

# Marcoule and Pierrelatte: the Birth of the French Nuclear Industry



Marcoule in May 1957

**I**n vino veritas. A site in the midst of the *Côtes-du-Rhône* vineyards was chosen for the construction of a “nuclear production center” in 1954. Two years earlier, the French Parliament enacted the first five-year plan for the development of atomic energy, one of the provisions of which was to build a series of reactors known as “GGR”, for their natural uranium-fueled, graphite-moderated, gas-cooled configuration. They were designed to produce plutonium for nuclear weapons; the heat resulting from the process was harnessed to drive turbine generator sets in order to produce electricity.

The *Commissariat à l'Énergie Atomique* (CEA), which already operated two research centers, at Fontenay-aux-Roses and Saclay, began to look for a suitable site.

A tract of inexpensive land was soon identified along the banks of the Rhône River in southeastern France, at the base of a hill some 220 meters high, known as *la Dent de Marcoule*. The first plutonium-producing reactor (G1, an air-cooled unit in a building 34 meters high covering 2000 square meters) “officially” diverged on January 7, 1956 (preceded, in fact, a successful “unofficial” test two

days earlier). “The swallows are flying high” announced Maurice Pascal, the project manager, to Pierre Taranger, the industrial director.

G1 was coupled to the French electrical grid in September of the same year, generating the first nuclear electric power in France. It was no easy matter to ship the steam generator from Great Britain; houses were even torn down to allow the passage of the lengthy road transport vehicle.

The G2 reactor diverged in July 1958, followed by G3 a year later. These twin reactors, with their turbine generators installed by the French electrical utility EDF, formed the country’s first nuclear power station, with an electrical rating that was later increased to  $2 \times 40$  MW. “So many convergences for a single divergence!” exclaimed General de Gaulle during his visit to Marcoule in summer



1958, as he celebrated the efforts of the scientists, engineers and technicians led by men such as Lew Kowarski, Jacques Yvon, Pierre Taranger and Jules Horowitz, and who had worked tirelessly since 1945 to create a reactor capable of spawning a family of nuclear power plants.

Extraction of plutonium from the irradiated spent fuel in G1 to meet for the country’s commercial and defense requirements began when the UP1 reprocessing plant was commissioned in July 1958. Here again, the work accomplished by the pioneers of the atom led



General de Gaulle visiting Marcoule on August 2, 1958