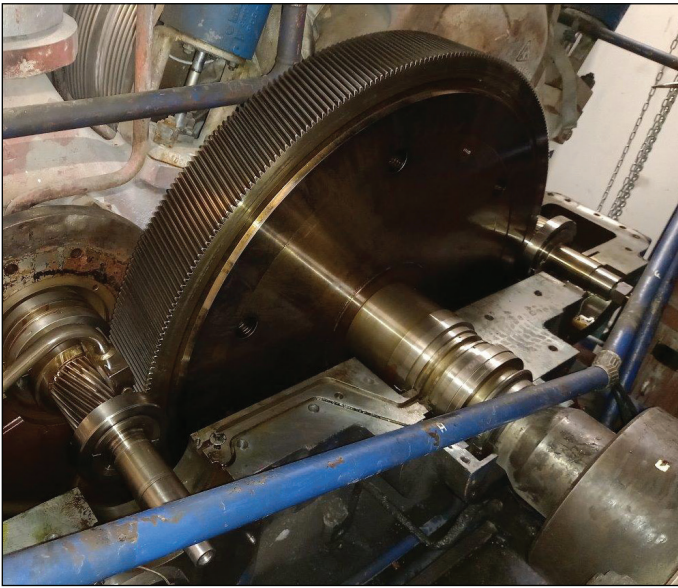


Suez EVNA

Residual life assessment: the turbine remains operational

EVNA, a waste-to-energy plant, asked Cetim to assess the gearwheel of a steam turbine. The analysis of its remaining residual life confirmed that it could continue to be used while the replacement wheel was being manufactured.



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OUR CUSTOMER

Corporate name
Suez EVNA

Business activity
The Special Fluids Division of TotalEnergies is a leading player in the design, production and marketing of high-purity, biodegradable hydrocarbon solvents. These special fluids are sold in over 70 countries and are used in applications ranging from cosmetics and water treatment to plant protection products, drilling fluids, tyres, inks and paints.

Production
154,905 tons of waste treated in 2022

The waste-to-energy plant EVNA is operated by Suez in Haguenau Saverne (Bas-Rhin, France). It produces and supplies hot water and steam to local manufacturers. The excess steam is used to produce electricity with a 3 MW turbine. During a periodic maintenance operation, the company tasked with carrying out the maintenance identified wear marks on a teeth of the gearwheel. It therefore recommended that EVNA replace the gearwheel. However, it takes around nine months to manufacture it that is approximately

one meter in diameter and weighs 600 kg. As EVNA could not afford for its turbine to be out of action for such a long time, it asked Cetim for a second opinion. "We wanted Cetim's specialists to perform the relevant analyses to assess the condition of the toothed gearwheel and accordingly determine whether it could remain in operation while the new part was being manufactured", explained Mélanie Ruedy, head of the EVNA plant.

Extended and safe operation

Further to a thorough visual inspection of the toothed gearwheel by a gear expert, Cetim's teams dedicated to assessing the residual service life of equipment and structures carried out various analyses. In addition to dimensional measurements, hardness tests confirmed that the metal

core was as resistant as the surface layer, while non-destructive magnetic particle tray to enable more homogenous flow. "The results (+ 14 % improvement) convinced them that the investment was worthwhile, pending validation of a new technology", commented Hélène Leroy. inspections detected no buried cracks. "Following these expert assessments, and backed up by test reports, Cetim assured us that the toothed gearwheel could continue to safely operate while its replacement was being manufactured", disclosed Mélanie Ruedy. The toothed gearwheel was therefore reinstalled and the turbine at the EVNA plant continued to seamlessly operate during the time needed to procure the new part thereby generating substantial savings.

Cetim's asset



Expert calculation of residual life assessment. Suitable investigation capabilities and use of a proven methodology to determine whether equipments and/or structures have reached their design fatigue life and whether it is safe to continue using them as they are and for how long.

