

HYDROPOWER

– A WSP CAPABILITY



WSP has vast experience in hydroelectric power planning and development, spanning more than 100 years. A major part of this experience is offered through WSP's partly owned company Multiconsult in Norway. Together, WSP and Multiconsult provide a wide range of services with regards to power generation, aiming to increase access to electricity and the use of renewable energy. Most importantly we focus on providing innovative solutions combining hydropower, grid connection and renewable energy to form an optimal solution. WSP contributes with its expertise on assignments at all stages of development, from planning, design, distribution and resource identification to operation and maintenance including rehabilitation of existing power plants.

The size of the projects varies from 1,500 MW down to 200 kW mini-hydro projects. Aside from our specialist skills in underground structure projects, our experience includes a wide range of hydro projects e.g. run-of-the-rivers schemes, dams of most types, tunnels structures and steel penstocks. Our extensive knowledge is a benefit to all types of hydropower projects ranging from high head plants of 1,000 m to low-head plants below 20 m.

Our hydro power services include

- Project Management
- Feasibility Studies, Design and Tenders Documents
- Geology, Rock and Soil Mechanics
- Civil Engineering and Construction Scheduling
- Mechanical and Electrical Engineering
- Rehabilitation and Upgrading of Hydropower Plants
- Operation and Maintenance of Hydropower Plants

- Dam-Break Analysis and Emergency Plans
- Power Transmission and Distribution
- Energy Sector Policy and Strategy
- Environmental and Social Impact Assessment
- Economics and Power System Planning
- Project Financing and Financial Analysis
- Utility Restructuring and Training
- Institutional Development

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HYDROPOWER – OUR REFERENCES



Storfjinforsen Hydropower Plant, E.ON, Sweden

2008-2012 Dam safety measures. More than 100 concrete monoliths in Sweden's largest buttress dam are being stabilised and repaired to prevent leakage. Different methods are being evaluated at a few selected monoliths before being applied at full scale. WSP is responsible for feasibility studies, for evaluating different alternatives and for detailed design.

Kiambere Hydropower Plant Upgrading, Kenya

2005-2010 2 vertical Francis units with an original capacity of 72 MW each for ahead of 150.5 m. Technical studies, design reviews, tender documents, tendering and contracts, follow ups of production and installation as well as commissioning. The project is performed by Multiconsult/Norplan.

Technical Assistance to the A Vuong Hydropower Project, Vietnam

2006-2008 The main data for the project is 320 m max head, 210 MW installed capacity (two units), annual production 815 GWh, main dam 80 m high RCC with 3 spillway gates, each 14 x 17 m, 5 km fully concrete lined headrace tunnel, 550 m penstock and open power house. Technical assistance on drawings, contracts and supervision. The project was carried out by Multiconsult/Norplan.

Neelum Jehlum Hydropower Project – Detailed Design and Construction Supervision

2008-2016 The Neelum Jehlum Hydroelectric Project (968 MW) is located in the vicinity Muzaffarabad in Asad Kashmir. It comprises the diversion of Neelum river water through 32 km of headrace tunnels, an underground power station and out-fall into the Jehlum river. ESP/NORPLANS detailed design and construction supervision of the Neelum Jehlum Hydropower project in Pakistan. Multiconsult/Norplan is in Joint Venture with Montgomery Watson Harza of America and local partners. Multiconsult/Norplan has specific responsibility for all underground work as well as aspects of mechanical and general civils work.

Alto Maipo Hydropower Project, Chile

2007-2008 The Alto Rio Maipo Hydropower Project includes two underground hydropower plants, each of 270 MW, 65 km of tunnels where our responsibility was to act as an international specialist within defined sectors. The assignment was a cooperation between Multiconsult –Norconsult and Norconsult Andine and covers advisory and controlling functions for the underground works, final design study, hydrology & water resources, road design, intake & de-silting design and tunnel design. Procurement services until award of contract, including prequalification and tender documents for 7 different contracts.