Implications of the weight/duration requirements

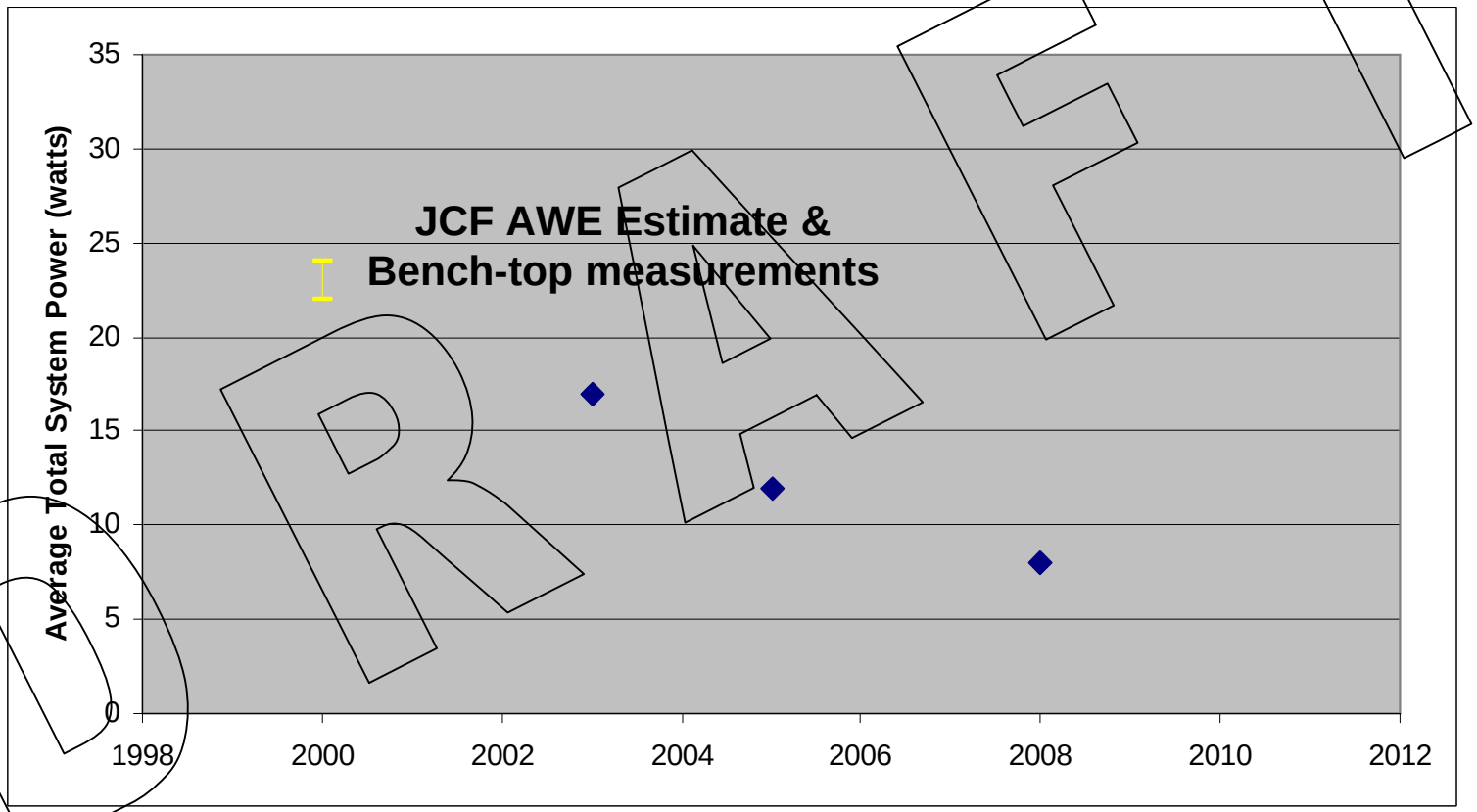
Convert Mission Hours to Energy Using Time-Averaged Power

Energy = Average Power *x* Mission Hours

(Watt-hrs) = (watts) *x* (hours)

LW Average Total System Power

Future reductions in power come from improvements to software and hardware



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If average power is reduced as planned

Success Requires:

		2003	2005	2008	Future
Time Avg. Power	Watts	17	12	8	4
Mission Duration	Hrs	12	48	72	144
Mission Weight	Lbs	1.6	1.6	1.6	1.6
Gravimetric Energy Density	Wh/kg	281	794	794	794

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If average power remains high

Success Requires

<u>Very High</u> Energy Dense Source of Power

		2003	2005	2008	Future
Time Avg. Power	Watts	24	24	24	24
Mission Duration	Hrs	12	48	72	144
Mission Weight	Lbs	1.6	1.6	1.6	1.6
Gravimetric Energy Density	Wh/kg	397	1588	2381	4763

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Land Warrior Power/Energy Requirements - System Wt. Approach

Hybrid Concept*

			2003	2005	2008
Rechargeable battery	Energy Density Weight Duration	Wh/kg Lbs Hrs	200 0.5 2	250 0.5 3	300 0.5 4
Fuel Source	Energy Density Weight	Wh/kg Lbs	400 2	700 2	1000 2
Energy Converter	Weight	Lbs	1.5	1.5	1.5

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***Not TSM-Soldier or PM-Soldier approved**