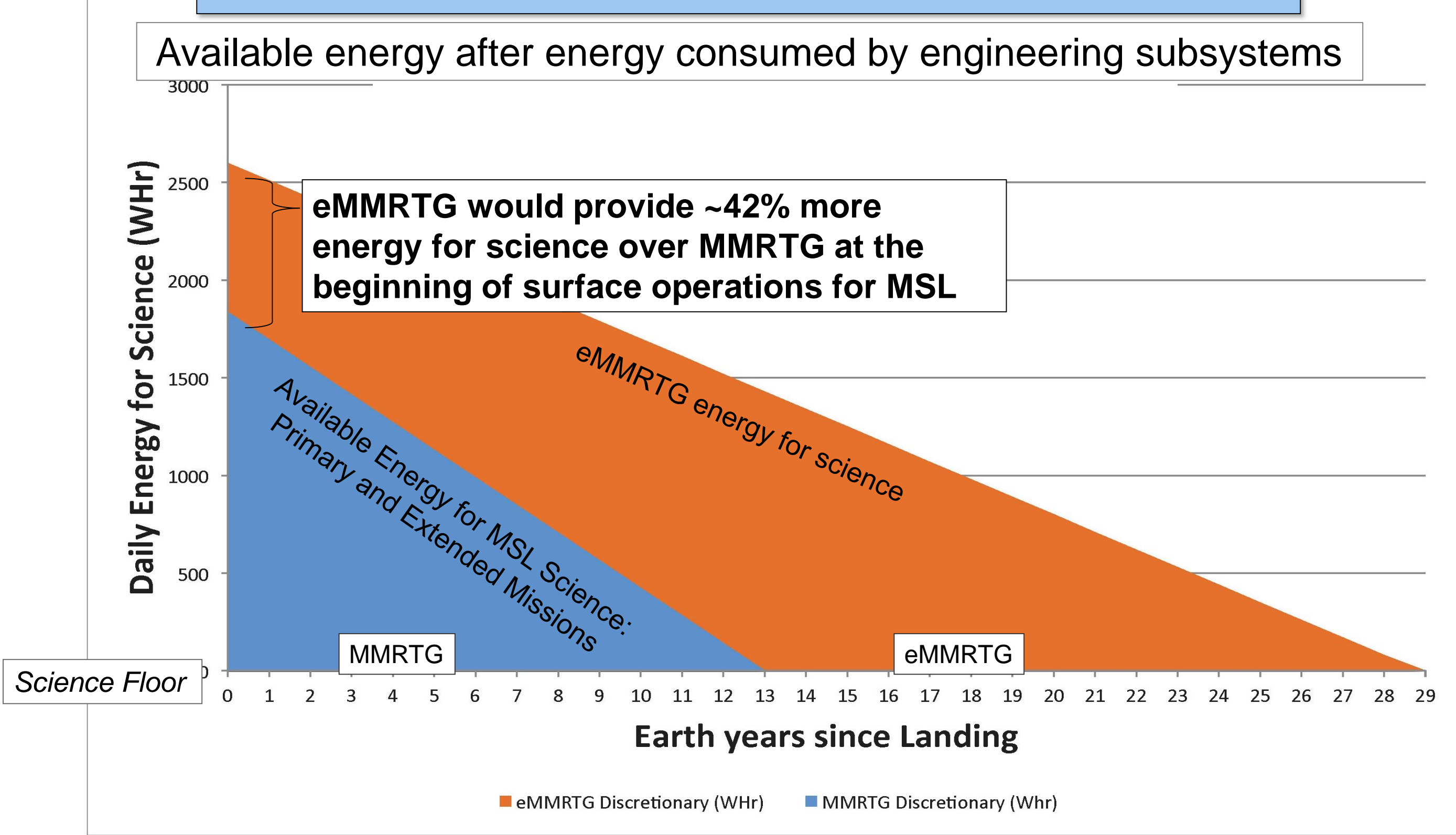


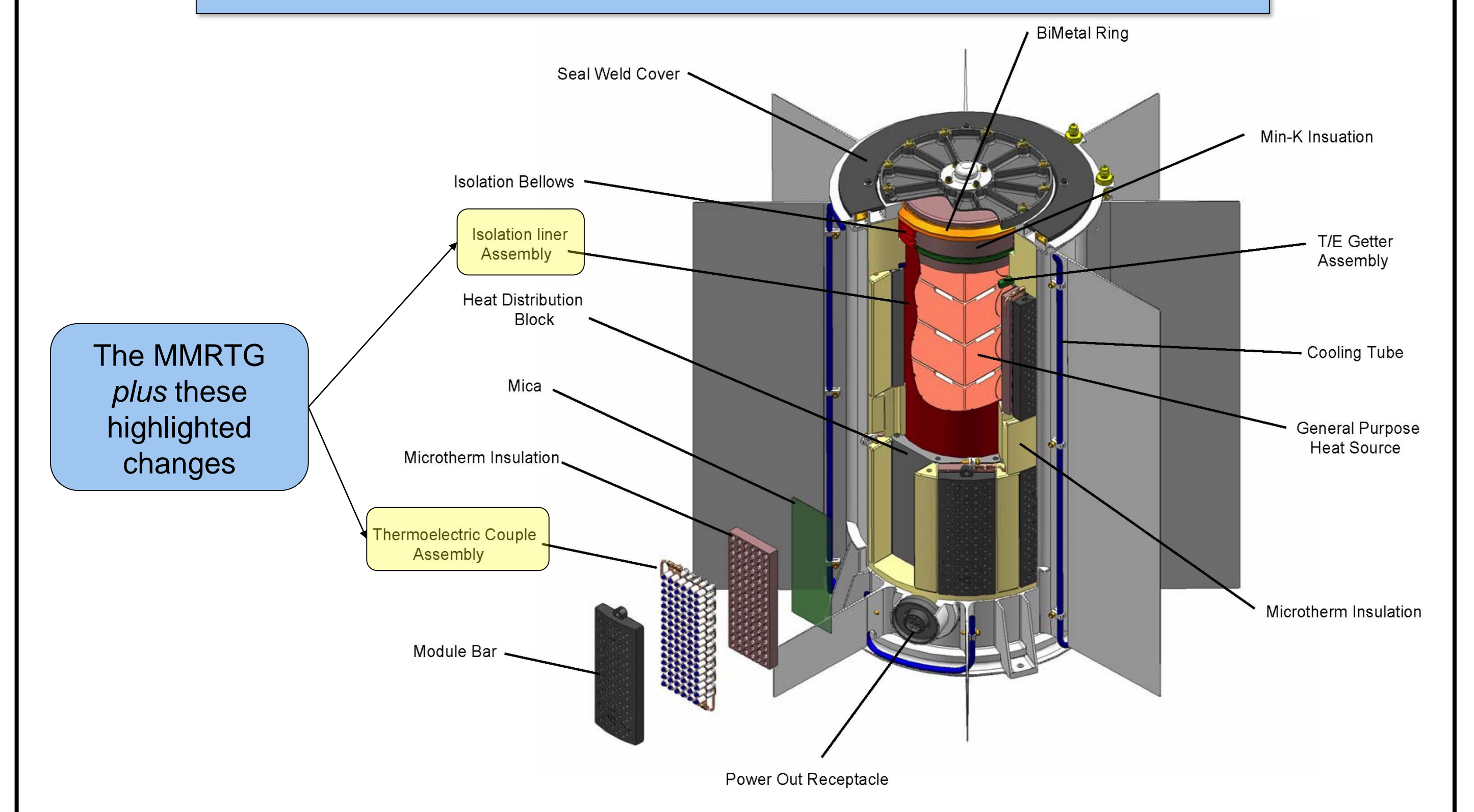
An enhanced MMRTG

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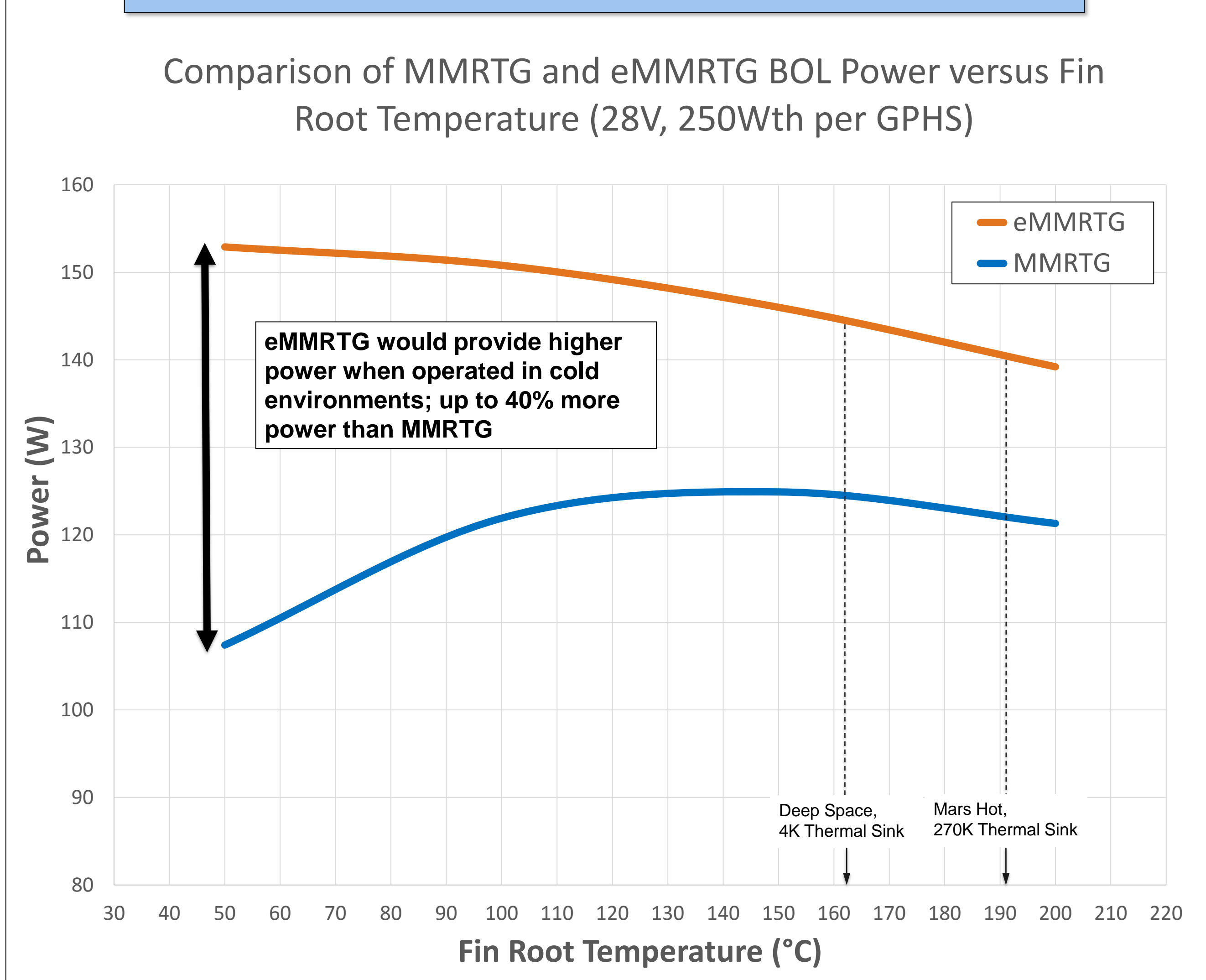
If MSL had an eMMRTG



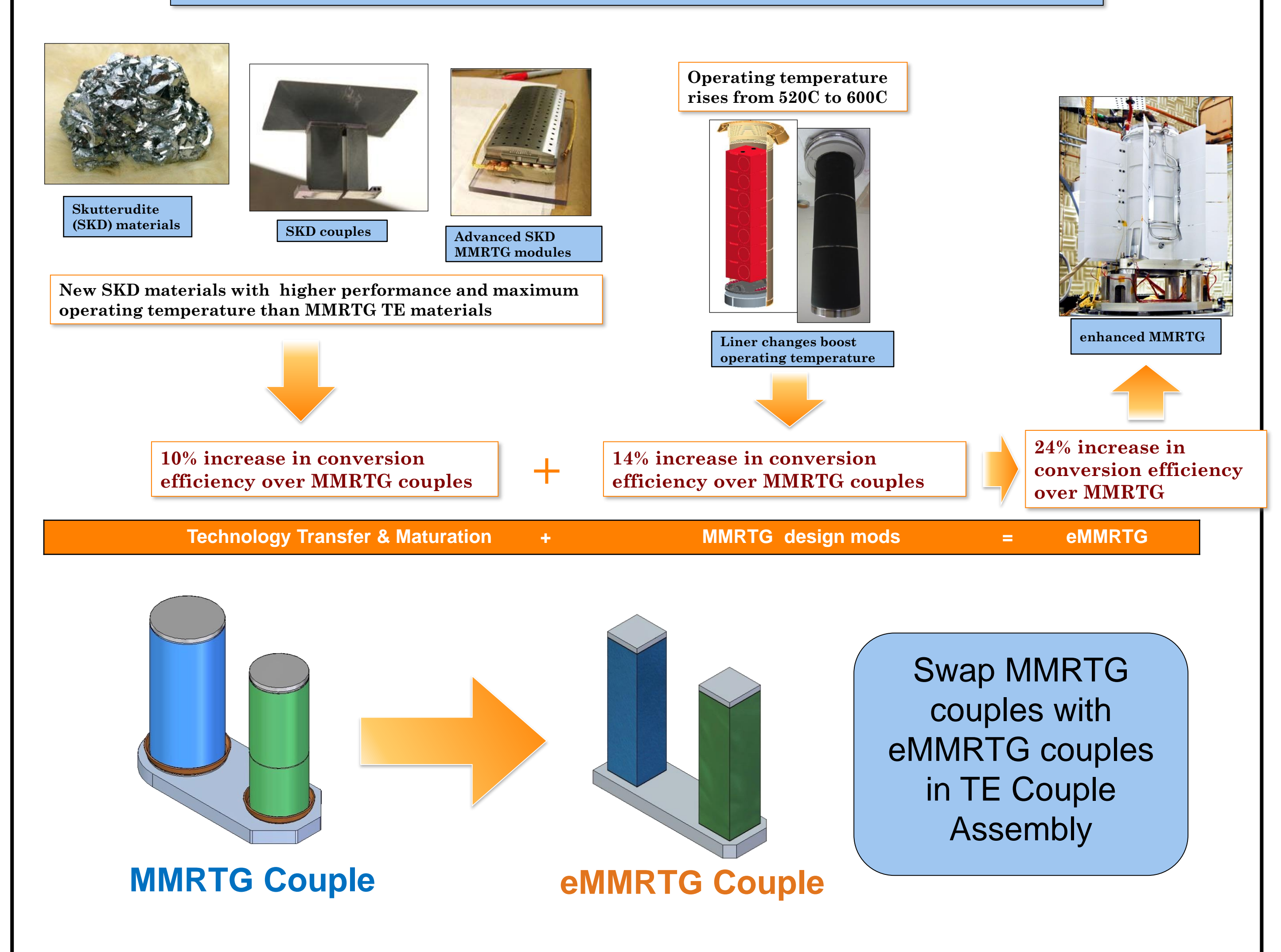
What is being enhanced?



Projected eMMRTG Power Boost



Low Risk Enhancements

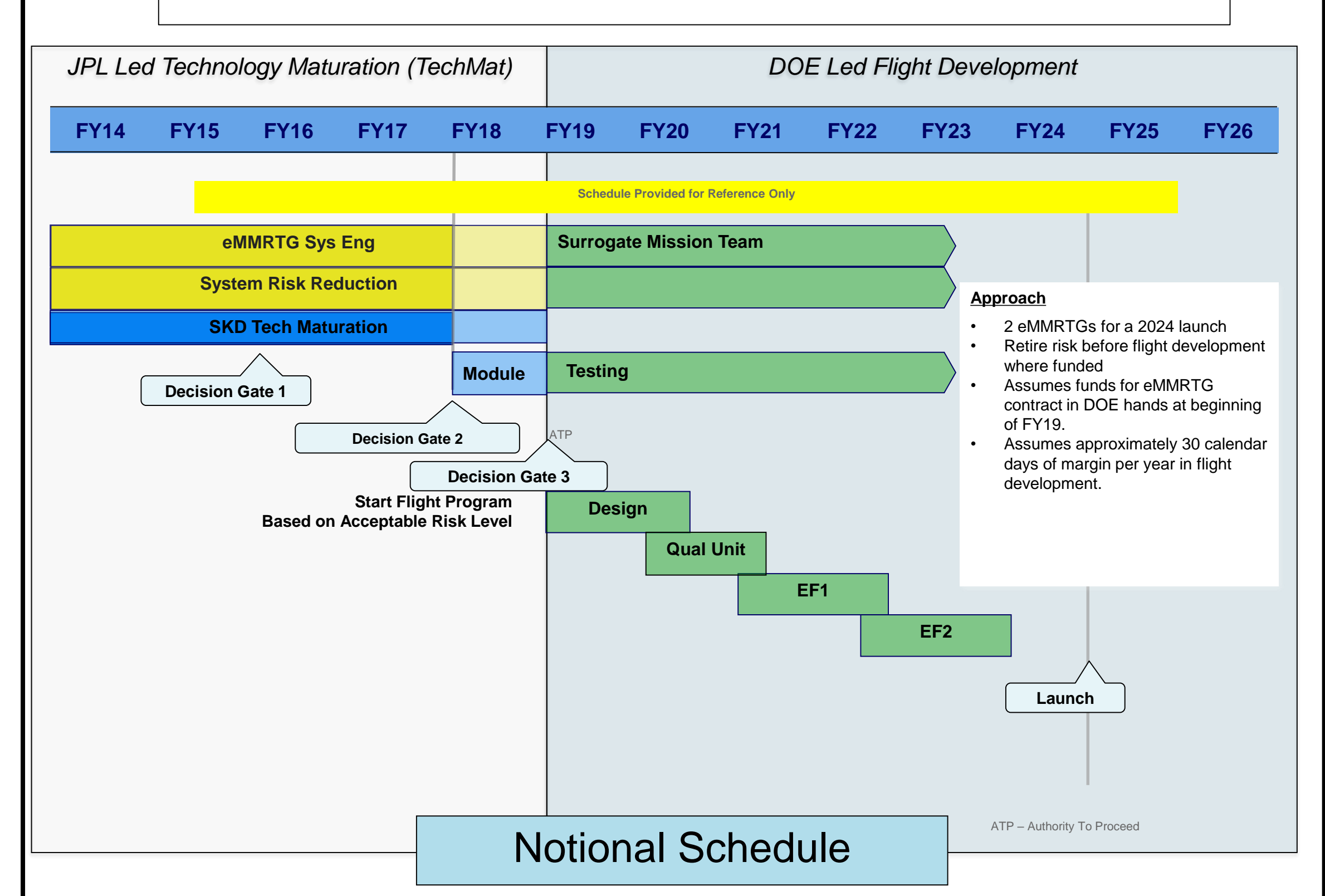


	Example, Mars Hot Case		Example, Deep Space
Parameter	MMRTG	eMMRTG	eMMRTG
BOL Power (W)	~122 *	~140 *	~145**
Power at EODL (W)	~54	~92	~95
Degradation Rate***	4.8%	2.5%	2.5%
No. of GPHS Bricks	8	8	8
No. of Couples	768	768	768
Hot Junction Temp	~520 °C	~600 °C	~575 °C
Cold Junction Temp	~225 °C	~225 °C	~200 °C
Fin Root Temp	~191 °C	~191 °C	~162 °C
Mission Usage	Multi-Mission	Multi-Mission	
Development Risk	None	Low - Moderate	
Program Addressed	MSL and Mars 2020	Decadal Survey Missions	

BOL - Beginning Of Life, fueling
 EODL - End Of Design Life, 17 yrs from BOL

*28V, Thermal Inventory = 250 Wth; 270K Thermal sink
 **28V, Thermal Inventory = 250Wth; 4K Thermal Sink
 *** Steady-state thermal sink

Notional Schedule Provided for Reference Only



Five Take Away Points

1. Increased EODL power, > 50% more than MMRTG
2. Graceful degradation
3. Quiescent power
4. Would operate in vacuum and planetary atmospheres
5. Enhanced RPS Power in a flight-proven package; rugged

