

Metric #	Need	Metric	Importance	Units	Marginal Value	Ideal Value
1	1.1	Appropriate exhaust temp.	7	Kelvin	500	550
2	1.1	Appropriate exhaust flow	7	kg/s	0.02	0.04
3	1.1	Appropriate exhaust material: melting point	8	Celsius	1000	1500
4	1.2	Temperature range for test fixture	7	Celsius	300-400	300-600
5	1.2	Flow range for test fixture	7	kg/s	.02-.06	.01-.08
6	2.1	High thermoelectric module efficiency	7	%	1.5	2
7	2.2	Suitable thermoelectric max operating temperature	6	Celsius	200	225
8	2.2	TE can withstand vibrations and shocks	3	1 Foot Drops	3	5
9	2.3	Adequate power generation	9	W	65	100+
10	2.4	Thermoelectric is optimized for temperatures that we are able to model	7	Celsius	130	230
11	2.5	Low cost for thermoelectrics	6	\$/TE	<200	<100
12	3.1	Average upstream hot side of TEG @ proper temp.	7	Celsius	200	225
13	3.1	Average downstream hot side temperature are adequate	7	Celsius	130	160
14	3.2	Average cold side temperature at proper temperature	7	Celsius	100	40
15	3.3	Appropriate exhaust material: pipe surface does not oxidize or corrode	3	Flow reduction (Pa)	50	0
16	3.4a	Negligible Pressure Drop	5	Pa	1100	500
17	3.5	Low cost for a mass production unit	4	\$	1500	500
18	3.6	Maintain adequate contact pressure (set by supplier)	5	psi	225±75	225±25
19	3.8	Reasonable size, specifically height	4	m	0.25	0.15
20	4.1	Run Vehicle Sub System	8	n/a	battery	head lights
21	4.2	Verify efficiency increase of vehicle	8	%	0.5	1
22	4.3	System output voltage	6	Volts	14±3	14±1
23	5.1	Durability of System	3	Years	5	10
24	6.1	User protected from electrical and thermal components	9	Accidents	<1	0
25	7.1	System parameters easily obtained from testing	6	Labview Compatible	Mostly	Yes