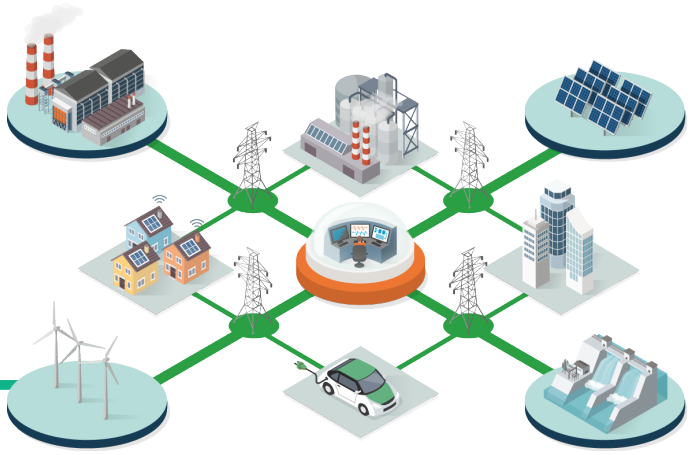
Increasing power generation flexibility

A comprehensive panel of technologies and services for power grid flexibility & storage

As an independent company, SuperGrid Institute provides studies, test platforms and innovative technologies related to hydroelectric performance, storage, and flexibility systems. We support utilities, manufacturers, EPCs, and developers in the optimisation of their hydraulic assets, be they coupled with renewables or not.

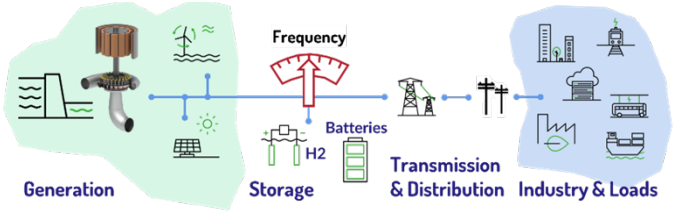


OVERVIEW

Unlike thermal electricity generators, renewable energy sources cannot be controlled and cause variations in power generation. Hydroelectric equipment will increasingly be called upon to ensure the stability of the network.

OUR OFFER

We help our clients anticipate the future flexibility requirements of power grids and increase their revenues by accessing new emerging markets of ancillary services.



We provide solutions to increase the operational range of hydropower assets and offer ways of reducing the wear & tear of hydro turbines caused by the increasing need for power variation.

We also develop custom-made solutions to manage hydro power when combined with solar, wind, hydrogen and storage all together, using efficient energy management systems.

OUR ADDED VALUE: all-in-one-place

- Expertise in various renewable energy sources and storage
- Unique testing platforms for hydroelectric plants & MV and HV equipment
- Transverse expertise in AC & DC power systems and power conversion

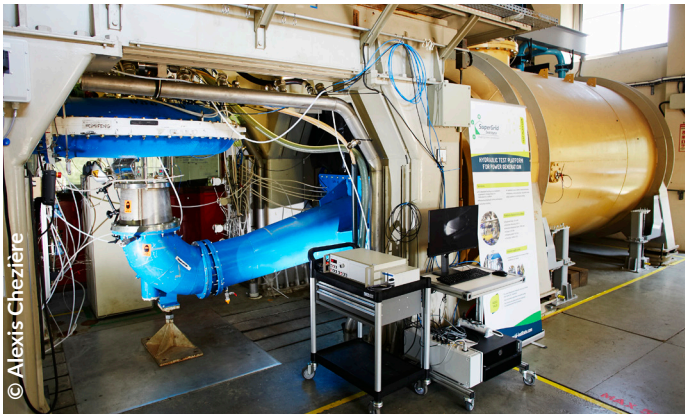
OUR SERVICES

- Techno-economic studies of various combinations of renewable energy sources and storage including control & protection strategies
- Expertise in developing control algorithms for Energy Management Systems (EMS)
- Design studies and real-time testing of solutions
- Feasibility studies of conventional or variable speed Pump Storage Plants (PSP)
- Qualification testing of hydraulic runners
- Specific hydropower system tests (new design, analysis of inefficient operation) on request
- Technology transfer

PRIMARY APPLICATIONS

- Optimisation of hydroelectric plants
- Hybridisation of hydroelectric systems
- Coupling of various renewable energy sources:
  - o Hydroelectricity
  - o Chemical storage
  - o Hydrogen
  - o Fixed or floating photovoltaic farms
  - o Wind farms

RUNNER QUALIFICATION IEC 60193 TEST PLATFORM



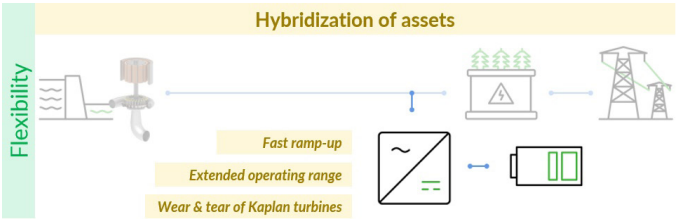
Our hydraulic test platform to qualify your runners in accordance with the IEC 60193 standard.

HYBRIDISATION OF HYDROELECTRIC PLANT REAL-TIME TEST PLATFORM

Our unique power hardware-in-the-loop hydroelectric platform to test your energy control systems.

OUR INNOVATIVE HYBRIDISATION TECHNOLOGIES FOR HYDROELECTRIC PLANTS

To date, we have developed 3 innovative hybridisation technologies to add value to your hydroelectric assets.



Technology	PSP	Francis	Kaplan	Bulb	Pelton
Fast ramp-up	☑	☑	☑	☑	☑
Extended operating range	☑	☑	☑	☑	☑
Wear & tear Kaplan turbines			☑	☑	

Fast ramp-up

Increasing the load-gradient to provide the required electric power faster.

Extended operating range

Covering instability zones where turbines can normally not operate and ensuring supply security.

Wear & tear Kaplan turbine run-of-river

An innovative solution to extend turbine lifetime and reduce maintenance costs.

OUR REFERENCES

Meridiam for people and the planet

Specification and profitability evaluation of a pump storage power plant for an islanded electric grid using our fast ramp-up technology.

CNR

Techno-economic study of hybridising a hydro turbine with a battery to allow a 0-100% variation of the power range.

SALTO GRANDE ARGENTINA - URUGUAY

Study of hybridisation solutions for the Salto Grande power plant using other means of storage to reduce wear and tear on the Kaplan groups.

COLLABORATIVE PROJECTS

Our company is proactive in multiple collaborative projects which draw on our innovative technologies.

XFLEX HYDRO · LOLABAT LONG LASTING BATTERY · bilasurf

CONTACT

For additionnal information or to ask for a quote, please contact: sales@supergrid-institute.com

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Shaping power transmission
SuperGrid Institute SAS – 23 rue Cyprian 69100 Villeurbanne, France
+33 4 28 01 23 23 - accueil@supergrid-institute.com - www.supergrid-institute.com

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