

Extracts from a research paper by Bojji R -the results of the computer model are given:

“ 5.2 Case of Gravity Power Towers located at 450m , with zero coasting length and peak speed of 108 kmph, acceleration at 2m per sec. For a rolling unit of 50T and driving mass of 1000T. Level and straight track chosen.

Station to station distance	km	0.45
Time sec		30
Av Spd kmph		54
T.Gravity Energy delivered Kwh		6.97
Recovery of energy %		97.667
Net Kwh/1000 tonne.km		6.575
Average speed/peak spd.%		50

Table 1 Summary of results for transportation drawing energy from the Tower.

5.3 The results are summarised in the Table 1 under. The time taken is 30 seconds , average speed 54 kmph. The variable  $n(j)$  during acceleration,  $t$  and  $n(l)$  during deceleration, the tractive and braking force are plotted in the Figure 2.

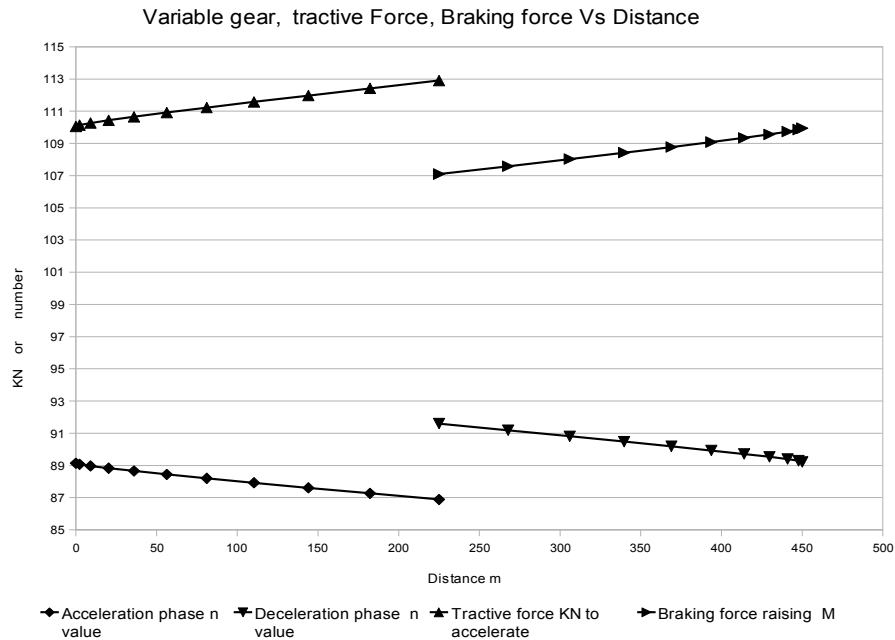


Figure: 2 Constant acceleration case with variable gear.

5.4 More importantly the energy recovered is 97.7 % approximately- which means we need less than 2.3% of man made energy ; in other words we have opportunity to save more than 97 % of energy which we currently are using from fossil fuels! With this speed profile, Figure 3, urban transport with stops within 500m can be created, practically powered by free, eternal energy which is pollution free- that is gravitational force driven.

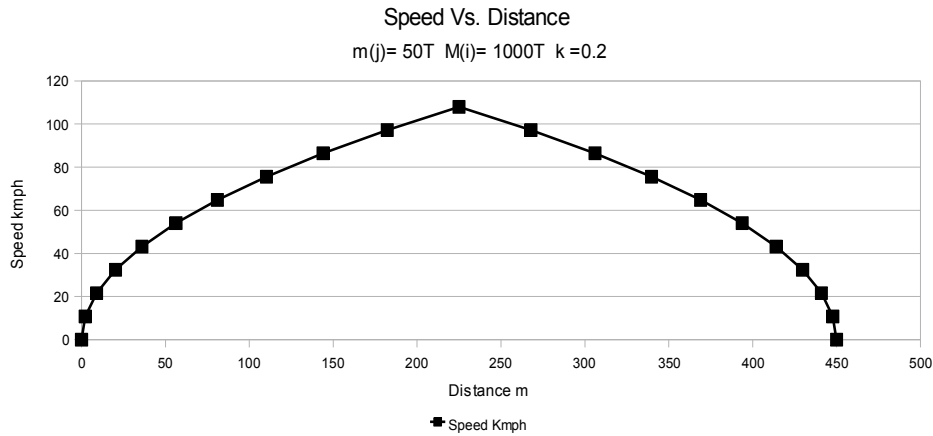
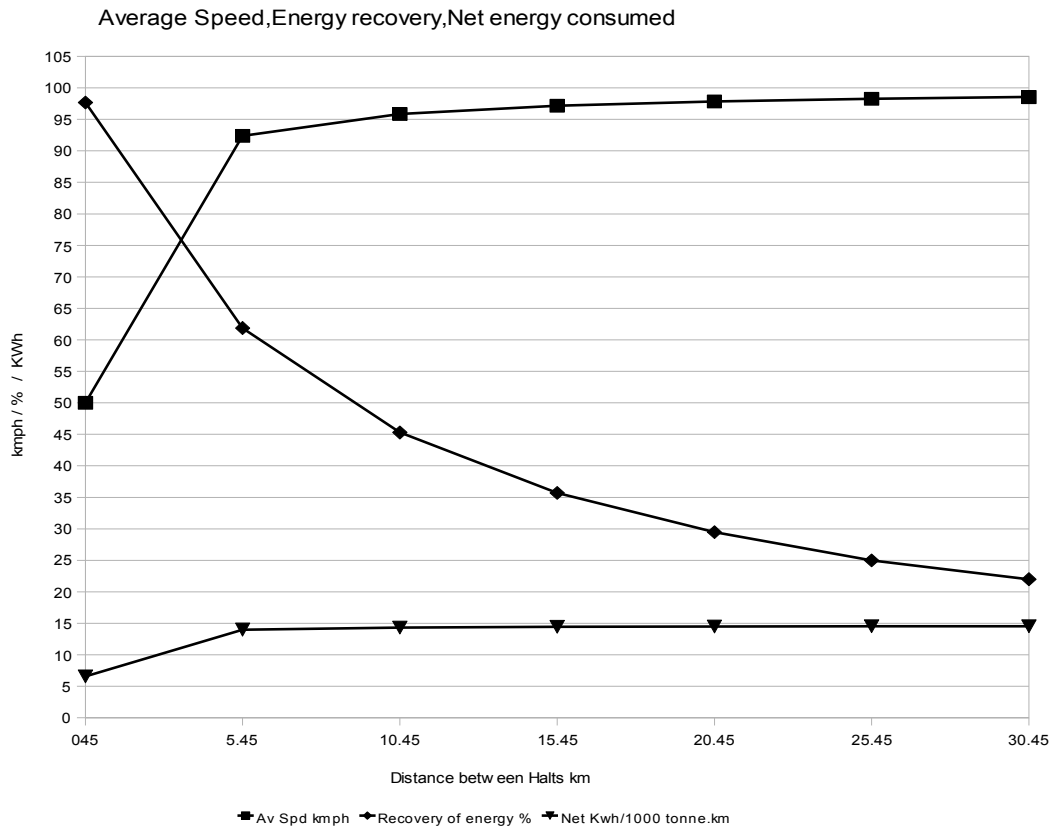


Figure 3 Speed profile for the 108 kmph short haul case.

5.5 It is beyond the scope of this paper to describe complete engineering details for implementing in field, but it is necessary to note that surprisingly for such a significant alternate source of energy to be availed, it is not as complicated or complex as it is in case of wind or solar power. Only variable gear transmissions readily available in industry, cable drums to roll up and down the vertically moving masses, endless thin steel cable transmission running around pulleys, sounding more like old world technologies, except for microprocessor based low power driven electronic intelligence to initiate or stop certain connecting gears form the components of the Gravity Power Towers. The rolling stock and railway track are substantially the existing ones, even simpler because there are no prime movers mounted on the stock, it is merely hauled by the cable. Hence the risk of technology complexity for quick realisation is practically little.

5.6 For long distance travel without coasting length, such speed profile can cause concern of human comfort. In such a case accepting saving of 60-70% levels of saving, Fig. 4, we can work out high speed travel option with coasting

Figure 4. Effect of coasting length on energy recovery.



length. But for transport of goods this can be a boon. Billions of tonnes of cargo in containers can be transported across globe on surface, saving more than 97% of currently used energy.”