program included the SNAP-27 RTG, and the program requirement for 5,800,000 pounds of propellant fuel,[35] in contrast to the 100,000 pounds used to launch earlier spacecraft carrying RTG's.

On another technological front, scientists were interested in learning as much as possible from the manned lunar landing program and envisioned scientific stations emplaced by man on the Moon, transmitting data on such things as seismic lunar surface vibrations, global responses of the Moon to fluctuations in solar and terrestrial magnetic fields, and changes in the low concentrations of gas in the lunar atmosphere.[36] These ideas crystallized in an ALSEP contract with Bendix Aerospace Systems Division of the Bendix Corporation. Beginning with the second lunar landing mission, Apollo 12, an ALSEP was emplaced at each landing site.

In a move to broaden the industrial base of firms competent in RTG science and technology, in mid-decade the AEC encouraged corporations other than the Martin Company to respond to a request for proposals for development of a new Pu-238 fueled, 75-watt isotopic power unit for space uses.[37] In June of 1965 a contract was awarded to General Electric for $4.6 million, for performance for the SNAP-27 program which at that time was to be applied to NASA's Surveyor Lunar Roving Vehicle. Within the year, however, NASA requested the AEC to develop a generator for the ALSEP on its Apollo missions; at this point the SNAP-27 program was redirected to the requirements of the ALSEP. By spring 1966, as a second modification to GE's contract was approved, SNAP-27 program costs were estimated to exceed $10 million. The RTG device under development was now defined as "a 50-watt (e) radioisotope power system for the Apollo Lunar Surface Experiment Package (ALSEP)."[38] The SNAP-27 would be the sole power supply for the ALSEPs left behind on the Moon.

According to Augustine Pitrolo, who became the SNAP-27 program manager at General Electric, Bill Millard at General Electric came up with the idea of plugging in the power supply on the Moon. A later study at NASA undertaken to determine the power supply needed for the lunar surface experiments and to examine the feasibility of using SNAP-19, led the space agency to request the AEC to develop the SNAP-27. Pitrolo explained that the SNAP-27 could not work on an unmanned spacecraft as it was dependent on having an astronaut plug the fuel supply into the generator on the Moon.[39]