



PROJECT DOSSIER

TEESTA-V DAM



PROJECT OVERVIEW

Project	Teesta-V Hydroelectric Project
Location	East Sikkim, Sikkim, India
Client	National Hydro Power Corporation Ltd. (NHPC)
Contractor	Jaiprakash Associates Ltd.
Consultants	NHPC
Duration	2000-2008

The Teesta hydroelectric project stage V is a run-of-the-river scheme and will be producing 2572.67 MW of clean energy for the power requirements of the Eastern region thereby positively contributing to economic growth of the state.

The project utilizes the untapped mechanical energy resource that was otherwise being wasted. It generates clean and green power causing negligible emissions of greenhouse gases.

The project comprises of 88.6 m high concrete gravity dam at Dikchu with three penstock of length 321 m and 17.2 km long head race tunnel (HRT) housed on left bank. The underground power house near Sirwani has installed capacity of 510 MW (3x170 MW turbines).

Water level is raised upstream before being diverted through a 17.69 km long headrace tunnel to the power house at Balutar. The beneficiary states of this power station are Bihar, Sikkim, West Bengal, Odisha and Jharkhand.



Monitoring solution

Encardio-rite was awarded the contract for:

- Supply of geotechnical instrumentation for the dam and power house
 - Installation services
 - Online monitoring of critical parameters and areas
 - Manual monitoring
 - Annual maintenance contract
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- Perimetric and uniaxial joint meters to monitor linear movement between the block joints.
 - Temperature meter
 - Normal and inverted plumb lines to monitor tilt of the dam.
 - V-notches to measure seepage water flow collected in drainage channels
 - Water level recorder for monitoring of reservoir water level.
 - Survey targets
 - Automatic data acquisition system for logging data from above sensors.
 - Strong motion accelerometer to monitor accelerations in earth due to reservoir seismicity
 - **Web based data management system for online** presentation of data at client's desk.

INSTRUMENT USED

- Piezometers to monitor uplift pressure below the dam & pore pressure of water in the dam body.
- Concrete pressure cell & strain meter group to monitor concrete stress and strain through
- Multi-point borehole extensometers (waterproof-embedded type) to monitor dam foundation settlement