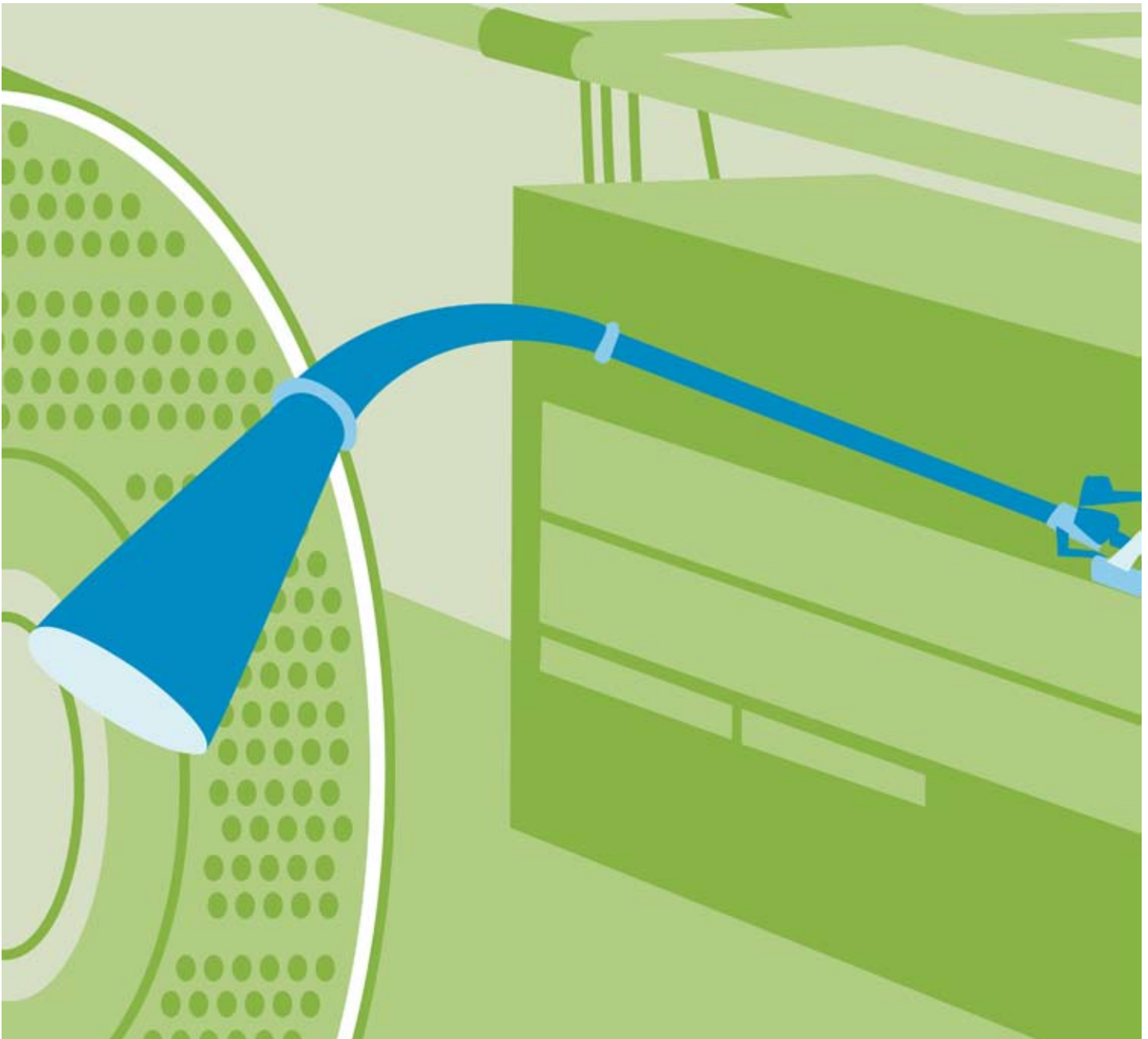


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Powerwave+TM

Powerwave+TM is a high-energy impulse cleaning system that more efficiently cleans boiler surfaces than traditional methods. This unique technology, which was originally developed for the future of jet propulsion, can reduce emissions and improve overall efficiency of coal-fired utilities.



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Powerwave+TM

The Environmental Challenge

In the power industry, coal is used as a fuel source to generate heat, which produces steam to turn a turbine that produces power. The process of burning coal creates ash buildup in the boiler, which has to be collected and removed. If the ash buildup is not effectively removed, this can cause problems for a facility, including increased emissions and lowered energy output. Unfortunately, traditional methods of cleaning boiler surfaces, such as sootblowing and manual shaking, do not remove coal buildup effectively or efficiently.

GE's innovative solution

GE's challenge was to develop a product to clean heat transfer surfaces in a more efficient way in order to increase performance and reduce emissions.

The solution was Powerwave+TM, a high-energy impulse system that cleans boiler surfaces more efficiently than traditional methods. Originally developed for the future of jet propulsion, this unique technology reduces emissions and improves overall efficiency of coal-fired utilities.

A cleaning impulse from the Powerwave+TM is the result of a complex combustion process, which is managed entirely by a fully automated, simple to use control system. Each burst consists of precise delivery of fuel and air to the combustion chamber followed by ignition of this mixture and acceleration from subsonic to supersonic mach-5 speeds. The supersonic impulse exits the Powerwave+TM cleaner into the area of the boiler to be cleaned.

Environmental Impact

Traditional cleaning methods use valuable steam energy to operate, which affect a utility's overall energy output. The Powerwave+TM is fuel-efficient, requires less maintenance and eliminates costly erosion of the convection surfaces caused by steam.

Installing a single Powerwave+TM system on a representative 268MW size coal boiler running 8,760 hours per year can improve efficiency by 0.54 percent and can result in savings up to 5,390 tons of coal per year, or the equivalent of 14,491 MWh of power versus sootblowing technology.

Cutting costs

These fuel savings can result in a reduction of CO₂ emissions by up to 11,559 tons per year versus sootblowing technology. This would be equivalent to the emissions saved by removing approximately 2,019 cars from U.S. roads or 4,939 cars from European roads per year.



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