BRL Ingénierie

Small & medium Hydropower scheme

Integrated expertise

Engineering design, management & consultancy service

Respect for the environment

Environmental assessment

Ecological continuum

Our commitment to hydropower

Balancing natural habitat with technical relevance and economic reality

Legally-imposed dam monitoring

Innovative solutions

Inflatable barrages

Expert appraisals

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Overview

- A consulting firm working **in France and over 80 other countries** in the world
- **190 staff** (engineers, highly skilled experts and technicians)
- Comprehensive expertise covering all the areas related to hydropower
- All phases of design and construction engineering studies and project management
- Technical assistance to operate several sets of facilities (**from 300 kW to 8.4 MW**)

BRL Ingénierie
1105, avenue Pierre
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LLOYD'S REGISTER ISO 9001

Comprehensive expertise on hydropower facilities to win your challenges

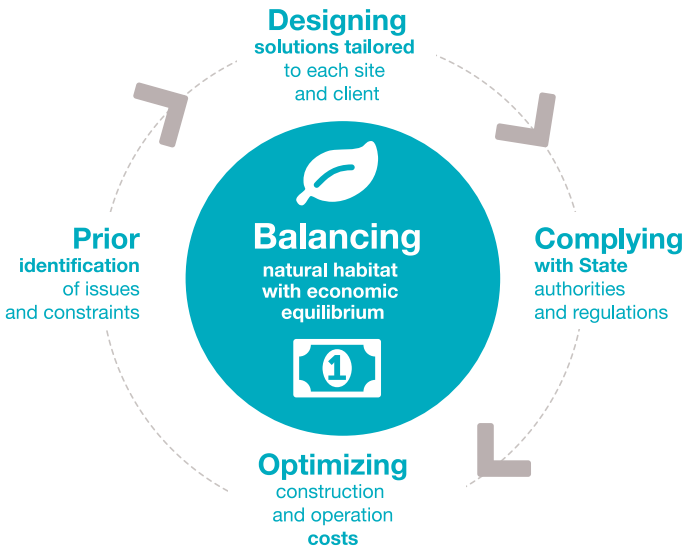
Extensive experience

We are a consulting firm offering specialised services in areas related to water, the environment and regional land-use management. We work in France and abroad, for public and private sector clients.

Championing the major challenges of the 21st century and toughened by past experience, we are a valuable asset, delivering environmentally-friendly small and medium hydroelectric power projects.

Our principles

Always in line with ground truth, our approach to this very specific area of activity is rooted in several fundamental principles governing our activities.



Technical

- Identifying and developing potential
- Expert appraisal of (new and existing) sites
- Feasibility studies
- Design engineering and technical studies (from preliminary to detailed and final design)
- Construction engineering & management (from construction, endorsement of design, coordination and scheduling to acceptance formalities)
- Optimising power production
- Expert appraisals to modernise facilities

Environment

- Planning permission and consent applications
- Environmental impact assessment
- Permitting and consent studies
- Field measurements
- Design of passage structures (fishways, eel ladders, canoe passages…)
- Operational analysis of watercourse mount and descent structures
- Ecological continuum studies
- Hydrobiology

Other specialisations

- 1D and 2D hydraulic modelling
- Thematic expertise (hydromorphology, geotechnics, civil engineering, electromechanics, etc.)
- Operations assistance (detailed technical inspections, danger analysis, etc.)
- Legally imposed monitoring of dams, waterworks and equipment
- Civil engineering construction drawings
- Asset management assistance services

Small & medium

Hydropower scheme

Our vision

- proven design concepts in harmony with the environment;
- simple, rational construction solutions

➔ **Measured investment outlay and efficient operations**

Our staff - Your facilities

Our staff is organised into project-based structures that can count on:

- **A great deal of expertise**: multidiscipline, experienced staff form teams that ensure the development of simple solutions for construction, and operation conditions that are relevant and adjusted to each individual situation.
- **Integrated skills**: our teams combine many different specialisations that are all mainstreamed into our activities: environment, hydrology, hydraulics, civil engineering, geotechnics, hydromechanics, electric power, automation and systems control, economics, etc.
- **Permanent expert support**: in their day to day activities our staff are able to rely on support from experts who accompany them throughout the project life-cycle, helping them with conceptual design choices, etc.

Your facilities and equipment

- Automation and control: regulation, man-machine interface, etc.
- Plant buildings: all types.
- Dams and dikes: all certifications, all types.
- Electric power: Low and medium voltage substations.
- Ancillary equipment: bar screens, hoisting equipment, pumps and turbines, ventilation devices, etc.
- Valve and gate equipment: all kinds (penstock gates, pipe valves, etc.).
- Flood spillways: valves, check valves, sector gates, piano-key overflows, etc.
- Shaftlines: turbines, electromechanical speed-increasers and converters.
- Constructions to ensure ecological continuum:
  - Mount and descent passages: fishways, eel ladders, canoe passages, etc.
  - Sediment transport structures.
- Transfer facilities: canals, penstocks, tunnels, etc.

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Small & medium

Hydropower scheme

Over 50 years of experience in waterworks

A few examples of experience

France

Reconstruction and modernisation of 5 gate-structure barrages on the Meuse River.
Comparison of scenarios for several low head sites.
Preliminary and detailed design. Output: from 400 to 800 kW

Chapeauroux HPP
Equipment of a medium-head (40m) mountain site, Naussac dam. Comparison of several equipment scenarios.
Output: from 400 to 800 kW

Saint Joseph Dam
Comparison of several equipment scenarios for a low head site (50 m3/s, net head 2.55 m). Preliminary and detailed design, Final design, Environment and Safey Audits.
Output: 1000 kW

Reconstruction of 29 gate-structure barrages on the Aisne and Meuse Rivers
Replacement of 29 hand-operated locks/barrages by re-building them as automated water-inflated barriers.
Construction of 3 small HPPs. Detailed design, Final design, Environment and Safety Audits.
Output: from 800 to 1000 kW

Meuse HPP (Hérault)
Equipment of a low-head (6 m) site, output 1800kW.
Renovation of existing small HPP and addition of a third turbine. Final design - Tender documents - Environment and Safety Audits Output: 1800 kW

Terres Romanes
Survey of hydroelectric potential in the Terre Romane en Pays Catalan area. Output: Variable

Aspiran Weir
Feasibility study to install a low head plant in an existing weir.
Output: 400 kW

Gignac HPP
D&C engineering - fish passages and canoe crossings.
Final design - Tender documents - Environment and Safety Audits Output: 1500 kW

Vinça Dam
Environmental impact assessment. Preparation of permitting and consent application documents. Output: 400 kW

Suresnes fish passage
Turbines operating under very low head (2 m) to produce flow to attract fish into a fishway.
Feasibility study, preliminary design.

Les Barthes
Studies and complete D&C engineering and management.
180 m net head. Turbines to direct water into a network before drinking water treatment.
Energy dissipater as a by-pass. Output: 400 kW

Moulin Bertrand
From feasibility study through detailed design.
Addition of a Kaplan S turbine. Output: 2300 kW

Monts d'Orb HPP
D&C engineering and project management to refurbish the electrical components (power and control).
Final design - Tender documents - Environment and Safety Audits Output: 1200 kW

Bras des Lianes small HPPs
D&C engineering and project management to build a cascade of 2 small HPPs. Pelton turbines and penstocks.
Output: 1450 and 700 kW

Dure River Project
Studies and complete D&C engineering and management.
180 m net head. Output: 1000 kW

Méricourt Dam
Feasibility study and detailed design of a small HPP.
Output: 1000 kW

International

Melanesia / Solomon Islands
Environmental and social impact assessment of the Tina River development project.

Morocco - Sidi Riss project
Detailed design study of a turbine at the bottom of a dam.
Gross head 17.5 m. Output: 2700 kW

Morocco- El Guerdane project
Detailed design, Hydraulic and electromechanical study Output: 3000 kW

Senegal, Gambia, Guinea
Additional economic and environmental study on Sambangalou hydroelectric power project

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