

GOOD PRACTICES AND TECHNOLOGIES

Reducing WATER FOOTPRINT

El Agua Nos Une – SuizAgua América Latina



Change of bearing in electric generator to decrease cooling water use

SDGs addressed: 6.4 Water efficiency



Implementing Company

Orazul Energy Perú

Sector: 3510 Electric power generation, transmission and distribution

Location: Central Térmica Aguaytía, Padre Abad, Ucayali, Perú
Coord. UTM 9°001,910.63 N 445,885.94 E

Last update: 2015, November



Results

- Reduction of water use in 900 m³/year



Additional benefits

- Savings of 1,759.09 USD/year for reduction in industrial water consumption



Supplier references

Supplier: Internal Engineering



Implementing Company

Empresa Implementadora: Orazul Energy Perú



Description of good practice

The Aguaytía Thermoelectric Power Plant of Orazul Energy company has two gas turbines (model GT11NMC XL/LP) of 88,441 MW and 86,964 MW. After updating and improving the compressors of the turbo-gas, the power generation increased its capacity in 9 MW each one. Before the updating, it was observed that the temperature of the bearing metal No. 3 increased. This caused the use of a cooling system at 100% of its available capacity, with 3 fans associated with the system. However, during the heat season when environment temperatures exceeded 30°C, the system reached unacceptable levels of temperature in the bearing, reaching more frequently values higher than 100°C which forced to implement an auxiliary cooling system with water.

Alternatives were analyzed to change the bearings affected by others with an improved design. Orazul Energy invested in the change of design of the bearing N°3, which allowed to maintain lower temperatures of the metal, turning into unnecessary the use of water for cooling.



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Investment and operational costs

Costs: 21,060.60 USD/06 months for technical study, planning, change and installation



Recommendations and limitations

- No recommendations



Applications

Do not apply



References / links

- Agencia Suiza para el Desarrollo y la Cooperación COSUDE, ONG Agualimpia, Empresas socias (2015). Guía de buenas prácticas para el uso eficiente de agua en empresas SuizAgua Andina Perú. In: <http://bit.ly/GuiaBuenasPracticasSuizAguaPeru>