



SUCCESS STORY

Al-Baha Chlorine Plant Installs Hydrogen Combustion Boiler – First in Jordan!

Installing hydrogen boiler reduces heavy fuel oil consumption and CO₂ emissions.



Al-Baha's new boiler runs on hydrogen gas.

Eng. Mofeed Al-Gaood, CEO of Al-Baha Company, says that USAID assistance helped Al-Baha take a waste by-product from the chlorine manufacturing process and use it as a fuel: "Our old steam boiler was oversized, costly, and inefficient. Now, we have a steam production system using modern, highly efficient equipment."

By using hydrogen gas by-product as a fuel source on site, the Al-Baha Company for Caustic Chlorine facility in Jordan is reducing its consumption of heavy fuel oil by 400 metric tons a year. This will both save money and reduce carbon dioxide (CO₂) equivalent emissions by over 1 million kg/yr.

Al-Baha has acted on several pollution prevention suggestions made in a recent USAID-sponsored assessment. This one in particular will pay back the investment quickly. Installation of a new hydrogen combustion boiler (the first in Jordan) will significantly reduce usage of an older, over-sized fuel oil boiler and thus reduce overall consumption of heavy fuel oil by almost 400 metric tons per year. This will cut CO₂ equivalent emissions by an estimated 1,267,000 kg/yr. Additional environmental benefits will also be achieved by reducing diesel fuel emissions, since there will be less transportation of water to the site via tankers.

The new boiler runs on hydrogen gas, previously vented to the atmosphere as a waste by-product from the facility's chlorine production line. This new use of the hydrogen thus reduces greenhouse gas emissions.

Plant Manager Dr. Khazal Al-Janabi, who manages the approximately 150 workers at the facility, says: "We thought we could improve our systems, but it's hard to make a business case for change until you have the hard data to back up your hunch. With assistance from USAID, we were able to cost the installation of a new hydrogen boiler and estimate savings of 250,000 JOD per year due to reduced fuel and maintenance costs. We saw how to change our steam heating system in ways that improve performance, both environmental and economic."

Al-Baha, located in Jordan's Hallabat Industrial Park, is one of 30 industrial partners working with USAID to reduce industrial pollution and conserve scarce water and energy resources – in ways that benefit the bottom line. The Water Reuse and Environmental Conservation Project examined water and energy use, material and waste flow, production processes, quality control, and other aspects of each facility's operations. The assessments suggested options for minimizing pollution and saving water, energy, and money. Costs and payback periods for options were also analyzed.