

## CDM project 0198 - San Jacinto Tizate geothermal project, Nicaragua

The project consists in making use of geothermal energy (heat) to produce renewable electricity and replacing the use of fossil fuels. The plant is estimated to generate around 532 000 MWh per year, equivalent to the electricity consumption of approximately 25 000 Norwegian households.

Nicaragua has the lowest per capita electricity generation and consumption rate in Central America due to historically low investments in the energy sector. More than 70 % of the Nicaraguan power system relies on thermal energy and the energy demand in Nicaragua increases by 6 % annually. The Nicaraguan government has so far relied on expensive and highly pollutant fossil fuel based sources of energy, but realizes the need of investment in the electricity sector in base load alternative generating capacity, either geothermal or hydro.

Nicaragua is a country endowed with large geothermal potential, due to the presence of volcanoes of the Marribios range along the Pacific coast. By exploiting this potential, the demand for fossil fuels is reduced. The San Jacinto project fulfils the criteria for becoming a CDM project (Clean Development Mechanism) and has thus been validated by Det Norske Veritas and approved by the UN.

The project has been possible to realise thanks to the CDM validation and the following issuing of CER (Certified Emission Reduction) credits by the UN.



By utilising the existing geothermal resources of San Jacinto-Tizate to generate electricity, the proposed project activity will displace 66MWe (532 000 MWh) of electricity produced by a fossil-fuel intensive electricity grid, which has a carbon emission factor (CEF) of 0,754 tCO<sub>2</sub>/MWh. Expected emission reductions from the proposed project activity are approximately 360 000 tCO<sub>2</sub> per annum, equivalent to the annual emission from more than 100 000 cars.

The project contributes to the sustainable development of Nicaragua. By providing clean electricity, the project will clearly bring economic and development benefits. The implementation of the project activity is expected to improve the situation of local industries in the area, due to an improved electricity supply, contributing at the same time to reducing the costs of electricity generation. Further environmental benefits will be achieved through the reduction of air-based pollutants, such as oxides of nitrogen, sulphur oxides, carbon monoxide and fine particles, being emitted into the atmosphere due to the reduced combustion of fossil fuels. The project is an example of successful technology transfer, which will increase the skills and expertise of Nicaraguans, specifically in developing geothermal power projects. It further leads to increased employment opportunities for locals and contributes towards employment generation in general.



The San Jacinto-Tizate geothermal project is located near the city of León, Nicaragua. León is located 90 km northwest of the capital, Managua. The picture shows the power plant and the separator unit.

For further details see CDM reference:

<http://cdm.unfccc.int/Projects/DB/DNV-CUK1135673240.22/view>