

Tetra Tech provides a full suite of services for hydropower and dam projects worldwide. We have more than 40 years of experience in engineering design, hydrology, hydraulics, sediment transport, and water quality. Tetra Tech provides hydropower services to utilities, independent power producers, federal and state agencies, and municipalities – from initial siting, permitting, licensing, environmental study, and engineering design phases through all aspects of construction to post-construction maintenance and operation. Tetra Tech provides clear solutions in consulting, engineering, program management, construction, and technical services worldwide.

Tetra Tech supports government and commercial clients by providing innovative solutions focused on water, the environment, and energy. With more than 12,000 employees worldwide, Tetra Tech’s capabilities span the entire project life cycle.

We have a clear understanding of the entire hydropower development process from project initiation, through feasibility studies and licensing, detailed design, construction, and operation.

PERFORMANCE HIGHLIGHTS

- In the past 10 years, we have worked on over 1,000 power projects across North America and worldwide
- Decades of experience assisting clients with hydropower projects, such as the relicensing of the 1,050 MW Boundary Dam in Washington State, which provides more than 31% of Seattle’s electrical power needs
- With extensive experience in the energy construction market, we have provided, or are currently providing, construction services to clients on 30 generation projects in the past four years, valued at a half billion dollars, and representing over 2,500 MW
- Grid connection feasibility studies for over 350 renewable energy projects
- Depth and breadth of resources with more than 12,000 employees in 330 offices worldwide, including 3,600 employees in 50 Canadian offices
- Financial strength to stand behind large engineer, procure, and construct (EPC), balance of plant (BOP), and other construction projects, with \$2.29 billion in revenues

Services

Tetra Tech in-house staff provides a full suite of services for the hydropower industry, from initial siting, permitting, licensing, and engineering design phases through all aspects of construction to post-construction maintenance and operation

Licensing/Relicensing/Amendment

- FERC License/Amendment
- Application Preparation
- Water Quality Certification
- Section 106 Compliance
- Section 404 Permitting
- ESA Compliance
- Environmental Review and Permitting
- Study Plan Development and Execution
 - Water Quality/Quantity
 - Watershed Resources and Basin Management
 - Aquatic, Terrestrial and Botanical Resources
 - Wetlands
 - Geology/Soils, Geotechnical and Geophysical
 - Geomorphology, Sediment, and Erosion Control Plans
 - Cultural/Archaeological Resources
 - Land Use/Recreation Planning
 - Aesthetic/Visual
 - Socioeconomic and Economic
- Scoping
- Geographic Information Systems
- Bathymetric Surveys

Regulatory Compliance and License Implementation

- Environmental Review and Permitting
- Plan Development and Implementation
 - Progress/Implementation Plans
 - Fish Passage, Fish Ladder Design and Monitoring
 - Habitat Plans
 - Artificial Propagation Plans
 - Avian Predator Control Program Plans
 - Rare, Threatened, or Endangered Species
 - Spill Measures Evaluation Plan(s)
 - Gas Abatement Plans
 - Aquatic Invasive Species Control/Prevention Plans
 - QAPPs
 - Pollution and Erosion Control Plans
 - WQ Study Plans
 - Sediment Management
 - Recreation Resource Management
 - Shoreline Management
 - Historic Properties Management
- Public Involvement
- Environmental Compliance
- Management and Monitoring

Engineering, Design, and Construction

- Engineering Development Services
 - Site Identification
 - Risk and Cost Analysis
 - Market Assessment/Strategic Planning
- Engineering Preliminary Studies
 - Dam Safety
 - Feasibility and Financing
 - Productivity Analysis
 - Site Optimization
- Engineering Detailed Design
 - Performance Specifications
 - Detailed Engineering
 - Fish Passage
 - Structural
 - Electrical
 - Mechanical
 - Automated Control System (SCADA)
 - 3D Design and Modeling
 - Specialized Electricity Generation Study (Short Circuit, MALT, Coordination, Flicker)
- Construction Services
 - Constructability Review
 - EPC
 - BOP
 - Construction Management
 - Project Management
 - Procurement
 - Health and Safety Planning and Training

Tetra Tech's Hydropower Team works closely with our clients to maximize the value of their projects, while meeting regulatory and environmental needs. Whether the project is a new hydropower project, a rehab of an existing project, or a unit upgrade, we evaluate the economic/financial feasibility, taking into consideration renewable energy incentives like production tax credits, investment tax credits, renewable energy credits, and grants. Our engineering designs are not only safe and meet design standards, but we consider our clients' objectives in designing a project that best meets their needs. Our construction estimates are built from the bottom up by our engineering and construction staff to ensure they are real time and accurate. The design of civil, mechanical, and electrical systems for hydropower generation facilities requires a team of integrated engineers. These facilities have complex gate and valve systems and both high- and medium-voltage electrical networks. Tetra Tech has the experience and expertise to design the electromechanical systems for micro-hydro to large-scale hydro plants, including transmission lines. Likewise, environmental protection, mitigation, and enhancement measures are integrated into the engineering design as a standard procedure.

Tetra Tech, Inc., is a leading provider of consulting, engineering, remediation, and construction services worldwide. Tetra Tech, Inc., is a publicly traded company with annual revenues in excess of \$2.29 billion and more than 12,000 employees in 330 offices, including 3,600 employees in 50 Canadian offices.

Engineering News-Record Rankings

- No. 1 in Water
- No. 3 in Hydroplants
- No. 3 in Consulting/Studies
- No. 3 in Dams/Reservoirs
- No. 7 in Design



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Representative Clients and Projects

The Tetra Tech hydropower staff has several decades of experience and has worked on hydropower projects in over 25 states, provinces, and territories throughout the United States and Canada. Some of our selected project experience is presented below.

Licensing/Relicensing/License Amendment and Regulatory Compliance and License Implementation

- Seattle City Light – Boundary Dam Hydropower Relicensing, Metaline Falls, Washington
- Dominion Generation – Licensing and License Implementation of 330 MW Roanoke Rapids and Gaston Developments and 7 MW Cushaw Project, North Carolina and Virginia
- Upper Yampa Water Conservancy District – Stagecoach Project License Amendment, Steamboat Springs, Colorado

Engineering, Design, and Construction

- Puget Sound Energy - Lower Baker Dam Spillway Gate Car Replacement, Baker Dam, Washington
- Cowlitz County Public Utility District #1 – Swift No. 2 Hydroelectric Project, Cowlitz County, Washington
- Société de L'énergie Communautaire du lac Saint-Jean, Transmission Connection, Engineering, and Construction Drawings, Val-Jalbert Hydroelectric 1,600 MW site, Quebec
- Ontario Power Generation, Value Engineering and Construction Management Construction of four power stations for a total power output of 44 MW, Ontario
- Khudi Hydropower Ltd, Construction of a hydroelectric power station of 4,000 kW for a private producer, Nepal