

WATER POWERED BY ZERAX® TOTAL ENERGY-RETROFIT OF SIMA POWER STATION



ABOUT THE PROJECT

Hydropower or water power is power generated by falling water or fast running water. The principle is used in hydro-electric power stations all over the world. The cost of hydroelectricity is relatively low, making it a competitive source of renewable energy. Interestingly, a hydro station consumes no water, unlike coal or gas plants.

The second largest hydro-electric power station in Norway, the Sima Power Station is located in Eidfjord in Hordaland and is surrounded by fjords, which are so characteristic of the Norwegian landscape. The main hall of the power station is placed 700 metres inside a mountain. It measures an impressive 200 m in length, is 20 m wide and 40 m high. The Sima Power Station draws

water from several river basins, which enables the water to be stored in reservoirs. The water is released when extra supplies of electricity are needed. The Sima Power Station operates at an installed total capacity of 1,120 MW and has an average total annual production of 2,850 GWh.

THE SOLUTION

NOVENCO Building & Industry (NBI) has delivered and installed 9 high efficiency ZerAx® fans as part of a comprehensive energy-retrofit of the power station. The fans ventilate all tunnels and working areas inside the mountain, and help remove the heat generated by the power house with transformer and within the generator areas. The replacement of the old fans with the

ZerAx® fans resulted in at least 30% reduction in energy consumption. With retrofit solutions NBI offers to reduce energy consumption in existing installations by replacing old fans with much more efficient and energy saving fans. Furthermore, and perhaps more importantly, environmental impact and CO₂ emissions are significantly reduced. The climate and energy consumption can often be improved considerably, when ventilation systems are retrofitted with our innovative solutions.



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FACTS:

- EFFICIENCY UP TO 91%
- AT LEAST 30% ENERGY SAVING

EQUIPMENT DELIVERY

Fresh air is supplied to the tunnels and working areas with support of 2 pcs ZerAx® AZN-1600 and 2 pcs ZerAx® AZN-1000 axial flow fans with a total airflow capacity of approx. 395,000 m³/h. Further, 3 pcs ZerAx® AZN-1600, 1 pc ZerAx® AZN-1120 and 1 pc ZerAx® AZN-1000 axial flow fans with a total exhaust capacity of approx. 500,000 m³/h, ensure that the heat generated by the power house and generator areas is extracted. All the ZerAx® fans were delivered with inlet cones and diffusers to get the best uniform airflow.

The inlet cones and diffusers were delivered separately and in parts due to the limited space in the tunnels of the power station.



Old NOVENCO fans installed in 1980s



New high efficiency ZerAx® axial flow fans installed at Sima Power Station