

Bhutan

ACTIVITY REPORT 2014

Druk Green Power Corporation Limited
P. O. Box N° 1351, Thori Lam, Thimphu, Bhutan

E-mail: director.projects@drukgreen.com
Website: www.drukgreen.bt

Druk Green Power Corporation Limited (DGPC), incorporated under the Companies Act of the Kingdom of Bhutan 2000 on January 1, 2008 by amalgamation of three existing hydropower companies represents Bhutan as a member of ITA-AITES. DGPC is fully owned by the Royal Government of Bhutan: while mandated with complete management of renewable energy, currently investigates, designs, builds, operates and maintains hydropower assets. It currently operates 7 hydropower plants with total installed capacity of 1,606 MW. Four projects with an installed capacity of 3,059 MW are under construction and several thousands more are under consideration.

Till now all underground space development has been for hydropower projects. The only road tunnel of 1.52 km, 11 m diameter has also been constructed by a hydropower project to bypass the Dam location.

With DGPC as member of ITA-AITES, it is taking a lead role in developing competencies in underground space utilization and creating awareness on the benefit of using underground space: particularly for a small country with steep, hilly terrains.



Dagachhu Hydropower Corporation Limited

The 126 MW Dagachhu Hydroelectric Project located in the south-western part of Bhutan under Dagana Dzongkhag was commissioned on February 21, 2015 with all the underground components completed by 2014. The project is designed for an estimated mean annual generation of 515 GWh and in a 90% dependable year to generate 360 GWh. A total of 9,400 m of underground tunnels, an underground Power House and Transformer Cavern, and 531 m of connection channels were constructed for the project.



Tsibjalumchhu Diversion Scheme

DGPC commissioned the Tsibjalumchhu Diversion Scheme on June 30, 2014. The scheme consists of a 3.5 m dia tunnel of length 1.46 km that diverts a stream to the reservoir of the running 1,020 MW Tala Hydropower Plant. This scheme which cost Nu 260 million will add 93 GWh of energy annually to THP generation. This small project, investigated and managed by Bhutanese has added a lot of experience in underground space utilization to the Bhutanese.

The 3.5 M diameter adit to the tunnel was constructed from the top of the Dam of THP by controlled blasting techniques without causing any damage to the Dam.

Other Projects

Three mega hydropower projects are under construction involving major underground construction. The water conducting systems, power houses, transformer caverns and GIS of the 1,200 MW Punatsangchhu Hydropower Project – I, 1,020 MW Punatsangchhu Hydropower Project -II and 720 MW Mangdechhu Hydropower Project are all underground. A summary of the underground works completed for these mega projects are provided below.