EPRI | ELECTRIC POWER RESEARCH INSTITUTE

Status of Mercury Controls: an Update

Issue Brief

The electric power generation industry and the Electric Power Research Institute (EPRI) have been working closely with the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), pollution control suppliers, and engineering consulting firms for more than 15 years to assess, develop, and test mercury controls for coal-fired power plants. As a result, mercury control technologies for many of the coals and air pollution control configurations used by U.S. power plants are nearing full commercial readiness. The degree of additional development and testing needed for routine commercial application varies, especially for those configurations not yet extensively tested. Additional testing is particularly necessary if regulations require the technologies to achieve very high mercury removals or very low mercury emission rates, as well as to ensure that the mercury controls do not increase emissions of other pollutants.

Power plants currently remove between 0 and more than 90% of the mercury in the flue gas via existing air pollution controls, averaging about 40% across all U.S. boilers. The wide variation in boilers, the types of coal being burned, and existing air pollution control configurations employed throughout the power industry accounts for this extensive range of mercury removal capabilities and subsequently, the complexity in devising mercury control strategies that are effective for all power plants. Each power plant's configuration and emission reduction requirements will need to be taken into account when selecting the most appropriate and effective technology.

Although some mercury control technologies are currently being marketed, EPRI does not consider any of them to be broadly commercially available from the user's perspective, as yet, because their performance cannot always be predicted with confidence, especially at the highest removal levels. Test results at different power plants can show widely different results. In addition, there have been insufficient long-term tests of mercury control capability for any technology or control strategy. Few emissions and performance tests have lasted as long as one month and none as long as 12-18 months. Long-term tests are necessary to ensure consistent performance at high removal levels with no unmanageable impacts on the power plant. Further, the performance of certain configurations of coal types and air pollution controls has been insufficiently investigated, especially at plants that burn coal blends, an increasingly common practice. Because of these uncertainties, many of the permits for mercury controls being negotiated today include flexibility in meeting stated limits.

The DOE, EPRI, and its members are conducting, or planning, field tests (begun in 2001) over the next three years to address most of the unresolved issues associated with retrofitting mercury controls on coal-fired power plants. This will provide regulators, the electric utilities, and the public with a strong degree of confidence that these controls will perform as expected to significantly reduce mercury emissions and the effects of mercury in the U.S.

Mercury control costs will depend strongly on the fuel being burned by the power plant, its existing air pollution controls for NO_x, SO_2, and particulates, and its mercury emission limit or reduction requirement.

For a more detailed assessment of the status of mercury controls for coal-fired power plants, request EPRI report 1014397.

Contact Information

For more information, contact the EPRI Customer Assistance Center at 800.313.3774 (askepri@epri.com).

Media Information

Contact Clay Perry at 202.293-6184 (clperry@epri.com)
or Heather Lynch, 650.855.2017 (hlynch@epri.com).

1014451 September 2006

Electric Power Research Institute
3420 Hillview Avenue, Palo Alto, California 94304 • PO Box 10412, Palo Alto, California 94303 USA
800.313.3774 • 650.855.2121 • askepri@epri.com • www.epri.com

© 2006 Electric Power Research Institute (EPRI), Inc. All rights reserved. Electric Power Research Institute and EPRI are registered service marks of the Electric Power Research Institute.
Printed on recycled paper in the United States of America