

Turkey: Bundled hydropower project at Kızılırmak River



Certification:

Gold Standard

Climate Protection & Sustainable Development

Key Facts



Background

Turkey has developed tremendously both economically and socially since 2000. The country's economy grew at 7% annually, making Turkey an upper-middle-income country. Turkey is among the world's leading producers of textiles, agricultural products, transportation equipment, construction materials, and electronics.

Energy demand in the country has also increased. Satisfying this demand through conventional energy sources has led to a significant increase in greenhouse gas emissions. According to the International Hydropower Association (IHA), electricity demand in Turkey is forecast to grow by more than 90 per cent over the next ten years. Since 2003, Turkey has liberalised its energy market and privatised existing assets to private sector investment.

Turkey is one of the leading markets for future hydropower development due to an abundance of water resources and a favourable policy framework. Policies targeted at scaling up hydropower include a 30 per cent target for renewables by 2023, a feed-in-tariff for projects completed by the end of 2015, VAT and customs exemptions, and licence fee exemptions for renewable projects (IHA).



The Project

This hydropower project is located on Kızılırmak River, within the boundaries of Avanos District of Nevşehir Province. It is a bundled, run-off-river type that is made up of three cascade projects, each having its own turbines and generators. The project aims to generate electricity by using the existing water without diverting the river. It consists 6.567 MW Cemal I HEPP, 7.055 MW Cemal II HEPP and 6 MW Cemal III HEPP2 on the mid-section of the Kızılırmak River basin, with a capacity of 21.6 MW and 20 MW. The project is expected to generate 73.95 GWh per year.

Location:

Nevşehir Province, Turkey

Project type:

Renewable Energy - Hydropower

Total emission reductions:

» 40,000t CO₂e p.a. «

Project standard:

Gold Standard

Project start date:

Dec 2006

Sustainable Development

By supporting this project you'll contribute to the following Sustainable Development Goals:



SUSTAINABLE DEVELOPMENT GOALS

While focusing on reducing greenhouse gas emissions, all our projects also generate multiple co-benefits. These are supportive of the United Nations Sustainable Development Goals.



3 GOOD HEALTH AND WELL-BEING



Good health and well-being

Hydro electricity does not pollute water or the air, the project reduces the emission of other pollutants that are released by fossil fuels - such as sulphur dioxide, nitrous oxides and soot. This improves air quality and reduces the risk of respiratory diseases.

7 AFFORDABLE AND CLEAN ENERGY



Affordable clean energy

Hydropower is critical for Turkey due to its numerous water bodies. It uses local and renewable resources to generate electricity which reduces Turkey's dependency on energy imports. Most of the crude oil imported in Turkey comes from Iran and Russia (currently, strained Russia-Turkey relations).

8 DECENT WORK AND ECONOMIC GROWTH



Decent work and economic growth

The project generates both direct and indirect employment opportunities in supply of materials, the construction and operation of the hydropower plant. This has had a significant effect on the local economy.

13 CLIMATE ACTION



Climate action

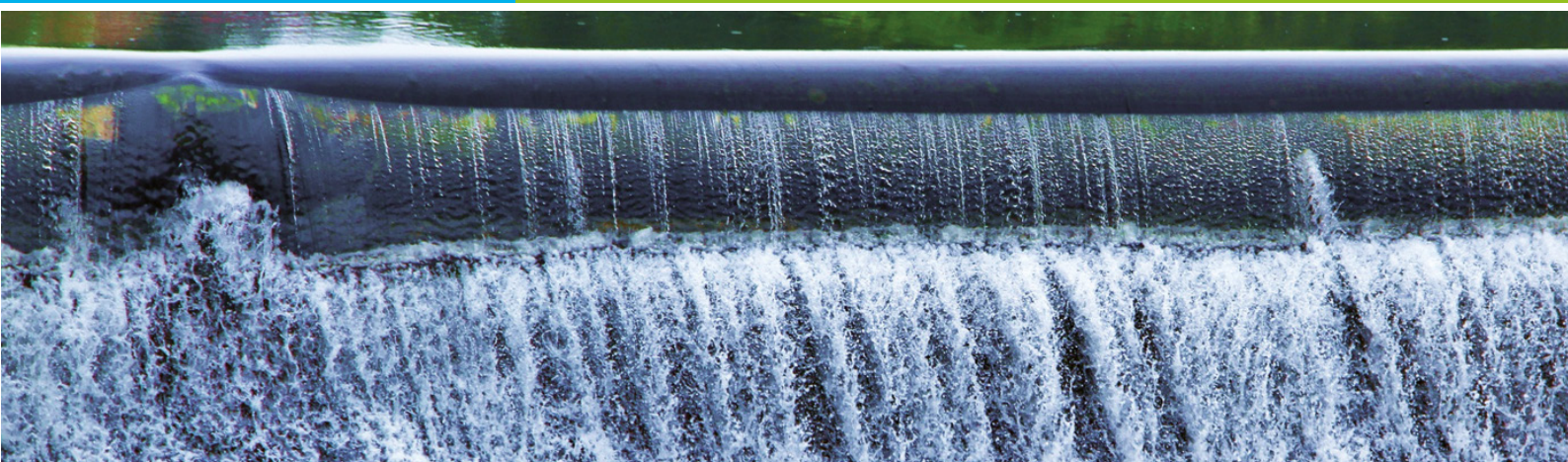
Hydro electricity is a clean source of energy that does not emit carbon. The project avoids NO_x, PM, SO_x, CO₂ emissions. It avoids about 40,000 tCO₂e emission per year.

15 LIFE ON LAND



Life on land

The hydropower project does not divert water from the river; it has no impacts on the water volume or river flow. Secondly, it does not have a negative impact on water quality and biodiversity.



Technology brief – how it works

Hydropower is one of the oldest means of using energy. The principle is simple: All it needs is water and a difference in vertical height. The kinetic energy of the water flow drives a turbine coupled to a generator and thus is transformed into electricity.

This project is of the run-of-river type. The plant uses the natural flow of the river and diverts only part of the stream to drive the turbines. The project uses a dam meaning that the power supply doesn't rely on weather or rainy seasons. This makes the power consistent and reliable year-round and thus reduces the need for back-up generators which are often powered by fossil fuels. Furthermore, it means that the power supply can be controlled so that in times when demand is lower, water can be held back rather than creating a surplus of energy.



Project Standard

Gold Standard
Climate Security & Sustainable Development

The Gold Standard is an award winning certification standard for results based project finance and is recognised internationally as the benchmark for quality and rigour in certifying environmental and socio-economic project outputs. Established in 2003 by the World Wide Fund For Nature (WWF), the Gold Standard today is trusted and endorsed by NGOs, governments and multinationals including United Nations agencies worldwide.

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