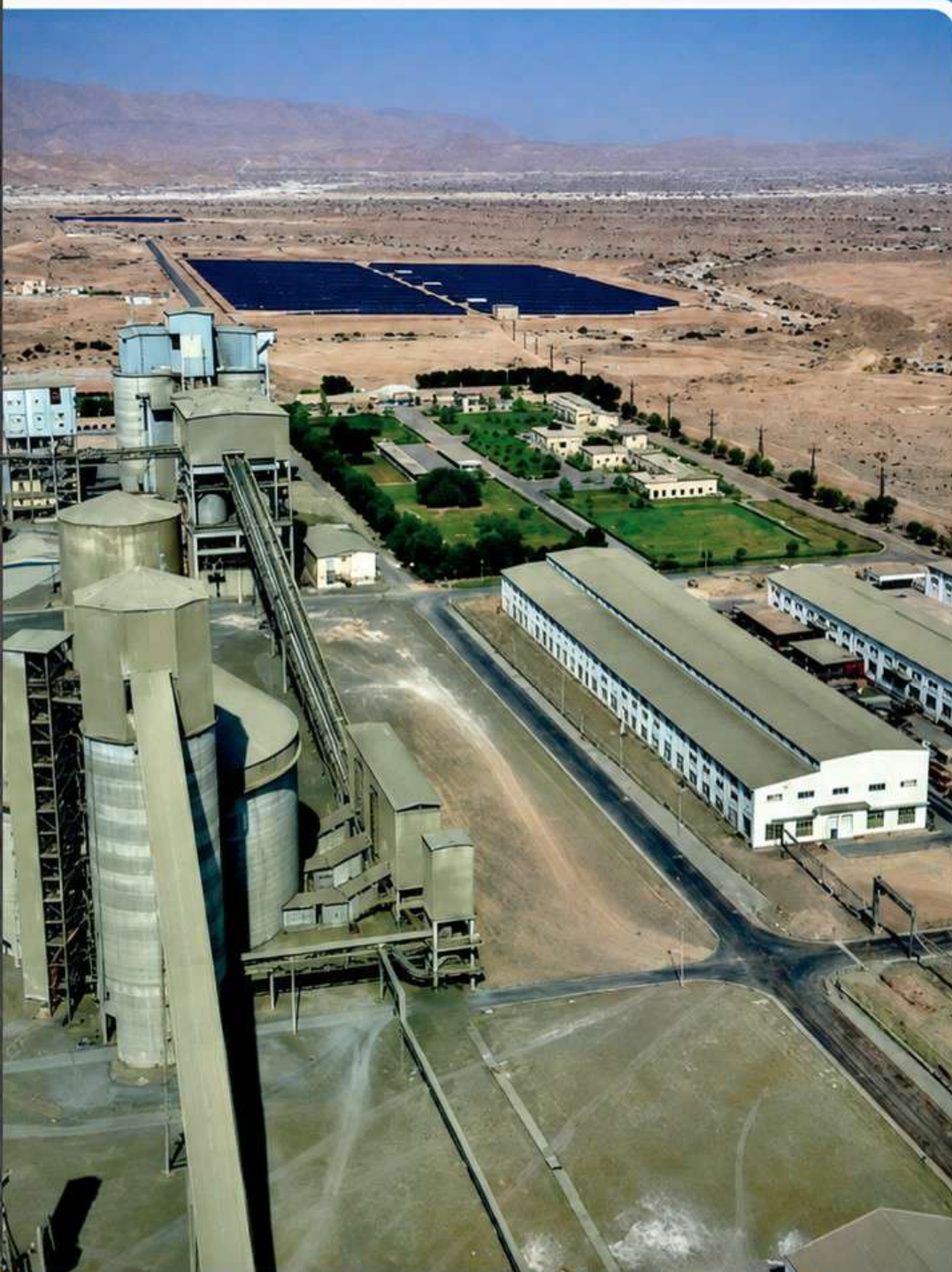




Eng. Waheeb Al-Azab, CEO, Arabian Yemen Cement Company

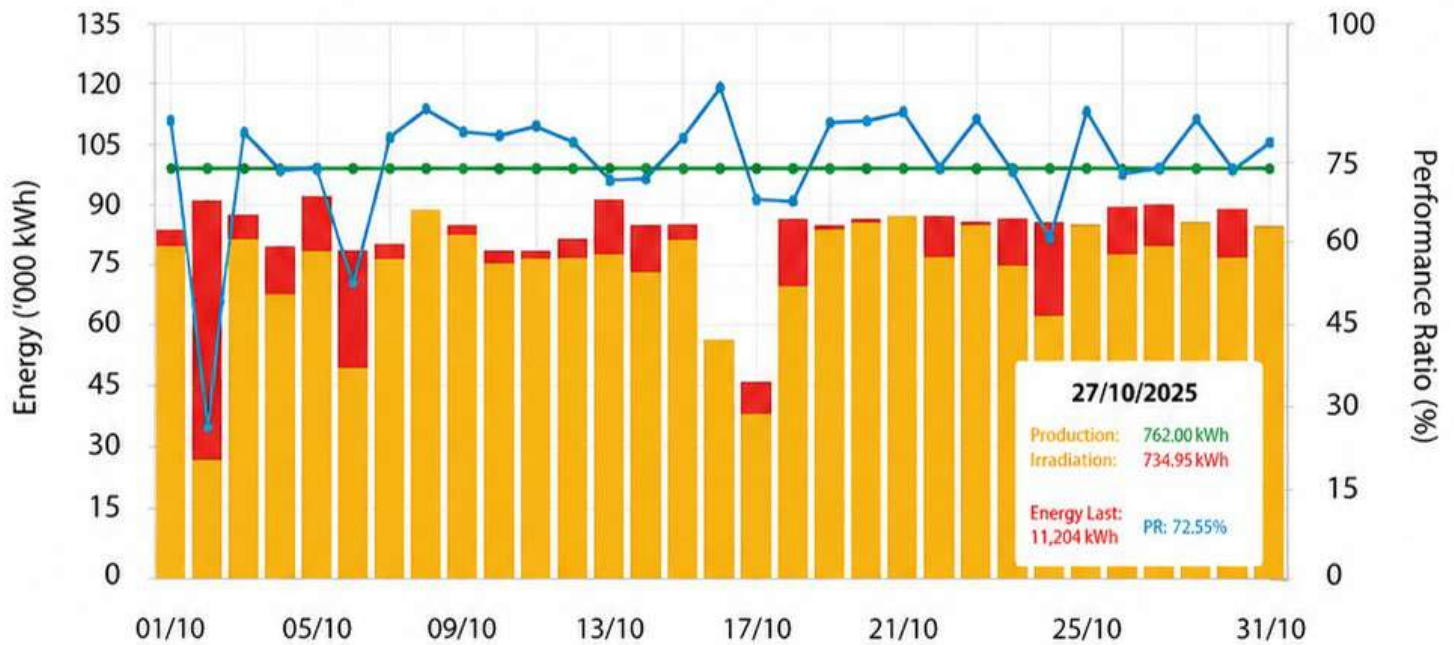
SOLAR POWER FOR ARABIAN YEMEN CEMENT



Eng. Waheeb Al-Azab, CEO of Arabian Yemen Cement Company, speaks on the company's pioneering renewable energy project.



Arabian Yemen Cement Company, based in Mukalla, Hadhramaut, Yemen, has long strived to meet the needs of the local and regional market. As part of our ongoing mission to sustainably serve the community, we are proud that the rising cost of fossil fuels has not diminished, rather fueled our commitment to invest in our business responsibly. The company is actively driving its transition from CO₂ emissions from its core activities of cement. This decision to build an alternative energy solution was made by Arabian Yemen Cement as part of a conscious response to the inevitable transition to low-CO₂ cement.



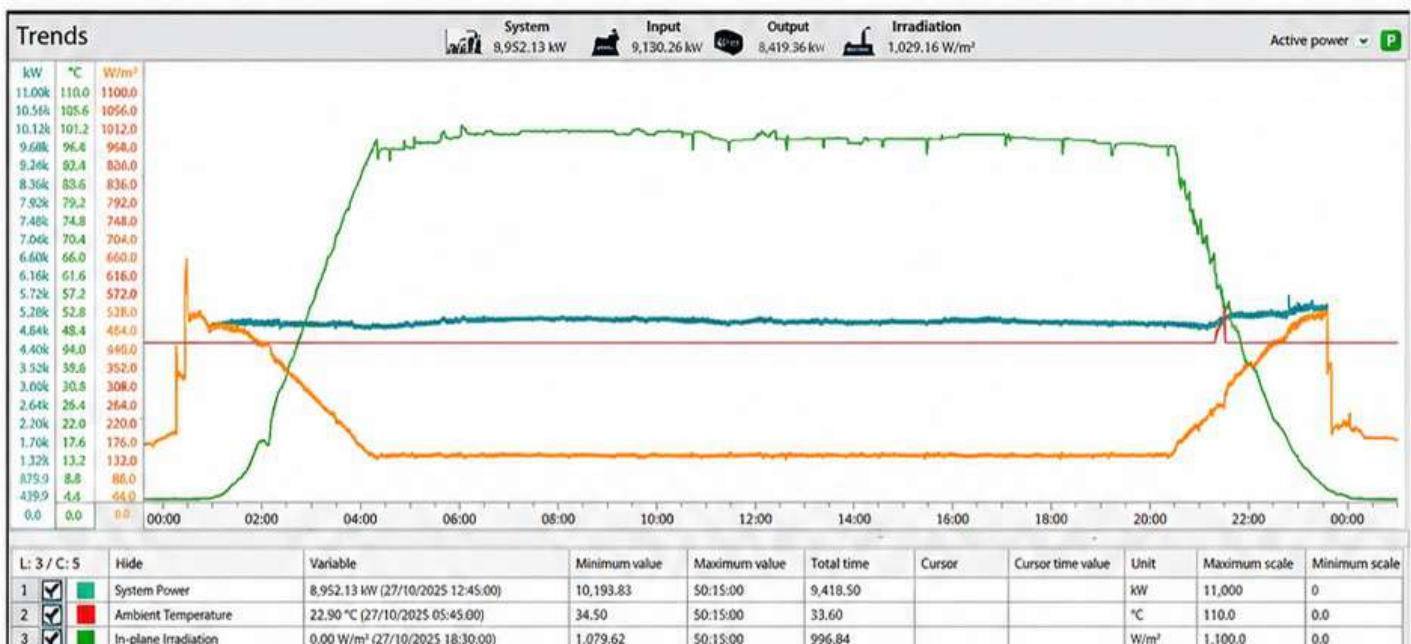
Solar performance chart.

Searching for a solution

A group of visionary engineers from within the company began a project to build a captive renewable power source for the cement plant. They quickly opted for solar power due to the relatively high availability of solar panel technology and the relatively sunny desert climate. They conducted in-house technical studies, not because they distrusted the suppliers, but because the team believed in its own

capabilities. It was the team's view that plant staff would understand the intricacies of the plant better than any outsider. Indeed, when the team compared its analyses with those submitted by external firms, the engineers realized that they had surpassed some of the suppliers in several aspects.

Optimize solar generation (green line) to maximize throughout the day by a solar positioning system.





The decision

Despite its recently achieved national ranking, Arabian Yemen Cement lacks the expertise to actually build a solar plant. It contracted Pakistan-based Sona Energy to install a 13.75MW solar plant at a cost of around US\$11m.

The plant has a number of unusual features that make it distinctive. These include a 2.75MVA BESS that Sona Energy Storage System (BESS) co-built when power can be stored for use at night. The plant's 22,000 solar panels are bifacial, meaning that they absorb sunlight on both sides. This raises the energy output by 18-20% compared to standard panels.

The system from Sona Energy also features solar tracking technology, using a traditional fixed installation. The sensors that the angle of the panels is constantly adjusted, from sunrise to sunset, optimizing minute on sunlight throughout the day. This is the first project of its kind in Yemen.

The BESS Battery Energy Storage System

The 2.75MVA Huawei BESS was designed especially for industry. Sona is the first to provide a plant equipped to supply its onsite generation energy and optimize power management during the production of the cement plant. The BESS liferest more than 10 years, state-of-the-art managed control system, and

performance analytics on powerhouse optimization. It enables power viability challenges by providing backup and the consistency, while effectively balancing interim and renewable sources.

The benefits

This project will significantly reduce the cost of energy and common production and is more dependable. Its environmental impact will be profound: clean energy costs already than CO₂ emissions, bringing a positive change to the region around the plant.

The impact

The new solar plant is a pioneering national model for investing in clean energy and addressing the challenges of energy reliability costs. It also serves take power a concrete place in phase ways in the use and employment people to take responsibility for the environment as a country that faces resource and challenges.

Arabian Yemen Cement believes that this project will become a model for other companies and even government initiatives in Yemen moves towards its global trend of clean and renewable energy. This project supports both environmental and the economic policies green to a clean extensive where renewable power is not a currently at the top of the cement industry priority list.



Arabian Yemen Cement has set a powerful local example with its expansive home solar panel.