Public Service Enterprise Group

PSEG Transforms Environmental Compliance into Powerful Driver for Operational Efficiency, Sustainability

As New Jersey's oldest and largest investor-owned utility provider, Public Service Enterprise Group (PSEG) provides gas and electricity to three-quarters of the state's population as well as supplying power to Connecticut and New York. PSEG has always been committed to ensuring that its facilities are in full compliance with a multitude of municipal, state and federal regulations regarding air, water, and waste emissions but, over the years, the proliferation of those regulatory mandates was becoming increasingly burdensome.

In 2008, PSEG's environmental management team took action – authorizing implementation of an enterprise-level Environmental Management Information System (EMIS) built on *Sphera opsInfo*™ software, part of the Sphera Environmental Performance Solution™. The initial goals of the centralized EMIS were manifold: to enhance compliance reporting, to better manage environmental risks, to make environmental permitting evaluations more efficient, to improve greenhouse gas (GHG) reporting, to deliver environmental metrics for sustainability reporting and to provide greater continuity during staff changes.

"A new EMIS was the fastest, easiest way for us to achieve an enterprise approach to compliance," said David Hinchey, Manager of Environmental Permitting and Technical Services at PSEG. "We needed a consolidated system capable of advanced data processing, monitoring of emissions limits, and regulatory reporting. But it turned out that we gained a lot more than compliance management. The EMIS was an important step in improving our knowledge management and operational excellence."

PSEG previously collected air, water and waste data from disparate sources all around the company. Each plant had its own set of systems, often heavily customized and specific to local operations, and used its own methods to manually compile reports on its environmental performance. Knowledge of exactly how information was being captured and aggregated typically remained with a single environmental professional at each plant – now the processes are standardized across the fleet, to the largest extent possible, and the knowledge base is now distributed across a team of subject matter experts to reduce company risk in cases of staff turnover with EMIS used as the institutional tool.

Challenge

- Enhance environmental regulatory compliance by establishing a centralized system
- Manage environmental risks more effectively including maintenance of environmental permits
- Track and report on environmental metrics for corporate scorecards and sustainability index
- Promote operational accountability through task management, ensure continuity thru staff changes

Solution

Environmental Performance and Compliance Assurance Solutions

- Air & GHG Emissions
- Water usage and discharge
- Waste management
- Compliance Assurance
- Task Management

Results

- Replaced 20 redundant systems and 1000s of spreadsheets with 1 enterprise EMIS
- Enabled centralized compliance tracking of 80,000+ tasks for 200+ environmental permits
- Automated integration with process historians, lab information and grid operator systems – e.g. extracting 8,000 air emission points every minute
- Tracked water discharge from 60 outfalls with 5,000+ parameters – reduced time for monthly water report from 3 days to a few hours
- Provided environmental metrics for sustainability reporting to shareholders, DJSI, GRI, etc.
- Supported adoption of EMIS as task management system for operations side of business

PSEG: Environmental Compliance Powers Operational Efficiency

Implementing the new EMIS enabled PSEG to replace more than 20 homegrown, facility-level systems and thousands of piecemeal spreadsheets with a single enterprise-wide software platform. The initial migration and rationalization of data from all of those legacy systems into the EMIS required a concerted effort but the benefits were clear. Companywide data collection that was previously labor intensive, requiring manual transcription and aggregation as well as quality control monitoring, is now largely automated.

PSEG's environmental management team has not only eliminated a host of redundant legacy systems, they have also integrated their EMIS with a variety of other systems – for example, importing high-volume process data directly from the company's laboratories and megawatts fuel data from PSEG's Electric System Operations Computer (ESOC) system.

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> Senior Environmental Engineer, PSEG

"For air emissions alone, we're extracting from the field about 8,000 separate points that are then validated, aggregated and compressed into about 300 points that are pulled into *Sphera opsInfo*, every minute of the day," said Joel Resig, Senior Environmental Engineer and EMIS Program Manager at PSEG. "By eliminating old redundant systems and automating data flow between new systems, we are able to work more efficiently. We used to have 6 full-time employees and contractors aggregating air emissions data. Now that work is handled by one employee who also has time now for other responsibilities so the rest of the team can focus on compliance, governance, oversight and reporting and less time on data gathering and concerns on data accuracy."

The environmental team's efficiency gains have been especially important because their workload continues to grow. In 2010, PSEG tracked approximately 30,000 compliance tasks. Two years later, the number has escalated to over 80,000 tasks. To maintain more than 200

environmental permits, the team uses the EMIS to continue driving convergence of data from thousands of sources. For example, PSEG must track water discharge from 60 different outfalls with over 5,000 water parameters. With the EMIS, the environmental team is not only keeping pace but actually gaining ground – for instance, completing monthly water reports that used to take 3 days in just a few hours. The EMIS also made it easier to arrange coverage during staff transitions because work processes are institutionalized inside the system.

"We're always striving to be more proactive than reactive," Hinchey says. "By implementing the EMIS, we've freed up resources and are providing the information that people need to start looking ahead, to see how we can continuously improve our operations so our business will grow and our environmental impacts will shrink."

The PSEG environmental management team's successful implementation of the EMIS is also paying dividends at the highest levels of the organization.

"PSEG also incorporates environmental performance metrics from the EMIS into our corporate scorecards, annual sustainability report and submissions to groups like the Global Reporting Initiative and the Dow Jones Sustainability Index," said Hinchey. "Our data has to be timely and accurate because we are sharing key performance indicators with our customers and shareholders, providing them with a kind of environmental accounting perspective. We feel confident providing those KPIs because, in our EMIS, the data is the data. Our departmental reporting is consistent with our corporate reporting because the information all comes from the same database. "

In an interesting twist, PSEG's environmental team has achieved such outstanding results by using the EMIS to bring greater transparency and accountability to environmental compliance tasking that their senior management team recently decided to also use the EMIS' as a task management tool for many of the company's other day-to-day business operations.

Looking to the future, PSEG's environmental team is developing additional innovations for the EMIS, including prototype executive dashboards that will provide company leaders with views of data and analysis that they need to make critical decisions.

"We are actively promoting wider use of the EMIS," Hinchey concluded. "Almost everyone is using it now. That's great because the more involved we all are with the EMIS, the easier it is for us to continue working together to integrate environmental management into our core business and drive operational excellence."