2015 Commute:
Subway Energy Harnessing

The subway, a form of commuter transportation common to dense metropolitan areas, has a number of opportunities to increase its efficiency.

- Regenerative Braking
- Handle energy capture
- Optimized acceleration and braking

While these changes do require significant changes to the cars themselves, they do not require a complete restructuring of the underlying subway infrastructure, and can be retrofitted incrementally. Since the energy costs represent such a large percent of the running costs of the subway, any energy saved will add up quickly and should represent serious long-term cost benefits.

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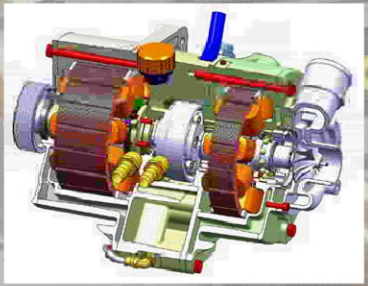
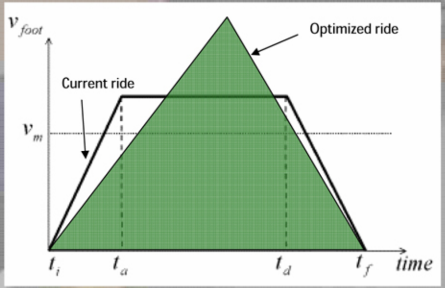


The subway, by definition, is a heavy vehicle which is entirely stopping and starting in short intervals. Using regenerative braking would capture a significant portion of the energy used in acceleration. The linear progression of the regenerative braking is ideally suited to a smooth commute.

The dense packing of a subway car requires handles to support standing commuters. Putting piezoresistors in the handles will generate electric energy from the motions of the passengers, which can be used to recharge the batteries of the subway car.



Since the subway has a very well-known route and timing, the acceleration and braking can be optimized. When running at normal time, a computer system will accelerate at maximum efficiency until exactly when regenerative braking at maximum efficiency will stop the subway at the station without coasting.