



# Drones State of Art

(source: innovation community)



## Technology Overview

Drones represent today a technology in rapid diffusion and expansion thanks to the great potential in activities related to the maintenance of goods distributed over large areas, difficult to access, in case of dangerous inspections normally carried out by human beings, or as a replacement of expensive vehicles such as helicopters or airplanes. This technology makes inspections cheaper, faster and safer than the traditional methods used today, which translates into better efficiency and increased plant availability. Equipped with special sensors they are able to provide analysis of numerous factors that characterize the proper functioning of the systems, as well as transmitting high-definition or infrared images and video, both live and for further processing through photogrammetry software.

The main applications within the group are thermography and anomaly detection, 3D modeling, photogrammetry and laser scanning with drones. Moreover, in the country Italy area, tests and trials have been carried out for years together with the ENAC and ENAV regulatory bodies, since the regulation of drones flights is a very sensitive issue for our activities and currently in the form of a constitution both at national and European level (BVLOS 1.0 and 2.0 trials).

## Main Applications

The drone paves the way for a considerable number of applications in our field, from thermographies of plant elements (photovoltaic/primary cabins) to structural investigations of penstocks and production plants to inspections of power lines and wind turbines.

Today almost all the realities of the energy world are approaching this technology, and the most widespread applications, in addition to those mentioned, also include the monitoring of cutting plants interfering with power lines with fixed-wing drones, quality control in the execution of the work (forest cutting), work progress monitoring in large construction sites, and surveillance of the company perimeters.

In Italy, the various BLs are creating specific procedures for the use of drones in inspection activities; e-distribution, for example, has launched a charter plan about 250 drones to equip each operational unit in Italy with that vehicle in order to allow short inspections and rapid deployment in emergency conditions.

### E-distribuzione:

Within the BL, the technology scale up project was completed at the end of 2018 and the final roll out of the initiative started in 2019.



It is planned to train about 250 drone pilots and hire as many machines in order to be able to manage inspection, monitoring and control activities in an innovative way.

### **GI&N Colombia**

In Colombia GI&N has numerous projects with drones that perform specific onerous tasks. These include the drone equipped with high-power lighting equipment that allows flights over the electrical infrastructure for search and identification of faults at night; the weaver drone used in the construction of electrical networks and recovery of faulty cables over long stretches and with difficult access from vegetation, river crossings or other difficult geographical conditions.

The Dron Dragón, used to free the electricity grids from objects entangled in them by a controlled jet of fire. The project is already in its second year of operation and its success is due to the saving of many hours of work at altitude.