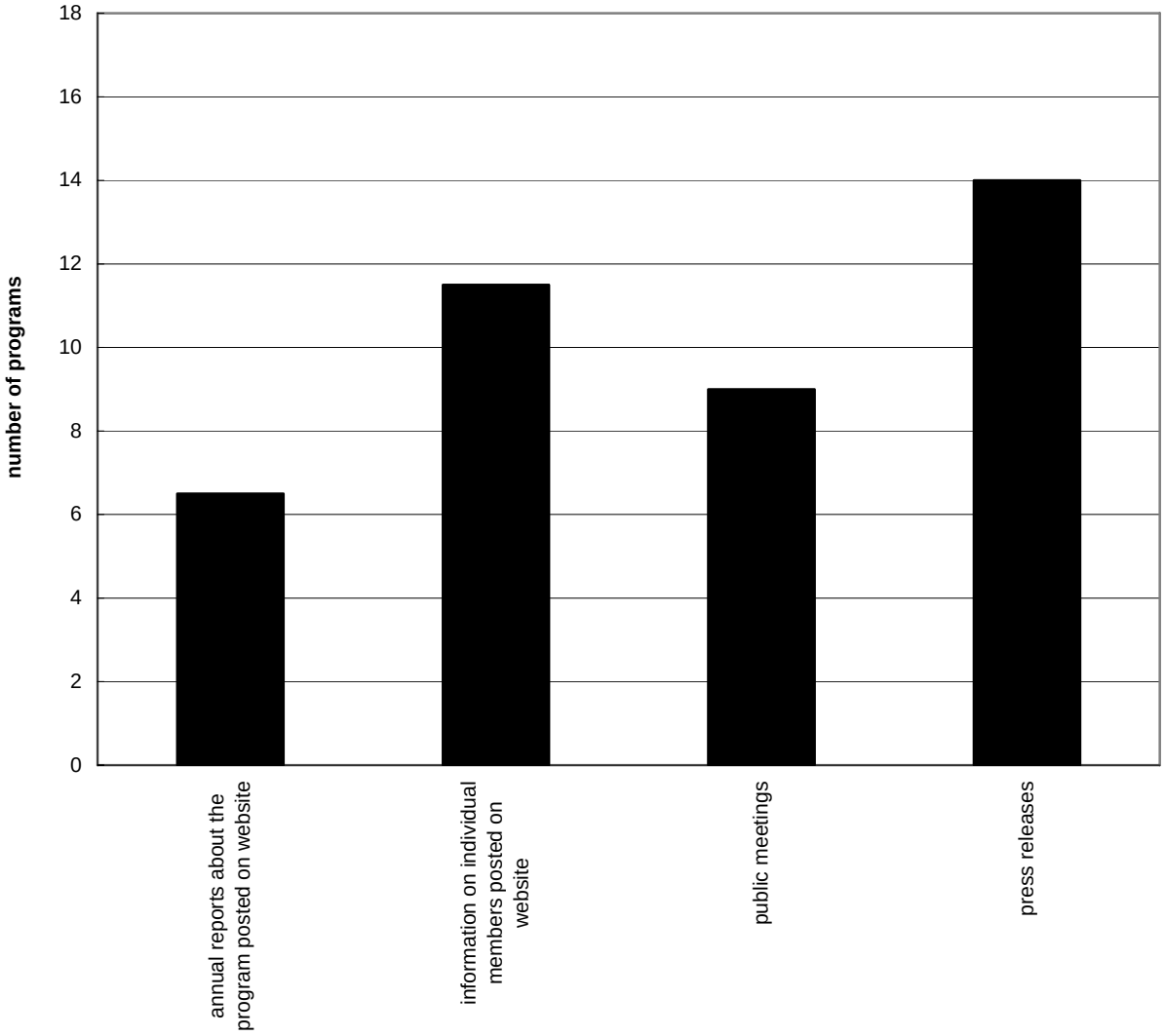

Table 10. Characteristics of Data for Evaluating Results of Performance-Based Environmental Programs

Relevance	**Do the data measure the stated goals of the program?**
	Best case: Data directly measure the goal or outcome.
	Second-best case: Data measure some proxy of the goal or outcome (a variable highly correlated with the goal or outcome).
Quality	**Are the data credible and reliable?**
	Program provides clear instructions for data collection and reporting.
	Facilities have an EMS (preferably third-party certified) that helps to guide data collection.
	Program includes a screening process for review of data accuracy and completeness.
	Program conducts site visits to verify data and/or EMS.
	One or more identifiable individuals certify the accuracy of the data at each facility.
Aggregational Value	**Can the data from individual facilities be aggregated?**
	Data are reported in standard units (quantitative or qualitative).
	Data include normalization factors where appropriate.
Inferential Value	**Can the data be used to draw broader conclusions about the impact of the environmental program?**
	Longitudinal data are available:
	• Data on performance of participating facilities over time.
	• Data on performance of participating facilities before the program began.
	Cross-sectional data on the performance of non-participants are available:
	• Data specifically gathered by program.
	• Data not gathered by program but available through other sources.
Accessibility	**Are the data readily available for analysis by members of the public?**
	Data are available to the public in a timely manner.
	Complete and thorough data are available to the public.

Table 11. Characteristics of Data Collected in Support of the Goal of "Direct Environmental Benefits"

	Tier or Membership Level	Goal: Direct environmental benefits				
		data relevance	data quality	aggregational value	inferential value	data accessibility
United States EPA National Environmental Performance Track	*not applicable*	H	H	H	M	H
Colorado Environmental Leadership Program	Bronze Achiever	H	L	L	L	L
	Silver Partner	H	M	L	L	L
	Gold Leader	H	H	H	M	L
Georgia Partnership for a Sustainable Georgia	Champion	n/a	n/a	n/a	n/a	n/a
	Bronze	H	M	M	L	H
	Silver	H	M	H	M	H
	Gold	H	H	H	M	H
Idaho GEMStars	Initial Tier	H	M	L	L	M
	Middle Tier	H	M	L	L	M
	Highest Tier	H	M	L	L	M
Louisiana Environmental Leadership Program	*not applicable*	H	L	L	L	L
Maine STEP-UP	Commitment Track	H	M	M	M	L
	Leadership Track	H	M	M	M	L
	Sustainability Track	H	M	M	M	L
Michigan Clean Corporate Citizen	*not applicable*	H	M	L	M	M
Missouri Environmental Management Partnership	Partner	H	H	M	M	M
	Certified Partner	H	H	M	M	M
	Advanced Partner	H	H	M	M	M
	Certified Advanced Partner	H	H	M	M	M
New Mexico Green Zia Environmental Excellence Recognition Program	Commitment Level	H	L	L	L	M
	Achievement Level	H	M	L	M	M
	Environmental Excellence Award	H	M	L	M	M
North Carolina Environmental Stewardship Initiative	Partner	H	M	H	M	M
	Rising Steward	H	H	H	M	M
	Steward	H	H	H	M	M
Oklahoma Environmental Performance and Recognition Program	Commitment Level	n/a	n/a	n/a	n/a	n/a
	Achievement Level	n/a	n/a	n/a	n/a	n/a
	Excellence Level	n/a	n/a	n/a	n/a	n/a
Oregon Green Permits Program	Participant	H	H	L	M	H
	Achiever	H	H	L	M	H
	Leader	H	H	L	M	H
South Carolina Environmental Excellence Program	*not applicable*	H	M	L	L	L
Tennessee Pollution Prevention Partnership	Prospect Level	n/a	n/a	n/a	n/a	n/a
	Pledge Level	H	L	L	L	L
	Partner Level	H	M	L	L	M
	Performer Level	H	H	L	L	H
Texas Clean Texas	Bronze Member	H	M	H	M	L
	Silver Member	H	H	H	M	L
	Gold Member	H	H	H	M	L
	Platinum Member	H	H	H	M	L
Vermont Business Environmental Partnership	Environmental Partner	H	M	M	L	L
	Environmental Leader	H	H	M	L	L
Virginia Environmental Excellence Program	Environmental Enterprise (E2)	H	M	H	M	L
	Exemplary Environmental Enterprise (E3)	H	H	H	M	L
	Extraordinary Environmental Enterprise (E4)	H	H	H	M	L
Wisconsin Green Tier	Tier 1	H	M	L	L	H
	Tier 2	H	H	L	L	H

Key: "H" indicates "high," our top score in a category. "M" indicates "medium." "L" indicates "low," our bottom score in a category. "n/a" indicates not applicable.

Table 12. Characteristics of Data Collected in Support of the Goal of "Direct Environmental Benefits"

Data characteristic	score	all programs, all tiers (48 tiers)	Middle, Tracking, and Stewardship tiers (35 tiers)	Tracking and Stewardship tiers (13 tiers)
data relevance	High	89.6%	97.1%	100%
	Medium	0%	0%	0%
	Low	0%	0%	0%
	n/a	10.4%	2.9%	0%
data quality	High	41.7%	57.1%	84.6%
	Medium	39.6%	37.1%	15.4%
	Low	8.3%	2.9%	0%
	n/a	10.4%	2.9%	0%
aggregational value	High	29.2%	34.3%	46.2%
	Medium	20.8%	25.7%	30.8%
	Low	39.6%	37.1%	23.1%
	n/a	10.4%	2.9%	0%
inferential value	High	0%	0%	0%
	Medium	56.2%	71.4%	92.3%
	Low	33.3%	25.7%	7.7%
	n/a	10.4%	2.9%	0%
data accessibility	High	20.8%	22.9%	30.8%
	Medium	31.2%	34.3%	30.8%
	Low	37.5%	40.0%	38.5%
	n/a	10.4%	2.9%	0%

Note: "High" is our top score in a category. "Low" is our bottom score in a category. Percentages based on Table 11.

Table 13. Characteristics of Data Collected in Support of the Goal of "Improvements in Multi-Stakeholder Relationships"

	Tier or Membership Level	Goal: Improvements in multi-stakeholder relationships				
		data relevance	data quality	aggregational value	inferential value	data accessibility
United States EPA National Environmental Performance Track	*not applicable*	M	M	L	L	H
Colorado Environmental Leadership Program	Bronze Achiever	n/a	n/a	n/a	n/a	n/a
	Silver Partner	n/a	n/a	n/a	n/a	n/a
	Gold Leader	M	M	L	L	L
Georgia Partnership for a Sustainable Georgia	Champion	M	M	M	L	H
	Bronze	n/a	n/a	n/a	n/a	n/a
	Silver	M	H	M	L	H
	Gold	M	H	M	L	H
Idaho GEMStars	Initial Tier	n/a	n/a	n/a	n/a	n/a
	Middle Tier	n/a	n/a	n/a	n/a	n/a
	Highest Tier	n/a	n/a	n/a	n/a	n/a
Louisiana Environmental Leadership Program	*not applicable*	n/a	n/a	n/a	n/a	n/a
Maine STEP-UP	Commitment Track	n/a	n/a	n/a	n/a	n/a
	Leadership Track	n/a	n/a	n/a	n/a	n/a
	Sustainability Track	n/a	n/a	n/a	n/a	n/a
Michigan Clean Corporate Citizen	*not applicable*	n/a	n/a	n/a	n/a	n/a
Missouri Environmental Management Partnership	Partner	n/a	n/a	n/a	n/a	n/a
	Certified Partner	n/a	n/a	n/a	n/a	n/a
	Advanced Partner	M	M	M	M	M
	Certified Advanced Partner	M	M	M	M	M
New Mexico Green Zia Environmental Excellence Recognition Program	Commitment Level	L	L	L	L	M
	Achievement Level	L	L	L	L	M
	Environmental Excellence Award	L	L	L	L	M
North Carolina Environmental Stewardship Initiative	Partner	n/a	n/a	n/a	n/a	n/a
	Rising Steward	n/a	n/a	n/a	n/a	n/a
	Steward	L	M	M	L	M
Oklahoma Environmental Performance and Recognition Program	Commitment Level	n/a	n/a	n/a	n/a	n/a
	Achievement Level	n/a	n/a	n/a	n/a	n/a
	Excellence Level	n/a	n/a	n/a	n/a	n/a
Oregon Green Permits Program	Participant	M	H	L	L	H
	Achiever	M	H	L	L	H
	Leader	M	H	L	L	H
South Carolina Environmental Excellence Program	*not applicable*	M	M	L	L	L
Tennessee Pollution Prevention Partnership	Prospect Level	n/a	n/a	n/a	n/a	n/a
	Pledge Level	n/a	n/a	n/a	n/a	n/a
	Partner Level	n/a	n/a	n/a	n/a	n/a
	Performer Level	M	H	L	L	M
Texas Clean Texas	Bronze Member	M	M	M	L	L
	Silver Member	n/a	n/a	n/a	n/a	n/a
	Gold Member	M	H	M	L	L
	Platinum Member	M	H	M	L	L
Vermont Business Environmental Partnership	Environmental Partner	n/a	n/a	n/a	n/a	n/a
	Environmental Leader	n/a	n/a	n/a	n/a	n/a
Virginia Environmental Excellence Program	Environmental Enterprise (E2)	M	L	L	L	L
	Exemplary Environmental Enterprise (E3)	M	M	L	L	L
	Extraordinary Environmental Enterprise (E4)	M	M	L	L	L
Wisconsin Green Tier	Tier 1	M	L	L	L	H
	Tier 2	M	L	L	L	H

Key: "H" indicates "high," our top score in a category. "M" indicates "medium." "L" indicates "low," our bottom score in a category. "n/a" indicates not applicable.

Table 14. Characteristics of Data Collected in Support of the Goal of "Improvements in Multi-Stakeholder Relationships"

Data characteristic	score	all programs, all tiers (48 tiers)	Middle, Tracking, and Stewardship tiers (35 tiers)	Tracking and Stewardship tiers (13 tiers)
data relevance	High	0%	0%	0%
	Medium	41.7%	45.7%	69.2%
	Low	8.3%	8.6%	15.4%
	n/a	50.0%	45.7%	15.4%
data quality	High	16.7%	22.9%	30.8%
	Medium	20.8%	20.0%	46.2%
	Low	12.5%	11.4%	7.7%
	n/a	50.0%	45.7%	15.4%
aggregational value	High	0%	0%	0%
	Medium	18.8%	20.0%	38.5%
	Low	31.2%	34.3%	46.2%
	n/a	50.0%	45.7%	15.4%
inferential value	High	0%	0%	0%
	Medium	4.2%	5.7%	15.4%
	Low	45.8%	48.6%	69.2%
	n/a	50.0%	45.7%	15.4%
data accessibility	High	18.8%	20.0%	30.8%
	Medium	14.6%	17.1%	30.8%
	Low	16.7%	17.1%	23.1%
	n/a	50.0%	45.7%	15.4%

Note: "High" is our top score in a category. "Low" is our bottom score in a category. Percentages based on Table 13.

Table 15. Characteristics of Data Collected in Support of the Goal of "Cost Savings for Facilities and Agencies"

	Tier or Membership Level	Goal: Cost savings for facilities and agencies				
		data relevance	data quality	aggregational value	inferential value	data accessibility
United States EPA National Environmental Performance Track	*not applicable*	n/a	n/a	n/a	n/a	n/a
Colorado Environmental Leadership Program	Bronze Achiever	n/a	n/a	n/a	n/a	n/a
	Silver Partner	n/a	n/a	n/a	n/a	n/a
	Gold Leader	n/a	n/a	n/a	n/a	n/a
Georgia Partnership for a Sustainable Georgia	Champion	n/a	n/a	n/a	n/a	n/a
	Bronze	n/a	n/a	n/a	n/a	n/a
	Silver	H	L	M	L	H
	Gold	H	L	M	L	H
Idaho GEMStars	Initial Tier	H	M	M	L	M
	Middle Tier	H	M	M	L	M
	Highest Tier	H	M	M	L	M
Louisiana Environmental Leadership Program	*not applicable*	H	L	M	L	L
Maine STEP-UP	Commitment Track	n/a	n/a	n/a	n/a	n/a
	Leadership Track	n/a	n/a	n/a	n/a	n/a
	Sustainability Track	n/a	n/a	n/a	n/a	n/a
Michigan Clean Corporate Citizen	*not applicable*	H	M	M	L	L
Missouri Environmental Management Partnership	Partner	n/a	n/a	n/a	n/a	n/a
	Certified Partner	n/a	n/a	n/a	n/a	n/a
	Advanced Partner	n/a	n/a	n/a	n/a	n/a
	Certified Advanced Partner	n/a	n/a	n/a	n/a	n/a
New Mexico Green Zia Environmental Excellence Recognition Program	Commitment Level	n/a	n/a	n/a	n/a	n/a
	Achievement Level	H	M	M	L	M
	Environmental Excellence Award	H	M	M	L	M
North Carolina Environmental Stewardship Initiative	Partner	n/a	n/a	n/a	n/a	n/a
	Rising Steward	H	H	M	L	L
	Steward	H	H	M	L	L
Oklahoma Environmental Performance and Recognition Program	Commitment Level	n/a	n/a	n/a	n/a	n/a
	Achievement Level	n/a	n/a	n/a	n/a	n/a
	Excellence Level	n/a	n/a	n/a	n/a	n/a
Oregon Green Permits Program	Participant	n/a	n/a	n/a	n/a	n/a
	Achiever	n/a	n/a	n/a	n/a	n/a
	Leader	n/a	n/a	n/a	n/a	n/a
South Carolina Environmental Excellence Program	*not applicable*	n/a	n/a	n/a	n/a	n/a
Tennessee Pollution Prevention Partnership	Prospect Level	n/a	n/a	n/a	n/a	n/a
	Pledge Level	n/a	n/a	n/a	n/a	n/a
	Partner Level	n/a	n/a	n/a	n/a	n/a
	Performer Level	H	L	M	L	M
Texas Clean Texas	Bronze Member	H	L	M	M	L
	Silver Member	H	L	M	M	L
	Gold Member	H	L	M	M	L
	Platinum Member	H	L	M	M	L
Vermont Business Environmental Partnership	Environmental Partner	H	L	M	L	L
	Environmental Leader	H	L	M	L	L
Virginia Environmental Excellence Program	Environmental Enterprise (E2)	H	L	M	L	L
	Exemplary Environmental Enterprise (E3)	H	L	M	L	L
	Extraordinary Environmental Enterprise (E4)	H	L	M	L	L
Wisconsin Green Tier	Tier 1	H	L	M	L	H
	Tier 2	H	L	M	L	H

Key: "H" indicates "high," our top score in a category. "M" indicates "medium." "L" indicates "low," our bottom score in a category. "n/a" indicates not applicable.

Table 16. Characteristics of Data Collected in Support of the Goal of "Cost Savings for Facilities and Agencies"

Data characteristic	score	all programs, all tiers (48 tiers)	Middle, Tracking, and Stewardship tiers (35 tiers)	Tracking and Stewardship tiers (13 tiers)
data relevance	High	47.9%	57.1%	46.2%
	Medium	0%	0%	0%
	Low	0%	0%	0%
	n/a	52.1%	42.9%	53.8%
data quality	High	4.2%	5.7%	7.7%
	Medium	12.5%	14.3%	7.7%
	Low	31.2%	37.1%	30.8%
	n/a	52.1%	42.9%	53.8%
aggregational value	High	0%	0%	0%
	Medium	47.9%	57.1%	46.2%
	Low	0%	0%	0%
	n/a	52.1%	42.9%	53.8%
inferential value	High	0%	0%	0%
	Medium	8.3%	8.6%	7.7%
	Low	39.6%	48.6%	38.5%
	n/a	52.1%	42.9%	53.8%
data accessibility	High	8.3%	8.6%	7.7%
	Medium	12.5%	14.3%	7.7%
	Low	27.1%	34.3%	30.8%
	n/a	52.1%	42.9%	53.8%

Note: "High" is our top score in a category. "Low" is our bottom score in a category. Percentages based on Table 15.