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Gibe II maintenance produces additional 180MW

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In the ongoing economic reform, the government has set a strategy of reducing costs by transferring knowledge and technology to ease the economy from depending on donors or loans. So, the Ethiopian Electric Power (EEP) has been creating the capacity to save expenses by independently repairing the sudden breakdowns that occur at the power generation stations.

And, this article focuses on the maintenance works done at the Gibe II Power Plant (Gibe II) which was officially inaugurated in 2002 E.C as the facility does maintenances to persist the existing power plants run at full capacity is self-maintenance.

The Gibe II with 420 megawatts energy generating capacity is located 250 km from Addis Ababa in the Yem Special District in the Southern Nation, Nationalities and Peoples Region. The Gibe II gets water to generate electric power from the Gibe I that flows out after producing 184 megawatts electricity.

The water released from Gibe I is diverted by a small dam built nearby and then flows to Gibe II through an

underground tunnel.

The tunnel is 26 kilometers long and 3.6 meters in diameter. After the water travels through two penstock made of iron, which are one point three kilometers long and two point one meter in diameter, each penstock is divided into two again and goes to all four units to generate power.

The station has lately encountered damages from some problems where one of the four units has stopped functioning completely. And the other one produced only 1/4 of the required power, preventing it from producing at its full capacity.

Therefore, the success of the efforts made to solve the problem by internal capacity has become beyond surprising and exciting, but has also become promising. It has also indicated that it is possible to move Ethiopia to a better level by using national personnel.

The staff of the station identified the type and scope of the problems encountered in the units and they informed the senior management of the institution to be able to carry out the maintenance on their own.

The experts identified that the problem that prevented the units from being serviced

at the time was the failure of the power nozzle. Before the problem was identified, various documents, experts, repair tools and resources needed for the repair works were collected.

To fix the power nozzle problem, six power nozzles weighing 6000 kg each had to be removed from the unit as it was necessary to remove the power nozzles in order to fix the worn seals. The members of the maintenance team noted that the power nozzles had been unloaded, disassembled, cleaned and replaced with the help of manpower and machinery, as well as modified and refitted.

Along with power nozzle maintenance, main inlet valve or MIV servomotor equipment maintenance was also maintained. The MIV servomotor is used to control the amount of water entering the turbine, and due to the problem of oil leakage on the side of the valve, two repairs on unit one and one on unit three (MIV servomotor) were performed.

As a result, the power generating capacity of Unit I, which had completely stopped generating, was increased to 105 MW, and Unit III, which was only producing 25 MW, was made to generate 100 MW of power,

so that the station generated 180 more power.

Consequently, the station has planned to do this type of work on units II and IV.

Updating the remote control device that helps to adjust the power generation was among the works done to update the station capacity. This has made the difficult task of adjusting the power generation, which was done manually for a long time, easy to control from the power house.

In addition to this, the machine is equipped with a sound recorder that can identify the problem with sound. Similarly, the members of the maintenance team told a group from EEP that maintenance management system works are being done for Ethiopian workers with the support of Voith, a German Aid Organization in East Africa.

At last, the management members of the institution and the leaders of the operation office of the power plant had a lot of trust in their staff and allowed the maintenance to be carried out by them providing them with necessary support from time to time.

(Translated from Addis Zemen: Fisseha Getachew)

Ethiopia's Electric Power Startup Process