Table D-2 lists some satellites systems that have been placed in orbit or will be launched in the near future with the power levels required to maintain the satellite and operate the sensor.

Table D-2
Satellite Power Capabilities.[67]

Technology	Date	System Power (KW)	Radar Pav (KW)	Radar Pp (KW)
Soviet RORSATs (nuclear)	1971 - 1985	2 -3		
DSCS II, US Comm Sat (solar)	1971	.5		
SkyLab (Solar)	1973	12.5		
LES, US Comm Sat (nuclear)	1976	.15		
SEASAT (JERS-1) SAR (solar)	1978	0.624	0.06	1
COSMOS 1500, Soviet Side looking Radar (nuclear)	1983	.4	.03	100
RADARSAT, Canadian SAR (solar)	1995	2.5	0.8	5
Hubble Telescope (replacement solar array)	1995	5.0 (degrading to 4.3 KW after 5 years)		

Solar array-battery combinations have been the most frequently used space power systems since the 1970s, providing reliable and long-life electrical power in an output range from a few hundred watts to as high as 12.5 KW. Current plans call for the use of solar array-battery technology on the space station in the 37.5 KW to 75 KW range with growth anticipated as high as 150 KW[68] and perhaps reaching 300 KW with multiple arrays. Rechargeable batteries (normally nickel-cadmium) are required with solar arrays to provide power when the satellite goes into eclipse. Batteries entail very high weight penalties, for example, a battery capable of providing 40 KW of electrical energy would

[67] Skylab data from L.J. Cantafio, *Space-Based Radar Handbook*, (Norwood MA: Artech House Inc., 1989) p. 569. Hubble Telescope data from " BAe Tests Solar Arrays for Hubble Servicing," *Space News*, March 12-18, 1990, p. 9.

[68] Cantafio p. 569.