

# India

## Green Electricity Generation from Hydropower

### THE PROJECTS IN A NUTSHELL

The projects in India not only save large amounts of CO<sub>2</sub> but also ensure that the living conditions of the local population improve sustainably. Because of the projects, people in remote areas of India have access to green electricity. This makes the area less dependent on fossil fuels, which until now have served as the primary source of energy. Both the inhabitants and the environment profit from the improved air quality resulting from the projects. The projects help to meet the increasing energy demand of the population reliably and in an environmentally friendly manner. At the same time, the local economy is strengthened, as new jobs are created during the construction phase and through the operation of the plants. Additionally, newly constructed roads improve the accessibility to surrounding villages and towns.

### HYDROPOWER/ RENEWABLE ENERGIES

Certification	Verified Carbon Standard (VCS), Voluntary Emission Reduction (VER) Clean Development Mechanism Requirements (CDM-/UNFCCC) are met
Project Validation	i. a. LGAI Technological Center, S.A.
Project Location	Various locations in India
CO <sub>2</sub> Savings	Ø 2,297,190 t CO <sub>2</sub> e p. a.



INDIA



### PROJECT DESCRIPTION

As the world's second-most populated country, India has a high energy demand. So far, this demand has been primarily covered by coal-fired power plants which emit particularly high levels of CO<sub>2</sub> and thus damage the climate, nature, and environment of the local people. The use of fossil fuels also causes the country to suffer from high levels of air pollution. In order to meet the large energy demand, it is time for new ideas. For a long time, India has been a latecomer in the development of renewable energy. However, since 2010, hydropower, wind, and solar power have become increasingly important. The often small hydroelectric power plants are mainly located in the mountain areas of the north. Due to the high natural gradients, high rainfall, and the surrounding glaciers, they are ideal for the environmentally friendly generation of green electricity from hydropower.

### VERIFIED CARBON STANDARD

The Verified Carbon Standard (VCS) was established by numerous environmental organizations, including the World Business Council for Sustainable Development, the Climate Group as well as other business organizations. Its declared goal is to promote and monitor climate protection and review the standards set for CO<sub>2</sub> reduction projects in line with the Kyoto Protocol. Each Verified Carbon Standard project must act in accordance with the strict guidelines of the United Nations Climate Change Secretariat (UNFCCC). In addition to improving the climate and the environment, the acquisition of a CO<sub>2</sub> reduction right thus supports the economy in the project country and improves the social situation of the population at the project site.

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### PROJECT COUNTRY

India is the second-most populated country in the world, but it is not as colourful and lively everywhere as generally believed. In northern India, the state of Uttarakhand is located on the border of Tibet and Nepal. The scenic and varied region lies directly in the Himalayas and reaches heights of more than 7,000 meters. In the West, the sacred source of the Ganges river springs from the Garwhal mountain region. Every year, thousands of pilgrims and tourists visit the many Hindu temples in the so-called land of the gods. Nature enthusiasts are drawn to the Nanda Devi National Park, which was declared a UNESCO World Heritage Site in 1988. With good luck, black bears and snow leopards can be spotted in their natural habitat.



Flowing water is dammed. Large flows yield high performance. The power plants provide a reliable supply of electricity and are used for baseload power supply.

### CYCLE OF NATURE

The power of water has been used for centuries, to drive mills, for example. Today, generators convert the acquired energy into electricity in an environmentally friendly and resource-saving way. Hydropower is one of the cleanest forms of energy, due to its natural occurrence and abundant availability in many regions. Hydroelectric power plants are constructed where the natural gradient of mountains and hills can be taken advantage of. Moreover, rivers can produce enough power to generate electricity, without creating CO<sub>2</sub> emissions or nuclear waste. This makes hydropower an important and sensible contribution to climate protection.

### CO<sub>2</sub> COMPENSATION

CO<sub>2</sub> compensation of greenhouse gases such as methane and carbon dioxide seeks to avoid and offset climate-damaging emissions through developing and supporting international climate protection projects. These worldwide projects are financed by the Western industrial countries and signatories of the Kyoto Protocol. As a guiding principle of CO<sub>2</sub> compensation, it is irrelevant in which part of the world CO<sub>2</sub> and other greenhouse gas emissions are being avoided. Every climate action matters because climate is global and does not stop at national borders. Therefore, climate protection can be implemented where it is most feasible.

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### SUSTAINABLE DEVELOPMENT GOALS

On 1 January 2016, the 17 Sustainable Development Goals (SDGs) of the United Nations officially came into force. The goals for sustainable development are political objectives where social, economic, and ecological aspects are on the agenda.

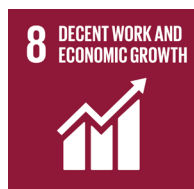
One important finding is that the eradication of poverty must be accompanied by policies supporting economic growth as well as addressing a range of social needs. This includes education, health, social protection, and employment opportunities, while tackling climate change and protecting the environment at the same time.



**GOOD HEALTH AND WELLBEING** In India, electricity is mainly generated from fossil energy sources. Generating energy from hydropower improves air quality and hence improves the health of the population.



**AFFORDABLE AND CLEAN ENERGY** By using hydropower plants instead of exclusively fossil energy sources, part of the energy demand is covered in an environmentally friendly way.



**DECENT WORK AND ECONOMIC GROWTH** Numerous jobs were created during construction and operation, thus strengthening the local economy.



**SUSTAINABLE CITIES AND COMMUNITIES** The construction of the hydropower plants contributes to an improved local infrastructure, for example by building new roads. In addition, contracts are awarded locally which promotes the sustainable development of cities and communities.



**CLIMATE ACTION** Electricity generated from hydropower does not produce any emissions and at the same time, it replaces energy generated from fossil fuels. In this way, the projects help to reduce CO<sub>2</sub> emissions and thus also actively contribute to climate protection.