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ERP States Produce Results

2007 Report

States' Experience
Implementing the
Environmental
Results Program

Executive Summary

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The Environmental Results Program (ERP) is an innovative approach to improving the environmental performance of various business sectors and other groups with large numbers of small facilities. While individual facilities within these groups may release small amounts of pollution, their aggregate impact can be significant. The Massachusetts Department of Environmental Protection developed ERP 10 years ago for the dry cleaner, photo processor and printer sectors. Now, 18 states have developed or are implementing at least one ERP to address challenging environmental issues in 11 sectors/groups. (See box, right.)

To date, six of those states have completed a full ERP cycle and generated results demonstrating the success of this approach.

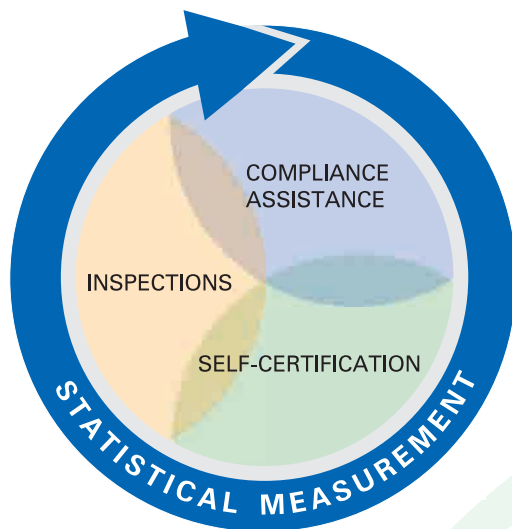
As Figure 1 (below) illustrates, ERP is an integrated system of:

- ▲ Plain-language compliance assistance that promotes pollution prevention (P2);
- ▲ Facility self-assessment and self-certification;
- ▲ Agency inspections; and
- ▲ Statistically based performance measurement.

Where necessary, regulators also conduct a comprehensive facility inventory and targeted enforcement actions. These elements work together to improve performance across a business sector or other group of pollution sources, while deploying government resources strategically and efficiently.

The U.S. Environmental Protection Agency (EPA) has actively supported the diffusion of ERP across states since EPA's Innovation Action Council (IAC) endorsed the approach for "scale up" in 2000. In making its decision, the IAC considered at least three factors: documented evidence of performance improvements in

Figure 1. ERP: Interlocking Tools, Integrated System



Massachusetts' first years of ERP; a favorable evaluation of the initiative by the National Academy of Public Administration (NAPA); and the significance of the environmental threat that can be posed by large groups of small pollution sources. ERP shows high potential for cost-effectively achieving results with these small entities, which historically are under- or unregulated. For instance, six states to date have developed or are planning ERPs for auto body shops, which number more than 30,000 nationwide and are associated with serious environmental and health impacts. Since the IAC endorsement, EPA has supported its state partners with technical assistance and grant funds. In addition, Massachusetts has received "resource flexibility credit" through EPA's enforcement program accountability system for the demonstrated success of the state's ERP for dry cleaners, allowing Massachusetts to focus more resources on emerging priorities for environmental improvement.

| ERP States , by Sector/Group | |
|---------------------------------|-------------------------|
| Animal Feedlots (Small) | MN |
| Auto Salvage Yards | IN, RI |
| Auto Body Shops | DE, MD*, ME, NY, RI, WA |
| Auto Repair Shops | FL*, MD* |
| Dry Cleaners | MA, MI, NH, NV |
| Gas Stations | RI, VA, VT |
| Oil & Gas Extraction Facilities | LA |
| Photo Processors | MA |
| Printers | MA, NY, WI |
| Stormwater Dischargers | ME, RI |
| Underground Injection Wells | IL |

*No longer implementing ERP. Note that MD had one ERP that covered both auto body and auto repair.

How Does an Integrated ERP Work?

An ERP combines several interlocking tools in a cyclical process to improve overall sector performance. (See Figure 2, below.) Compliance assistance specifies how facilities should assess their operations and certify compliance, while agency inspectors document progress against performance indicators that are linked to self-certification checklists. Performance data, in turn, inform and improve the next round of compliance assistance. No two ERPs are exactly alike, however, because states have adapted this approach for a wide variety of circumstances. For instance, many states have successfully implemented ERPs with voluntary submission of self-certifications, when mandatory certification was not feasible.

Figure 2. A Typical ERP Cycle



Purpose of This Report

This report updates the story of ERP, the implementation of which has grown substantially in recent years. The report identifies the states using ERP and the environmental problems they are seeking to address, describes the results and benefits state ERPs are generating, and discusses some of the new directions being explored within the ERP community.

ERP States Produce Results

ERP has improved the environmental performance of businesses in each state that has applied it, and its measurement system has given regulators credible evidence of those performance enhancements. Each of the six states that has completed an ERP cycle has seen initial average improvements of 5 to 30 percentage points for its top-priority indicators of performance. (See table on next page, E-3.) What follows below are highlights of results from these states.

Environmental Business Practice Indicators (EBPIs). ERP's key measures are called *Environmental Business Practice Indicators (EBPIs)*, because they typically demonstrate facility performance in terms of both compliance and voluntary best management practices. For instance, in Delaware, the proportion of auto body shops complying with disposal requirements for hazardous waste increased from 66% to 91% in one year. In a similar time frame, the voluntary use of "green" solvents among Maine auto body shops increased from 49% to 97%. These examples of EBPI improvements, and slightly more than one third of all observed EBPI improvements, are statistically significant at a 95% confidence level. No observed decreases in EBPI performance are statistically significant at that level.

The Role of Statistics. What is so "significant" about statistical significance? Regulators often base decisions upon data from only a sample of facilities, and usually are not sure how well the data from that sample represent the whole group. Using statistics, regulators can understand how certain they can be about data taken from a random, representative sample of facilities. For significant performance improvements like those discussed above, a 95% confidence level means we know there's at most a

| Observed Average Indicator Improvement in First ERP Self-Certification Cycle | | |
|--|-------|---------------------------------------|
| Sector | State | Avg. Improvement* (Percentage Points) |
| Auto Body | DE | 30 |
| | ME | 10 |
| | RI | 21 |
| Auto Body/Repair | MD | 12 |
| Auto Repair | FL | 7 |
| Dry Cleaners | MA | 5 |
| Photo Processors | MA | 12 |
| Printers | MA | 13 |

* Average of performance changes for each ERP's indicators among randomly sampled facilities, as observed by inspectors in the first ERP cycle. Includes all observed changes, regardless of significance level. Sector performance typically continues to improve in subsequent ERP cycles, then is sustained at high levels. For ERPs with voluntary certification (DE, MD, ME and RI), random samples were drawn from *all* facilities in the ERP inventory, not just volunteers. See full report for more detail.

regulators need to target their compliance assistance and enforcement efforts on that small proportion of lagging indicators.

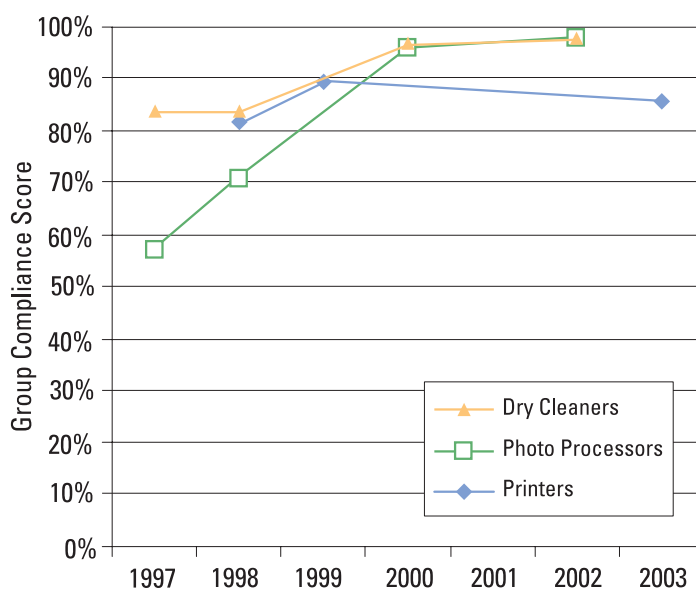
Sector Snapshots. Aside from examining how facilities fare on individual EBPIs, ERP states have also developed higher-level measures that concisely communicate sector performance. For instance, Florida inspectors found that the proportion of “straight-A” auto repair facilities—those with no violations of any kind—had risen 17 percentage points after two rounds of self-certification. Furthermore, Massachusetts has developed a “group compliance score,” a measure showing the extent to which a sector’s facilities are achieving compliance-oriented EBPIs. In Massachusetts, each sector’s score has risen from ERP’s inception through the most recent inspection results, with photo processors showing a dramatic increase from 57% in 1997 to 98% just five years later. (See Figure 3, right.) Results from the other two sectors suggest that ERP may not always show substantial improvements right away when performance is already at a relatively high level. The dry cleaners case further shows the potential for improvement over time, after which a very high performance level can be sustained.

5% chance that we would be mistaken in saying that there was a change in performance for the group as a whole. Other observed changes may indeed point to genuine changes in the whole group, but we cannot be as certain that they occurred—oftentimes because states are basing their inferences upon small samples of the population, allowing only large observed changes to be deemed “significant.”

Across-the-Board Performance Improvements.

Changes that are not significant can also be instructive. Data from ERPs have consistently shown a net performance gain across all EBPIs. Most indicators have risen while some have declined—but the overall number and size of the increases has substantially exceeded the number and size of declines. Furthermore, even where there are decreases, ERP provides the information

Figure 3. Long-Term Compliance Improvements in Massachusetts ERP Sectors



Notes: (1) “Group compliance score” is a measure of the extent to which facilities are achieving compliance-related EBPIs, as observed by inspectors during random visits to facilities. A score of 80%, for instance, would mean that, on average, each facility is achieving 80% of the indicators that apply to it. The group compliance score is distinct from traditional compliance rates, in that it tracks performance only on priority compliance practices and reflects varying degrees of compliance at individual facilities. (2) Improvements over time have not been evaluated for statistical significance. (3) Graph reflects most recent available data. Massachusetts has decreased inspection frequency over time for these sectors because of their trends toward sustaining high performance levels. The next round of random inspections is anticipated later in 2007, for the dry cleaner sector.

Estimates of Environmental Outcomes. Massachusetts has experimented with developing measures that can demonstrate environmental outcomes that result from performance changes. The state has found that estimating environmental outcomes can provide valuable insights into program success. For instance, Massachusetts has calculated that its dry cleaners reduced annual emissions and waste of the toxic chemical perchloroethylene by approximately 30% in the first two years of ERP.

Why Do These Performance Improvements Happen?

States believe that ERP's mix of compliance assistance, self-certification and agency verification drives facilities to hold themselves more accountable and gives them the capability and incentive to improve performance. For instance, regulators are often surprised by the number of facilities that voluntarily report one or more non-compliance items on their first self-certification form and submit plans to return to compliance. (See box, right.) In fact, the submission rate of return-to-compliance plans has become yet another important and credible measure of ERP success for many states.

"I'm Doing It Wrong over Here!!"

In Rhode Island, 20% of all auto body shops reported themselves out of compliance with at least one requirement, and submitted plans to return to compliance within a reasonable time frame. Typically, self-reported non-compliance decreases in later years of ERP, consistent with inspector findings of higher sustained sector performance. Over time, this combination of accountability and sustained performance can decrease the need for enforcement.



Why Are States Adopting ERP?

Aside from the across-the-board evidence of overall performance improvements, state regulators cite several other reasons for adopting ERP.

- ▲ Most importantly, available evidence suggests that ERP achieves performance at least as good as that of traditional compliance assurance approaches, at substantially less cost over time.
- ▲ State regulators find that rich ERP data sets can help them target resources more efficiently.
 - ▲ Improved facility accountability may reduce the long-term need for resource-intensive enforcement actions.
 - ▲ Statistical approaches and technology both offer substantial economies of scale when ERP is applied to large universes of facilities.
 - ▲ Agencies report that ERP helps them meet stakeholder demands to measure how well regulators' actions achieve goals of increasing compliance and achieving environmental improvements.
 - ▲ Many businesses support ERP because it explains their obligations in clear terms and because it "levels the playing field" among facilities in a sector.
 - ▲ The often visible improvements and increased transparency of ERP provide value to the public. (See box, left.)

Baltimore Residents Appreciate ERP

Maryland's ERP focused on informal vehicle repair facilities in an environmental-justice neighborhood in Baltimore. A post-ERP survey showed that nearby residents recognized and appreciated the project's visible environmental improvements.

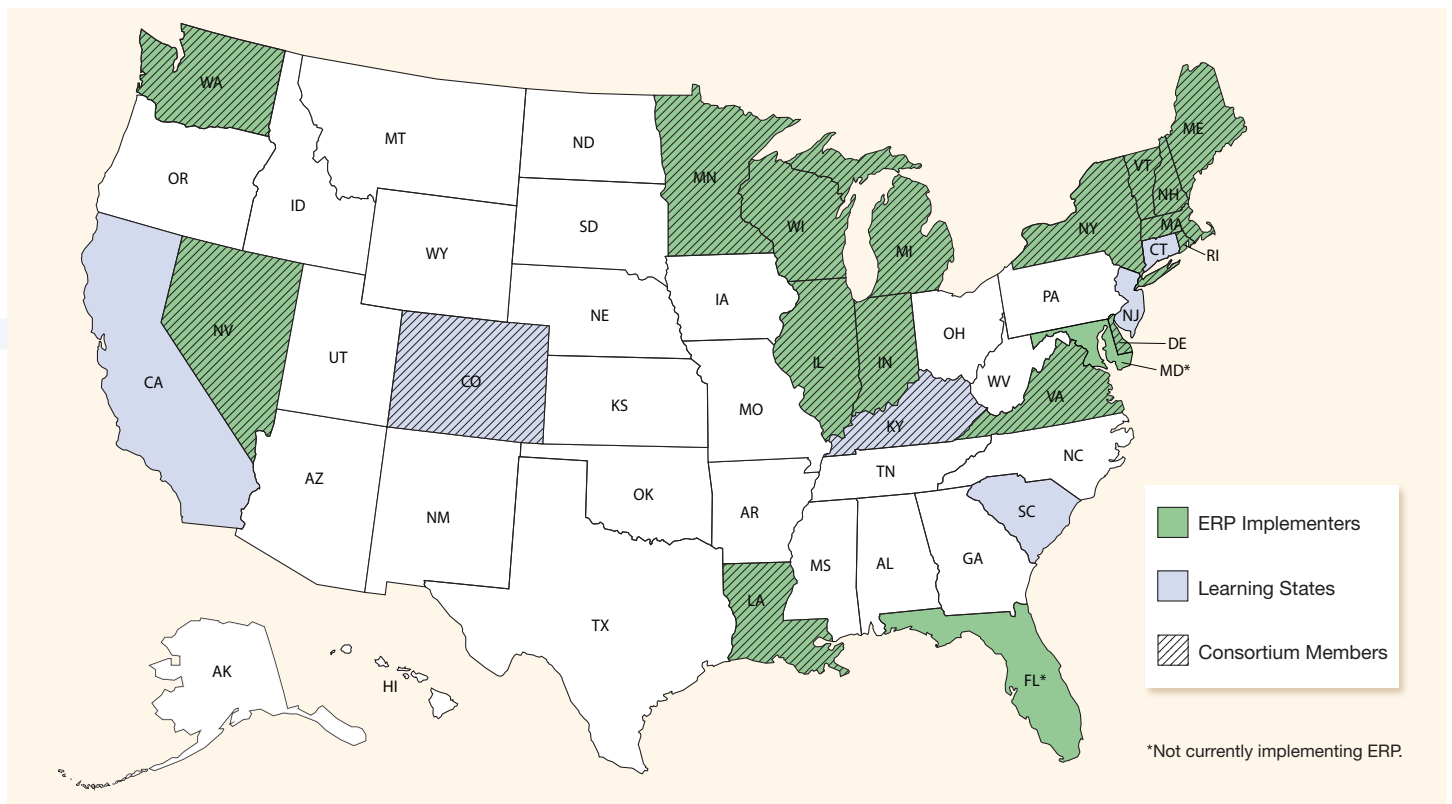
ERP's Future: Further Improvement, Experimentation and Growth Expected

In the coming years, states will report first-time results for several new ERP sectors, including underground storage tanks, auto salvage yards and small animal feedlots. An EPA-funded, state-led initiative to develop common ERP-type performance indicators for auto body shops and small quantity generators of hazardous waste is also well underway. Each state participating in this "Common Measures Project" will track indicators for at least one of these regulated groups using ERP statistical approaches. The project should allow greater comparability of environmental performance levels across participating states—whether or not those states are implementing an ERP for those groups. This information will help states choose the most effective and efficient compliance assurance strategies to meet their needs.

Further, states continue to adapt ERP to address a greater array of environmental issues. For instance, ERP states are pursuing new applications based on the geographic boundaries of environmental problems—such as watershed-based targeting to reduce polluted stormwater runoff. When appropriate, states also are implementing other promising variations on ERP, such as applying individual ERP tools to address problems when a full ERP may not be feasible. Massachusetts calculates that one application of such "ERP-like" approaches has prevented the yearly wastewater discharge of several hundred pounds of mercury from dentists' offices. Another such initiative by the state has substantially improved emissions-testing compliance at Massachusetts gas stations, assuring the capture of thousands of tons of ozone-forming compounds annually.

Finally, awareness of and support for ERP is expected to grow as a result of states forming the new States ERP Consortium. The Consortium, organized this year as a "forum" of the Environmental Council of the States (ECOS), currently represents more than a third of all states. (See Figure 4, below.) The Consortium includes states currently using ERP and states learning how to use ERP to address priority environmental problems. EPA's National Center for Environmental Innovation (NCEI) is on the Consortium's steering committee and is providing contractor support. The Consortium has four key goals: (1) communicating results in order to build stakeholder support; (2) sharing information among practitioners; (3) promoting ERP as a proven compliance strategy and expanding support within EPA; and (4) improving and disseminating tools to further streamline key aspects of ERP, such as automation and measurement. EPA is committed to working with the Consortium in the future to continue evaluating the many applications of ERP, and to communicate the results of these efforts.

Figure 4. Growing ERP Community Represented by a New Consortium of States



For a copy of the full report (available Summer 2007) and more information on ERP, visit www.epa.gov/erp.