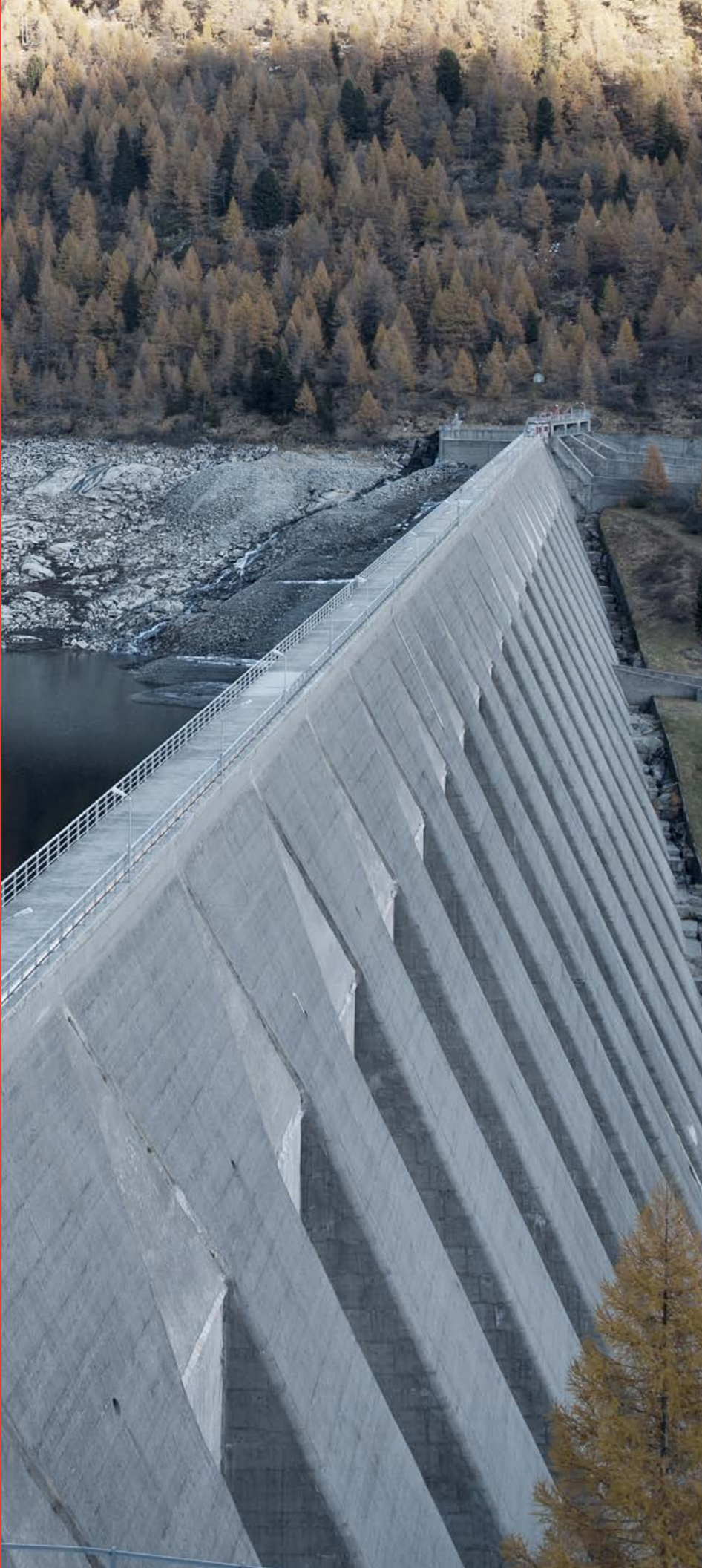


Sustainable Energy

Hydropower



Our Core Services

PROJECT DEVELOPMENT

Project planning, river surveys and feasibility studies

Preliminary engineering and design

Environmental assessment, surveys and permitting

Resource assessment and energy forecasts

ENGINEERING AND CONSTRUCTION

Tender package and selection process

Detailed engineering for construction

Owner's Engineer services

Independent third party design review

Construction management (EPCM)

Commissioning, testing and start-up

OPERATIONS AND ASSET MANAGEMENT

Performance assessment

Dam Safety Reviews

Dam Safety Inspections

Development of Operational Guidance documents (OMS, EPP, ERP)

Public Safety Assessment

Risk and safety analysis

Engineering and design

MERGERS, DIVESTITURES AND ACQUISITIONS

Advisory services and project risk review

Independent engineer services

Due diligence studies

Inspections of hydropower plants

Our Projects

YELLOW FALLS HYDROELECTRIC PLANT (16 MW)

Ontario

WSP provided a wide range of services for this greenfield project including a technical review (due diligence study), conceptual to detailed engineering design, advice on environmental aspects and permitting, specific environmental studies (mercury modeling, air and noise and geomorphology), services during construction and up to the final commissioning of the plant.

STANLEY-ADAMSON POWERHOUSE REHABILITATION (4 MW)

Ontario

WSP provided services to upgrade a historical site constructed in the 1920s with state-of-the-art hydropower technology. WSP's services covered the conceptual design, environmental assessment and permitting, water-to-wire tender and selection process, detailed engineering for civil, mechanical and electrical components of the powerhouse and finally engineering services during construction, including site monitoring.

EAST TOBA/MONTROSE CREEK HYDROELECTRIC PROJECTS (200 MW)

British Columbia

WSP provided an experienced technical team to perform a Due Diligence Assessment on recently constructed hydroelectric projects. Technical services included inspection of the assets, review of the actual energy production and forecasts, hydrological assessment, review of O&M activities, CAPEX/OPEX review, construction issues analysis as well as a review of the electrical infrastructures of the projects.

CARILLON GENERATING STATION (753 MW)

Québec

Hydro-Quebec performed a major rehabilitation of the Carillon GS located on the Ottawa River. WSP provided engineering services for initial investigations of turbine-generator units along with other heavy mechanical components such as gantry crane and powerhouse bridge cranes. Furthermore, civil investigations and design works were also provided as part of this project.



Hydropower, with a fuel source that is clean and renewable, is one of the most important energy sources - generating almost one-fifth of the world's total electricity. However, current and future trends are threatening the industry. Climate change and shifting rainfall patterns shrink river flows and drain lakes, leading to decreased power generation. Population growth puts strains on freshwater supply - how will governments handle the division of water to satisfy both power generation and agriculture? How do operators successfully upgrade aging hydro infrastructure to be smarter and more efficient with less downtime?

At WSP, we understand the challenges our clients face. WSP's Canadian hydropower team is widely considered a world leader in the development of hydropower projects with specialized expertise and distinct services in a number of areas. Our experts, for decades, have carried out all types of hydropower projects of varying size across the country and abroad. A key success to our project delivery is our comprehensive experience combined with knowledge and contacts in the industry at large. We offer a comprehensive range of services spanning the entire lifecycle of a hydropower project from feasibility to implementation including power station design, construction supervision and operations & maintenance support.

EXPERTISE ACROSS THE LIFECYCLE - REHABILITATION AND MAINTENANCE

Plant owners need to carefully evaluate the best options for managing their facilities, whether that is to continue with maintenance work, go through a major recapitalization program or a full rebuild. Regardless of the decision, thoughtful planning is key in determining the optimal outcome and plant profitability. In addition to aging infrastructure, other elements to be taken into account include a facility's operating criteria which may not have been designed at the time that the asset was first built. Other factors include the best use of water resources, such as instream flow regime, and public safety and security surrounding hydro plants. All of these issues can be managed with the help of engineering expertise at WSP. We work with our clients to maximize the return from their assets, while ensuring reliability and efficiency.

DIVERSE EXPERIENCE, CLIENTS AND PROJECTS

Our experience covers engineering small projects to turnkey development contracts for clients who include owners, developers, contractors and financial institutions; each requiring a particular service delivered in a professional, timely and successful manner. The diversity of our clientele across a wide range of market sectors, both private and public, together with our well-established client relationships, have solidified our reputation as a company known for client satisfaction, dedication and service excellence.



As one of the world's leading professional services firms, WSP™ provides technical expertise and strategic advice to clients in the Transportation & Infrastructure, Property & Buildings, Environment, Industry, Resources (including Mining and Oil & Gas) and Energy sectors, as well as offering project and program delivery and advisory services. Our experts include engineers, advisors, technicians, scientists, architects, planners, surveyors and environmental specialists, as well as other design, program and construction management professionals. With approximately 48,000 talented people in 550 offices across 40 countries — more than 8,000 in Canada and 9,500 in the U.S. — we are uniquely positioned to deliver successful and sustainable projects, wherever our clients need us.

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