INGEGRID™ SIM is a compendium of modelling, simulation and validation tools that make it possible to determine feasibility and optimise the design of any application in which an INGEGRID™ solution is used.

Systems simulation with INGEGRID™ solutions

INGEGRID™ consists of both commercial tools as well as tools developed by Ingeteam specifically for INGEGRID™ solutions.
These include:

·   Tools for the electrical modelling and simulation of power electronics applications.
·   Tools for real-time control validation.
·   Tools for grid code compliance validation.
·   Tools for energy management systems

INGEGRID™ SIM is not a product that can be separately commercialised, but is an option tool that gives a high level of added value to any INGEGRID™ solution.

Example of simulation diagram in a wind plant with
INGEGRID™ STORAGE

Applications:

INGEGRID™ SIM is used in the following:
·   Developing energy storage solutions (INGEGRID™ STORAGE)
·   Energy quality solutions (INGEGRID™ STATCOM)
·   Power flow control solution (INGEGRID™ PFLOW)
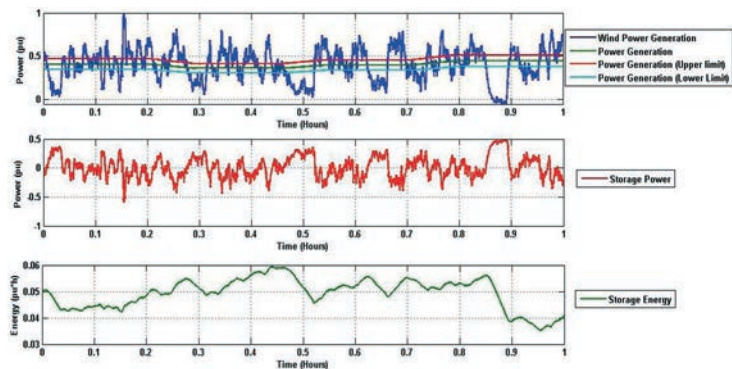·   And generally, any INGEGRID™ solution
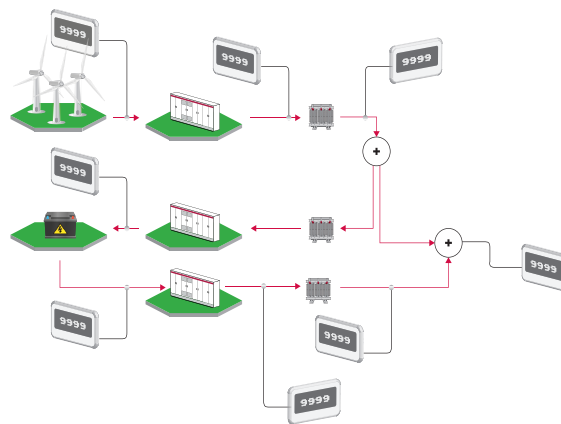
Main Features

- INGEGRID™ SIM is configured for each application's "operating mode" using real historical data (in the case of existing systems), or forecast data. It incorporates models of all of the inherent elements that affect the application's performance.
- Based on data and models, it simulates the system's behaviour and determines the optimum INGEGRID™ solution to be used.
- INGEGRID™ SIM permits both real-time simulation, with analysis by minute, hour and day with a resolution up to milliseconds, and long-term simulations, modelling the ageing of the elements that compose each solution (solar panelsgenerators, batteries, inverters, etc.) and how this affects the performance coefficient.

Applications

- With INGEGRID™ SIM, it is possible to assess the functional and even financial feasibility of INGEGRID solutions for each individual application.
- INGEGRID™ SIM makes is possible to establish the performance coefficient of the system being simulated.
- If required by the solution, INGEGRID™ SIM includes the algorithms of an Energy Management System (EMS). In these circumstances, INGEGRID™ SIM makes it possible to export these algorithms to the Energy Management System which will control the application, thus ensuring that the EMS behaves in the same way as it did during the simulations. Hence, the results will be identical.
- The knowledge obtained during years of modelling and optimising energy systems, together with the flexibility of the solution makes INGEGRID™ the best option in energy management applications.

Example of simulation diagram in a wind plant with INGEGRID™ STORAGE