

<b>High Speed travel 1000km under 3hours at Rs 1450 fully Gravity Powered, saves 66% energy earns 30% ROI</b>							
Time taken to cover the 1000km including stops 9 nos=				2.97 hrs			
<b>Gravity Powered Mass urban transportation at 360 kmph for typical 1000 km route in India on Skywheels based railway</b>							
Implementation : route of		1000 km		Average Spd.		342.86 kmph Halts at 100 km	
Parameters		Max Speed		360 Kmph		274.19 m.passenger capacity both ways per annum.	
<b>Automated Driving &amp;Control: Absolute Block System :only one rolling module per one driving cable between two GP Towers, spaced at 500 m.</b>							
		Unit Cost in		Annual OM	Depreciation	Annual O&M,	
		Rs cr	Cost Rs Cr	%	%	Depreciation	
<b>GP Towers</b>		2000					
	Structure	0.3	600	2.00%	2.00%	24	
	CV gear system	0.2	400	5.00%	5.00%	40	
	Embedded intelligence	0.4	800	5.00%	10.00%	120	
	Cables	0.1	200	10.00%	20.00%	60	
<b>Rail guidance track</b>							
	Includes interfacing with road transport	New route km double line Skwheels based	1000	40	40000	5.00%	5.00% 4000
<b>Rolling stock</b>							
	New stock Skywheels based	4500	1	4500	5.00%	10.00%	675
<b>Total cost of project, O&amp;M, depreciation, interest charges Energy,</b>						Total expenses incl interest, O&M, Depreciation In Rs crores	Cost per seat.km
	New One	Capital	O&M +Depreciation	Interest	Energy*	13243.78	0.48 Rs/seat.km
		46500	4919	4650	3674.78		
	Headway	21.67					
	Throughput units/d:	1661.54 Capacity @ 2/sq.m		229.2 passenger capacity per twin unit (2 x20m long) wt 55 T			
	At 55 t/unit	137.1 Million passenger seats per annum per direction		10 hr day and 360 day year taken.			
	*The system if run with stops every 100km ; 360 kmph speed;the energy cons					132.66 Kwh per 1000gtkm	
	Current 350kmph train takes	95 kwh per seat/1000km					
	GP 360kmph takes per seat	31.83 kwh per seat/1000km		Energy saving		66.49%	
	Annual energy consumption to be paid for.....			8.73 Million Mwh			
	At Rs 4.21 per unit it means	36747.85 m Rs.					
<b>Revenue, expenses profits</b>							
	Revenue	Rs	27811.95 cr	at	1.45 Rs/.km for passenger. Km, @ 70% of capacity used		
	<u>Net Profit for New route</u>		<u>14568.16 cr</u>		<u>31.33%</u> for new rolling stock		

Notes:

1. Within 55 tonnes, articulated rolling units 20 m x2 are run as a train of 40m length
2. The axle loads are kept within 12 tonnes for the high speed operation
3. The unsprung mass is kept least. There are no traction motors and no brakes.
4. The acceleration and deceleration handled by the high speed pre-tensioned running cable when the grip arms from the rolling unit get engaged.
5. Emergency braking when cable snaps or grip arms fail is handled by the sideways projecting anti-derailment cum braking solid rubber wheel pairs.
6. The relative velocity difference between the running cable and the rolling unit is kept within +/- 1m/sec.
7. The energy needs for air conditioning and lighting are met as described for

Gravity Powered 360 kmph High Speed Rail [rajaram.bojji@gmail.com](mailto:rajaram.bojji@gmail.com) 12/02/08

Gravity Powered Rail Module. Recouping of reserves of compressed air and cooled fresh air is done at the halt- every 17 to 18 minutes.