

Hydropower Consulting Services

Leverage our 600+ years of hydro experience to:

- Detailed assessments of your governor and excitation systems, vibration monitoring and balance-of-plant systems
- Review and discuss the level of automation appropriate for each plant, understanding current power markets and your utility's interest in digital transformation
- Inspect your legacy governor systems and recommend appropriate overhauls or factory repair services to ensure continued unit reliability and availability



Overview

Emerson hydro specialists take a holistic approach to powerplant inspections. We understand more than just governors and excitation systems: we know how all the systems in a hydro plant work together to make hydro long-lasting and reliable. We understand that most hydro plants have been in service and largely unchanged for decades. However, the modern necessities of competitive electricity markets and numerous daily starts and stops, and ramping up and down all day long, can not only take its toll on plant equipment but tax the viability and effectiveness of the original relay-logic control concept that was implemented long before the computer age.

Many utilities hope that digital transformation will enable them to meet the challenges of tomorrow, yet few know how to actualize those needs in their legacy hydro plants. We do. Leverage our experience to help guide you into the future:

- Increase your asset availability
- Reduce maintenance costs
- Improve maintenance effectiveness
- Enhance plant dispatch scheduling
- Maintain complete bills of material, including all legacy equipment

Emerson hydro specialists will work with you to determine specific system and subsystem needs to modernize and optimize plant operation and maintenance practices. From unit subsystem up through governor and excitation systems, the vibration and temperature monitoring systems, up to the fully-automated plant controller with sequence of events recording, river management, and advanced data analytics with graphics-enabled screens that can guide operators and technicians to isolating the fault location; we can do it all. And, with cyber-secure

communications to your regional control center and OSI distribution automation software systems, Emerson can truly be your one-stop-shop for control modernization.

Consulting Services for Hydropower Plants:

- Understand your most acute plant or unit-specific issues
- Review existing plant drawings and understand the original control approach
- Perform governor, exciter and balance-of-plant control assessments
- Perform governor and exciter response analysis to assess current performance
- Discuss your desired scope of modernization
- Prepare a comprehensive plant and unit-specific reports detailing work required or suggested
- Discuss current plant control and cybersecurity requirements
- Prepare technical specifications budgetary proposals based on your objectives for plant modernization

Expert Project Management

From beginning to end, our approach to project scoping, execution and management delivers solutions that eliminate costs, reduce complexity and accommodate future expansion to improve plant efficiency and dispatchability. Early collaboration not only delivers reliable project scheduling but enables you to attain your long-term operational objectives. From concept to final handover, take the guesswork out of digital modernization with our proven solutions and expertise.

Each modernization project is unique: they can put a strain on budgets and project resources while requiring knowledge of both old and new technology. We offer over 600 years of hydro experience as well as industry-leading Ovation™ plant automation technology and the latest in digital governors, excitation systems, vibration monitoring, data analytics and more. By partnering with Emerson for your modernization project, we will ensure that your project is executed flawlessly, on schedule, and with minimum impact on production.

Our electrical utility practice brings a unique combination of reliability and maintenance expertise coupled with deep industry insight to enable top quartile performance.

Hydroelectric powerplants have a 100+ year legacy of providing stable, reliable electricity production. In this new century, when frequent, daily load swings are the norm and carbon emissions are to be minimized, hydro is emerging from its rather stodgy reputation to take a starring role in the electric grid of the future. By instantly balancing variable renewables throughout the day, hydro plants are having a significant beneficial impact on grid stability, far more than any battery system installed or contemplated. At Emerson, we are ready to answer the call of utilities that need help deciding what to do with their hydro plants. Our customers know when they partner with Emerson, they can Consider It Solved.

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