

Subsystem	Unit	Amount [-]	Maturity Level Margin [%]	Power demand per Unit w/o margins [W]			EDL		Deployment Mode		Idle / Perception		Safe / Hibernation		Communication		Charging (RTG)		Locomotion		Payload: Observation		Payload: Ice Core Mode	
				Standby (SB)	ON Nominal (ON)	ON Max (MAX)	Status	Duty Cycle	Power [W]	Status	Duty Cycle	Power [W]	Status	Duty Cycle	Power [W]	Status	Duty Cycle	Power [W]	Status	Duty Cycle	Power [W]	Status	Duty Cycle	Power [W]
Payload	Ice Core Drill	1	20.00%	0	1	12	OFF			OFF		0	OFF		0	OFF		0	OFF		0	MAX	50%	7.2
	APXS Analyser	1	20.00%	0	0,1	1	OFF			ON		0	OFF		0	OFF		0	OFF		0	MAX	50%	0,6
	Stereo Vision Camera	2	5.00%	0	2	4	ON	50%	2,1	ON	20%	0,84	OFF		0	OFF		0	OFF		0	100%	100%	4,2
	Hazcams	4	5.00%	0	2	4	OFF	50%	4,2	ON	20%	1,68	OFF		0	OFF		0	OFF		0	ON	100%	8,4
	Ground RADAR	1	10.00%	0	0,1	1	OFF			ON		0	OFF		0	OFF		0	OFF		0	MAX	25%	0,275
	LED Lampe	16	20.00%	0	0,75	2	OFF			ON	20%	2,88	OFF		0	OFF		0	ON	100%	14,4	ON	100%	14,4
Command & DH	OB	1	5.00%	1	8	10	OFF			ON	100%	8,4	SB	100%	9,45	ON	100%	8,4	ON	100%	8,4	ON	100%	8,4
	Houskeeping	1	20.00%	0	1	2	OFF			ON	10%	0,12	ON	10%	0,12	ON	100%	1,2	ON	100%	1,2	ON	100%	1,2
Thermal Control System																								
Electric Power Supply	Heaters	2	5.00%	0	1	2	ON	100%	2,1	ON	50%	1,05	ON	100%	0	ON	100%	2,1	ON	100%	2,1	ON	100%	2,1
	PCDU	1	20.00%	0,6	1	1	SB	100%	0,72	SB	100%	1,2	SB	100%	0	ON	100%	1,2	ON	100%	1,2	ON	100%	1,2
Communication																								
	Transmitter Receiver	1	5.00%	0,6	10	15	OFF			ON	100%	1,2	ON	100%	0	MAX	100%	15,75	OFF	0	OFF	0	OFF	0
		1	20.00%	0,35	1	2	OFF			ON	100%	1,2	ON	100%	2,4	MAX	100%	2,4	ON	100%	1,2	ON	100%	1,2
Locomotion	Motor (wheels)	4	20.00%	0	9	15	OFF			ON		0	OFF		0	ON	100%	43,2	ON	100%	43,2	ON	100%	0
	Motor (steering)	4	5.00%	0	2	4	OFF			ON		0	OFF		0	ON	50%	4,2	ON	50%	4,2	ON	100%	0
	IMU	4	10.00%	0	1	1	OFF			ON	100%	4,4	ON	5%	0,22	ON	100%	4,4	ON	100%	4,4	ON	100%	4,4
	Motor (Deployment)	2	5.00%	0	2	4	ON	75%	1,575	ON		0			0	ON	100%	0	ON	100%	0	ON	25%	0,525
Chassi & Structure	Boom Mechanism	1	20.00%	0	8	8	ON	100%	9,6	ON		0	OFF		0	ON	100%	0	ON	100%	0	ON	25%	0
	Drill Mechanism	1	20.00%	0	3	3	OFF			ON		0	OFF		0	ON	100%	0	ON	100%	0	ON	50%	1,8
	Cam Rotation Motors	2	5.00%	0	2	4	OFF			ON	20%	0,42	OFF		0	ON	100%	2,1	ON	100%	2,1	ON	100%	0
S/C Net Power Demand [W]			Margin [%]						36,52			19,06						5,19						28,63
Power Distribution loss			2.00%						0,73			0,38						0,10						0,57
Load Discharge (PCDU)			7.00%						2,56			1,33					0,36							2,00
PCDU Margin (Conversion etc.)			5.00%						1,83			0,95					0,26							
Harness losses			3.50%						1,28			0,67					0,18							1,00
Additional losses ...			5.00%						1,83			0,95					0,26							1,43
S/C Brutto Power Demand [W]									44,73			23,35					6,36							33,63
System Margin			20.00%						8,95			4,67					1,27							6,73
Required power from Battery [20% System Margin] [W]									53,68			28,02					7,63							40,36
Total Rover Power Demand excluding battery charge (Battery Charge loss 5% + Lilon Efficiency 5%) [W]			10.00%						59,04			30,82					8,39							44,40
Incoming Power RTG									12,08			12,08					12,08							12,08
Total Rover Power Demand including battery charge [W]									46,96			18,74					-3,69							32,32