

isotopic energy to usable electrical energy. Mound scientists Kenneth Jordan and John Birden had been frustrated in efforts to use decaying radioactive materials as heat sources to boil water to drive a steam turbine and generate electricity. They hit upon the idea of applying the thermocouple principle, using metals that differ markedly in electrical conductivity, to create a thermopile that would conserve and harness the heat from radioactive material and generate electricity.\* Within a few days of working out the calculations, the Mound scientists constructed a working model of the technology. The principle of using the thermocouples was patented by Jordan and Birden, and today remains the basis for all radioisotopic-power thermoelectric generators.<sup>20</sup>

### A Program Takes Form in an Atmosphere of Challenge

With the need for space reconnaissance being given high priority and nuclear power now viewed as feasible for uses in surveillance satellite systems, the Department of Defense requested in August 1955 that the AEC perform studies and limited experimental work toward developing a nuclear reactor auxiliary power unit for the Air Force satellite system under study.<sup>21</sup> In agreeing to undertake the development of such auxiliary nuclear power systems, the AEC stated that it intended “to explore the possibilities of using both radioisotopes and reactors as heat sources.”<sup>22</sup> This was the birth of what became the SNAP program of the AEC.

The title “SNAP” replaced an earlier title of the program. In the 1958 hearings before the JCAE, Senator Clinton Anderson asked, “Is SNAP by any chance kin to the Pied Piper?” Armstrong’s reply was: “It is Pied Piper renamed, sir.”<sup>23</sup>

That exchange occurred after momentous events had shocked American defense planners, space scientists, and the public at large. In October 1957 the Soviet Union launched its first Sputnik into orbit. That same month, the editor of *Aviation Week* stated:

The Soviet satellite... now orbiting around the earth approximately 16

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\*The thermoelectric conversion was discovered in the early 19th century by the German physicist Seebeck. The Seebeck principle of thermocouples indicates that “an electrical current is produced when two dissimilar metals are joined in a closed circuit and the two junctions are kept at different temperatures.”<sup>19</sup>