



RenServ RENOVATION, MODERNISATION & UPGRADATION

Modernise to Monetise

Modernise to monetise, with FLOVEL RenServ

A typical Hydropower project is expected to serve for 30-40 years but with timely interventions this lifecycle can be extended to 50+ years. But most Hydropower developers become passive towards their plants after a few years of operations, focusing their energies on new development, not realising that old ones could offer higher ROI with Renovation.

Lack of a reliable and cost effective partner is another deterrent often cited by developers. Many tend to engage local entities that focus on repair instead of renovation, further deteriorating lifecycle and productivity.

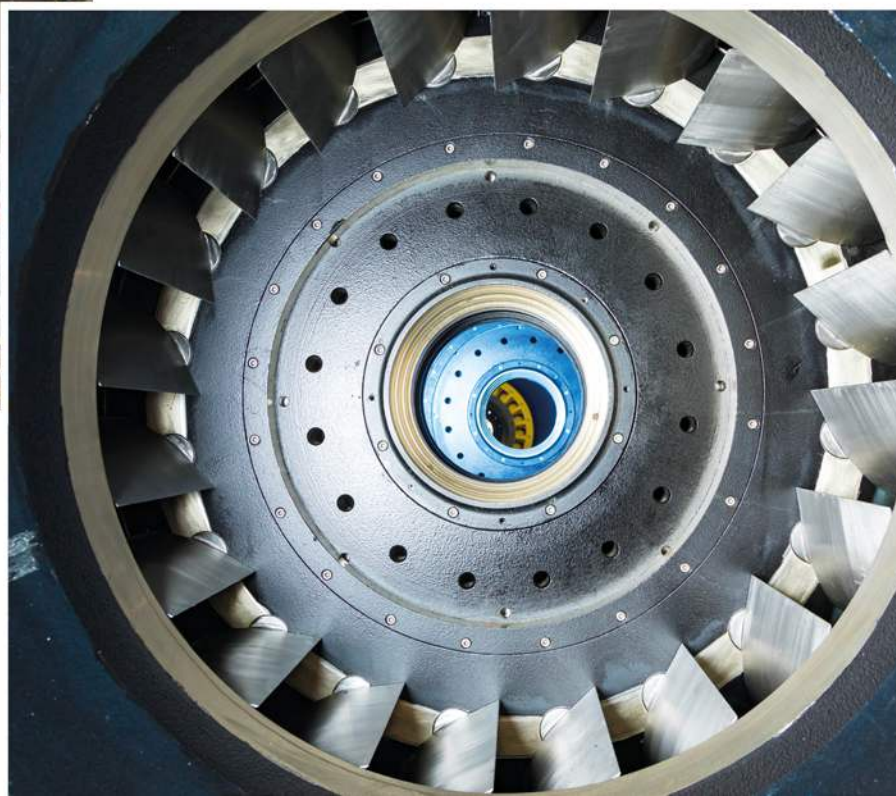
FLOVEL has a dedicated RenServ practice that works in parallel to our E&M water-to-wire services. We draw from our manufacturing and R&D facilities while bringing uniquely renovation and modernisation projects' understanding and expertise. We ensure that latest technologies and best-in-class equipments are deployed for your renovation and modernisation projects, bringing cost-effectiveness, higher productivity and returns on investment.

”Renewal is the key to lasting performance.

Near You, For You – Locations for Faster Services. We believe proximity matters. With regional service locations, easily accessible and reliable engineering teams, and on-site specialists, we provide Faster response times, Reduced downtime, Local compliance and logistics support, Strong relationships with plant operators.

Clear communication is the foundation of project success. Our teams operate across multiple locations and time zones, ensuring uninterrupted project execution and support—wherever your plant is located. From feasibility studies to commissioning, you stay informed—every step of the way.

Hydropower isn't just our business—it's our passion. Our engineers, technicians, and project managers bring decades of hydropower expertise, a commitment to safety and sustainability, pride in every upgraded megawatt delivered. This passion drives us to exceed expectations—on quality, schedule, and performance.



Why Renovation & Modernization

1. Life extension by 20–40 years
 2. Increased efficiency and output
 3. Power uprating (5–20%) using existing water resources
 4. Reduced forced outages
 5. Improved environmental performance
 6. Digital readiness and grid flexibility
 7. Strong return on investment (ROI)
- Most importantly, modernization ensures maximum value from existing infrastructure—within budget and on schedule.

Why FLOVEL RenServ

1. Proximity and Localised multilingual teams for seamless communication and speed.
2. Digital project management and collaboration tools for time zone management and round-the-clock updates.
3. 50+ years of experience and an undying passion for hydropower with dedicated RenServ team.
4. End-to-end R&M solutions including repairs and upgrades.

OUR PRODUCTS

Turbine runners and upgrades

Generators and stator rewinds

Governors and excitation systems

Balance of plant mechanical & electrical items

Digital control & protection systems

SCADA and plant automation

Condition monitoring and diagnostics

OUR SERVICES

Engineering & feasibility studies

Retrofit and rehabilitation

Installation & commissioning

Long-term service agreements

Each solution is customized to your plant, ensuring maximum performance within budget.



Projects before and after renovation

Renovation doesn't just restore performance, it can enhance it. RenServ projects successfully uprate the plant's capacity. With #FLOVEL's experience and commitment, your ageing hydro-power plants can unlock new productivity and profitability. Talk to us to explore the possibilities.



Budhil HEP (HP, India), 2 x 35 MW

This project presents a unique technical challenge ensuring the newly supplied components seamlessly integrate with the **existing components and embedded parts** to achieve the desired performance with the silt resistant design. Notably, this project features the **largest capacity Francis Runner executed by FLOVEL for an IPP, rated at an impressive 35 MW**. Additionally, FLOVEL has already demonstrated its proficiency by successfully **repairing an existing Runner** at the same power plant. This achievement underscores FLOVEL's position as a trusted leader in advanced turbine solutions.



Case Study

Iruttukanam SHP (Kerala, India), 3 x 1.5 MW + 10% COL

In August 2018, Kerala faced an unprecedented catastrophe with devastating floods and massive landslides, resulting in the destruction of this hydropower project, the powerhouse and all electromechanical devices were submerged in water and buried under piles of dirt and mud.

Despite the overwhelming damage, FLOVEL was called upon to assess the situation and evaluate the possibility of quickly restoring power generation. The customer's primary concern was to recover quickly to maintain the economic profitability of the project. FLOVEL's team of experts conducted a thorough inspection of the equipment at the disaster site, compiling a detailed report outlining the steps necessary for restoration.

The tricky challenge for FLOVEL was the task of disassembling the entire turbine, transporting it to the factory for repairs, and restoring it to its original condition in a very short span of time. In addition to this, FLOVEL was responsible for the restoration of both Mechanical-Balance of Plant (M-BOP) and Electrical-Balance of Plant (E-BOP) components. Despite the enormous challenge, FLOVEL took on the responsibility and completed the project in line with the contractual completion period, meeting the customer's expectations and putting the plant back into operation, much to the satisfaction of the client.

This project highlights FLOVEL's capability in handling extreme conditions and highlighted its expertise in quick recovery and restoration of critical hydropower infrastructure.



It is time to change

Making old plants new reduces risks and gives a new lease of life to your valuable investments.

Following activities will reduce costs and risks of standstills:

- » Activities covering main equipment i.e. turbine, generator, C&I equipment and other plant equipment essential for efficient and sustained performance of the units.
- » Prioritisation of activities which have direct impact on improvement of generation, efficiency, machine availability etc.
- » Analysis with respect to design aspects which will yield uprating of units like rewinding of generator with change of insulation.
- » Supplying new runners with improved profile.
- » Replacing old governors with modernised fast acting digital governing systems.
- » Replacing and supplying state-of-the-art equipments such as Digital Static Excitation System, numerical relays with self diagnostic features, on line monitoring devices, water level and discharge measuring devices etc.

Before Renovation:

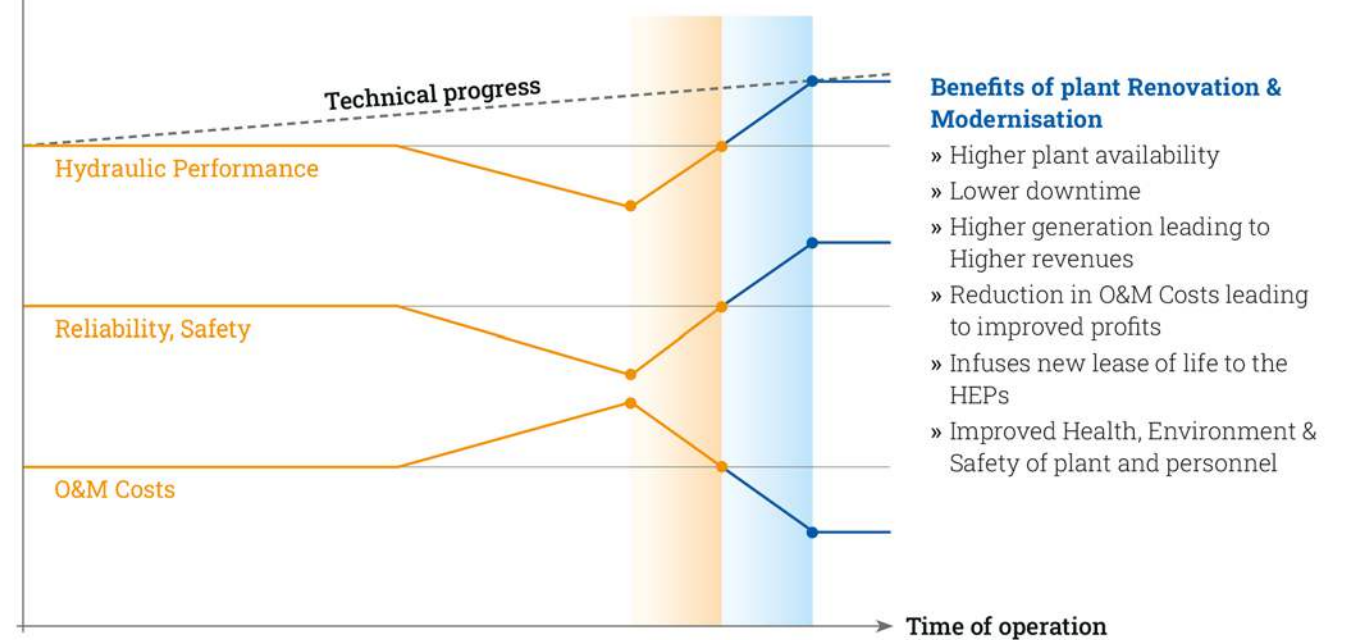


After Renovation:



Rehabilitation or Refurbishment or Maintenance: repair of components to original status

Modernisation or Upgrading or Uprating: major added value (increased GWh)





Gautam Kar,
Managing
Director

Renovation, Modernisation & Upgradation (RenServ) has been recognised world over as a well proven cost effective technique for improving the Performance, Efficiency and Reliability of existing Hydropower Plants



Driving force for a better course

FLOVEL is a full-line-supplier for Hydropower plants – manufacturer of Hydraulic Turbines, Governors, Excitation systems, SCADA, Valves, and turnkey supplier of electro mechanical packages for Renovation & Modernisation services of Hydropower plants.

We provide Turnkey Hydropower Solutions – with cohesive integration of design, manufacturing, execution and service support. With our incessant focus on quality and total customer satisfaction, we have set new benchmarks in 'implementation finesse' that have translated into sustainable benefits for our customers.

Owing to extensive experience of FLOVEL in the Hydropower industry, FLOVEL is ideally placed to offer clients its customised solutions for Renovation, Modernisation, Upgradation / Uprating of any existing Hydropower plant.

Service

Inspection

Repair

Replacement

Modernisation or Rehabilitation

Diagnosis

Expert support

Modernisation

FLOVEL is certified for Integrated Management Systems, which includes ISO 9001:2015, ISO:14001:2015, ISO 45001:2018 and CE Certification.



400+ employees
Fully equipped design & engineering centre
State-of-the-art manufacturing facility
RenServ: 3,500+ MW
Repair & Retrofit turbines with a unit output of up to 300 MW
54+ years of global Hydro experience



Erevan-1 powerhouse 2x25 MW

RenServ

FLOVEL is advantageously positioned to deliver more MW per MW.



Making an old turbine new

Hydropower equipment can be upgraded with the latest technologies

FLOVEL undertakes Renovation, Modernisation, Upgradation / Up-rating and Servicing of existing Hydropower plants of all types and sizes over its entire life cycle including own fleet and for equipment supplied by other manufacturers.

Scope of work and services offered

- » Plant Assessment
- » Reverse Engineering
- » Residual Life Analysis
- » Feasibility studies
- » Risk Assessment
- » General overhaul / Rehabilitation of complete plant including turbine, generator and related BoPs
- » HVOF coating and custom designed solutions for high silt content water
- » Upgrading / Modernisation of automation equipment
- » Model testing / CFD Analysis / FEM Analysis / Vibration Analysis
- » Site Performance Testing
- » Operations and Maintenance contracts
- » Spare parts management
- » Fault Analysis and Troubleshooting
- » Training services
- » Service technicians

Steps involved

Planning

Diagnosis

Site visits / Study

Inspection / Test

Report submission

Action

Repair

Replacement

Modernisation / Redeployment

Advantages

- » Customised & innovative solutions
- » Close to customer
- » High level Technical competency
- » Process oriented project management
- » Existing Civil structures are least affected
- » 3,500+ MW and still counting



Research & Development: Our DNA

"Innovation" is the keyword of success in our business. It is our priority to invest time and money into research, development and innovation. Combination of state of the art technology and quality is the base for our leadership position. It is our responsibility to deliver solutions with the best interest of customers in our mind.

Reverse Engineering

is the process of analyzing an existing product, system, or component to understand its design, dimensions, materials, and working principles – especially when original drawings, design data, or documentation are unavailable.

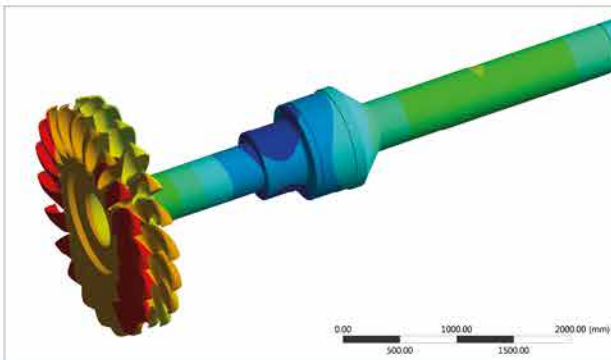
Hydropower plants often operate for 30–50 years. During renovation, modernization, or uprating, reverse Engineering becomes essential for several reasons including Lack of Original Drawings, Custom-Designed Components. Through this process we can make appropriate wear and tear assessment, bring efficiency improvement (Uprating) by redesigning old components and ensure their compatibility with existing Structure.

FLOVEL has the experience and the multi-disciplinary expertise required for the reverse Engineering process, making it the first choice for RenServ projects.



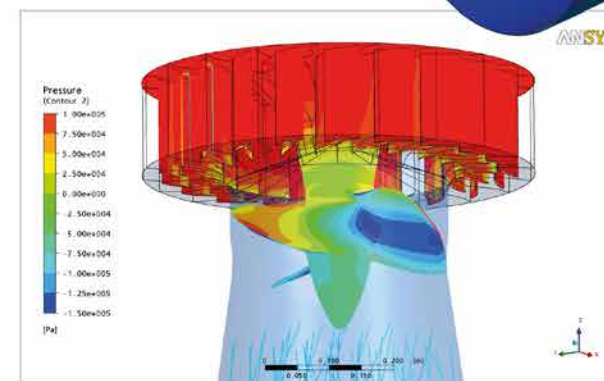
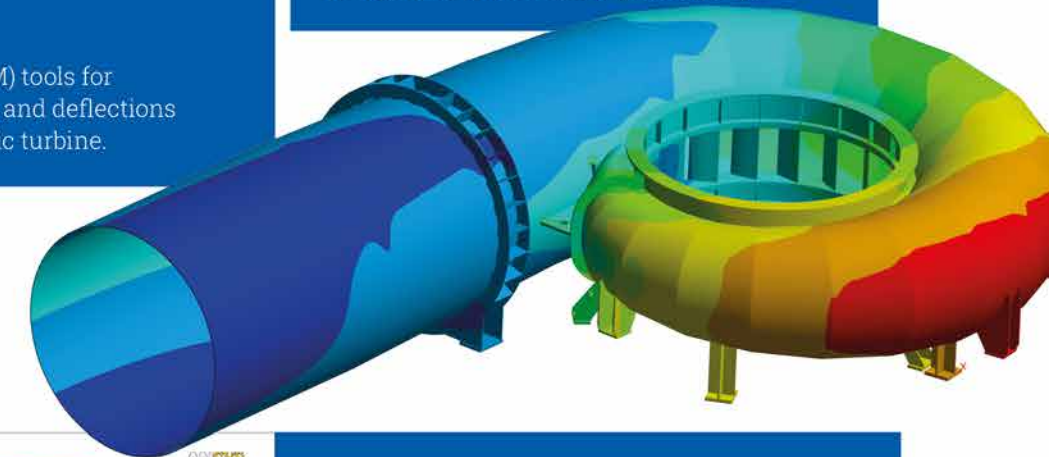
Model test

Should the customer require a model test to be performed, FLOVEL is equipped to have a model test conducted at an accredited / independent model testing laboratory.



FEM

Finite element method (FEM) tools for calculating stresses, strains and deflections in components of a hydraulic turbine.



CFD

Tools to accurately predict flow characteristic. CFD is used to improve hydraulic design of turbine water passages, including the runner and static components. For renovation projects CFD is a very important tool for improving turbine output, efficiency and cavitation characteristics.



A good job for an exciting market

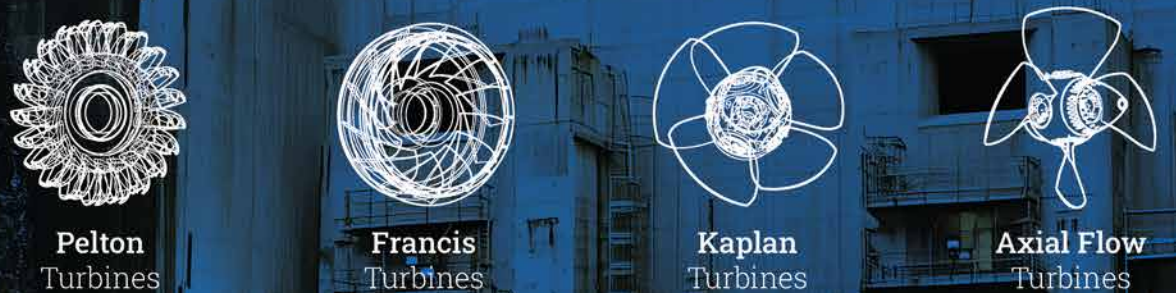
FLOVEL's key personnel and coworkers in all functions are among the best in the country with right educational qualifications and vast experience in their respective field and trained at various international locations to work to global standards. FLOVEL has a total strength of more than 300 people who by their knowledge, experience and innovative approach assure a competitive edge to the market and to a long term development of the company.



Our manufacturing facilities:
Where excellence is made



Unlocking the potential of your existing hydropower plants



Valves

FLOVEL manufactures full range of Valves under its joint venture with TB Hydro, Poland. These valves are manufactured by JV company TB Hydro Flovel Valves Private Limited.



Governor, Automation, SCADA & System Excitation

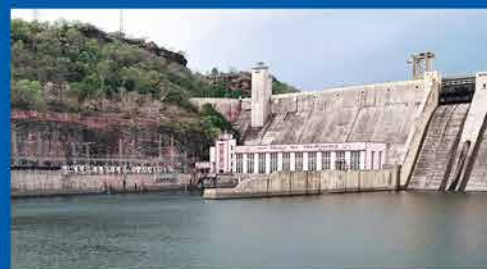


INDUS is a digital Intelligence Eco-System develop by FLOVEL.

- » Digital Turbine Governor
- » Plant Level Software Interface for Control & Monitoring
- » Real-time Remote Monitoring (Mobile / Laptop / LSD)
- » Alarms Management, Push Notifications, Email Reporting
- » Gateway for Load Dispatch Center Communication
- » Real-time & Historical Data Storage, Integrated Data Security
- » Report Management

Associate Civil & Hydro Mechanical Works

- » All Associate Civil works for equipment supplied
- » Required architecture works in powerhouse
- » Small Pump house buildings etc.
- » Overhauling or replacing sluice gates, radial gates etc.
- » Actuator and hoist system upgrades
- » Supply & overhauling of TRCM
- » Overhauling of Penstock
- » Overhauling of Dam EOT



Mechanical Balance of Plant & Auxiliaries



Scope

- » Oil Pressure System for turbine, MIV & PPV
- » Cooling Water System
- » Drainage System
- » Dewatering System
- » Crane
- » Fire Fighting System
- » Ventilation & Air Conditioning System
- » Compressed Air System
- » Bearing Lubrication System
- » Oil Filtration System
- » Flow & Level Measurement System
- » Vibration Measurement System

Hydro Generator & Electrical BOP

We deliver tailor-made systems as per customer requirements. Our solutions are safe, reliable and provide cost-effective operation. We are a single source provider ensuring complete service and seamless availability for your hydropower plant and all its components and systems. Our long-term process know-how and control system expertise in hydropower applications coupled with high efficiencies and post implementation service brings the Advantage on your side.



Shanan, India
 Type of Turbines: Vertical Pelton & Horizontal Pelton
 Design Head: 487.70 m
 Installed Capacity: 1 x 50,000 kW
 4 x 15,000 kW



Koyna, Stage II, HEP, India
 Type of Turbines: Vertical Pelton
 Rated Head: 490.00 m
 Installed Capacity: 2 x 80,000 MW



Erevan 1, Armenia
 Type of Turbines: Vertical Francis
 Rated Head: 88.35 m
 Installed Capacity: 2 x 25,000 kW



Mukerian, India
 Type of Turbines: Vertical Full Kaplan
 Rated Head: 16.80 m & 22.00 m
 Installed Capacity: 6 x 15,000 kW + 6 x 19,500 kW



Dhokrani HEP, India
 Type of Turbines: Vertical Full Kaplan
 Rated Head: 19.60 m
 Installed Capacity: 3 x 11,250 kW



Upper Sindh, Stage II, HEP, India
 Type of Turbines: Vertical Francis
 Rated Head: 224.00 m
 Installed Capacity: 3 x 35,000 kW





Get in touch

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VALVES PARTNER

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