



SAE
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Clean Snowmobile Challenge
2007

Design Presentation

Electric Snowmobile Prototype

Challenge

- Energy Density

Energy Carrier (EC)	Gasoline	Batteries (Li-Ion)
Vehicle	Ski-Doo Tundra	
Dry Weight	172 kg	
Energy On-Board	297,840 Wh	
EC Volume	34 l	1049 l
EC Weight	24.8 kg	2837 kg
Ratio EC Weight / Vehicle Dry Weight	0.144	16.5

Performance Assessment

Reliability	3
Acceleration	5
Towing & Cargo Capacity	6
Range	9
Stability & Maneuverability	5
Noise	9
Ease of Use	7
Cost	6

Reliability

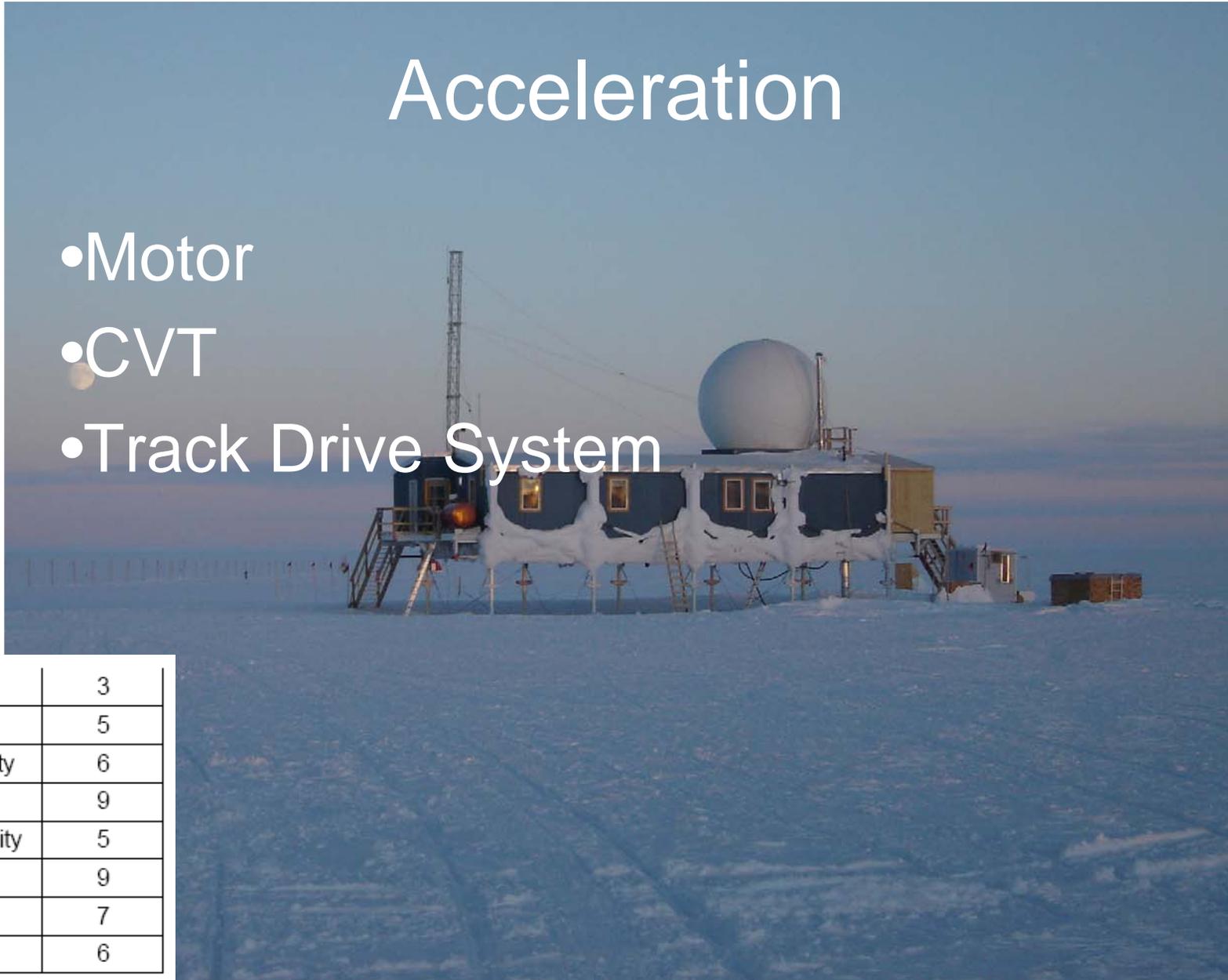
- Motor
- Battery Management System
- Human Judgment
- Wiring Harness



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Acceleration

- Motor
- CVT
- Track Drive System



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Acceleration

Top Speed

Over 25 mph

0-12 mph

1.6 seconds

0-24 mph

7.8 seconds



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Towing and Cargo Capacity



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Range

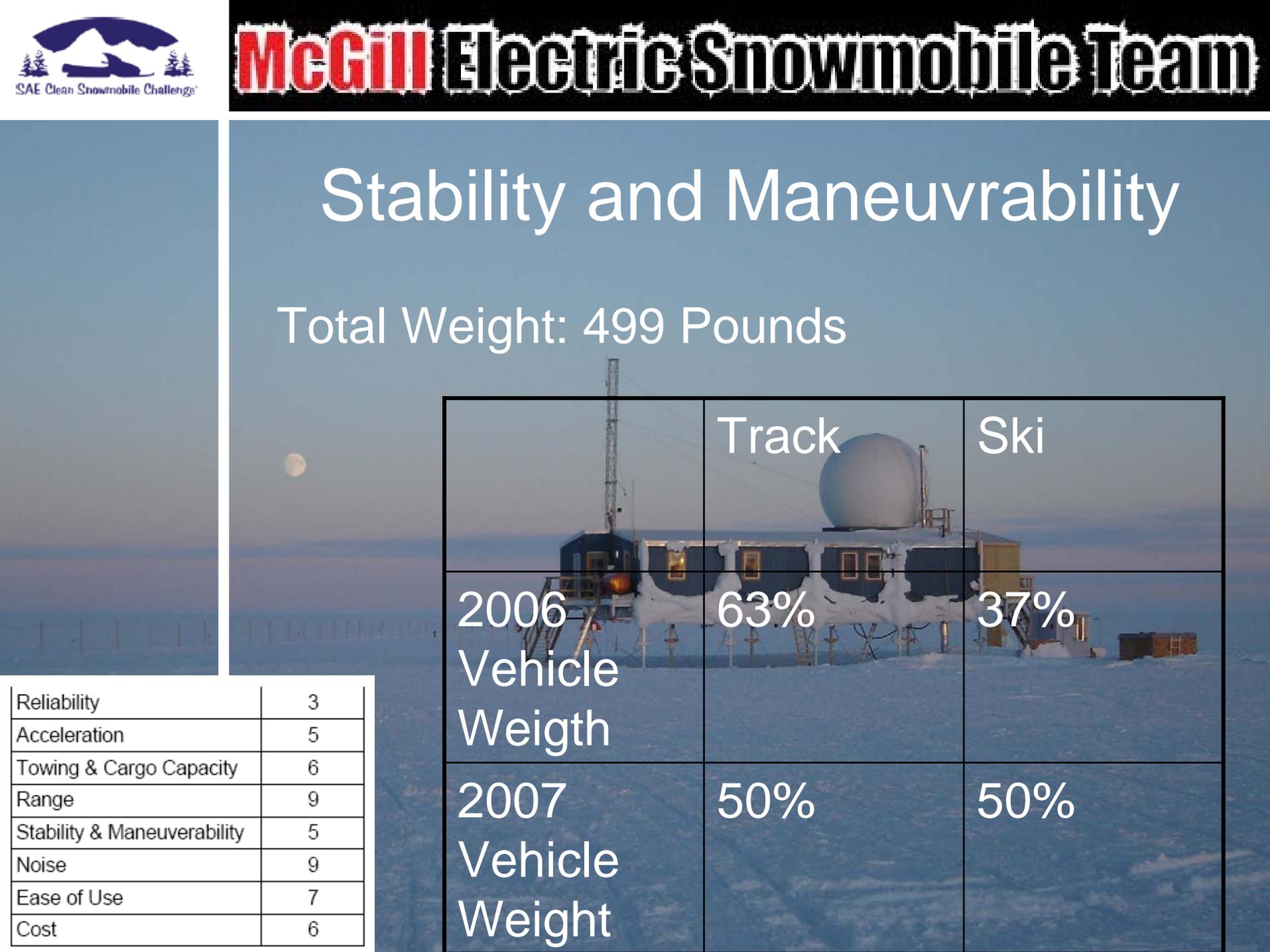
- 10.9 miles at 15 mph



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Stability and Maneuvrability

Total Weight: 499 Pounds



	Track	Ski
2006 Vehicle Weigh	63%	37%
2007 Vehicle Weigh	50%	50%

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Noise

Location	Speed	
	20km/h (12mph)	40 km/h (24mph)
Driver's head	76 dBA	86 dBA
15ft	71 dBA	78 dBA
20ft	68 dBA	76 dBA
30ft	66 dBA	74 dBA
Ambient Noise	<50dBA	
Noise at "idle"	<50dBA	

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Ease of Use



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Cost

	Cost (US\$)
Batteries (with BMS)	4,900.00
Motor	750.00
Controller	535.00
Component Total	6,185.00

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Conclusion

- Operator Perspective
- Dealer Perspective
- Environmental Perspective



Questions

