



Trams

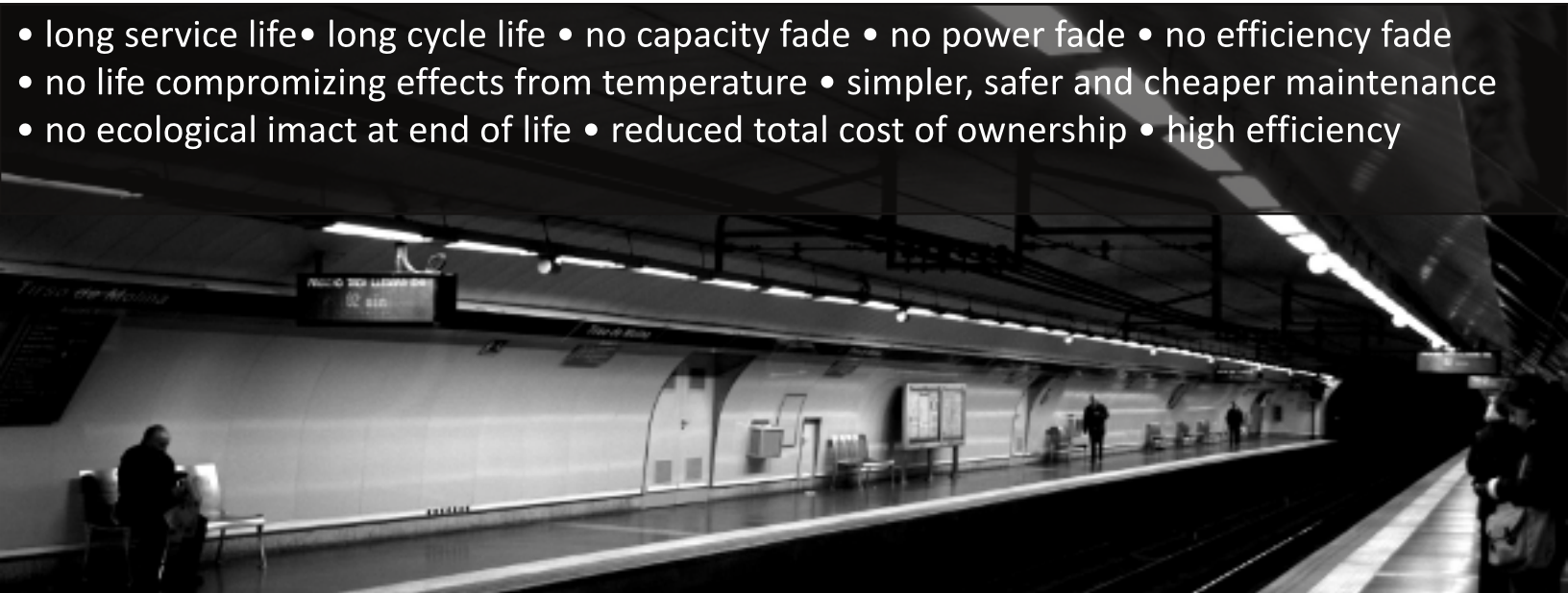
Metros

Light rail

Trackside

With a vehicle life of 30 years, 19 hours a day operations and 150,000 cycles per year, energy storage for rail applications needs to be highly durable. Batteries are simply not a viable solution in this high intensity environment. Ultra-capacitors have gained some limited acceptance, but with lifetime, capacity and capacity fade limitations it is yet to be seen if they are a viable long term, cost effective solution.

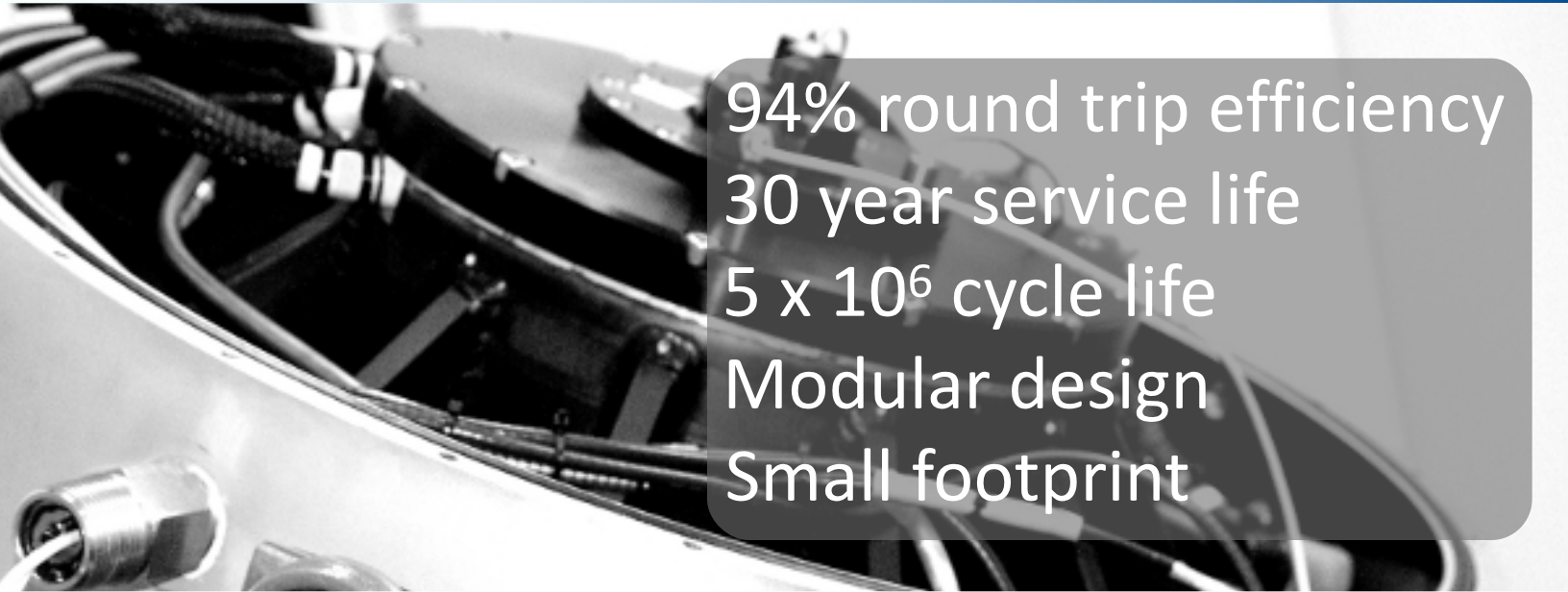
- long service life • long cycle life • no capacity fade • no power fade • no efficiency fade
- no life compromising effects from temperature • simpler, safer and cheaper maintenance
- no ecological impact at end of life • reduced total cost of ownership • high efficiency



Stronger hybrids for cleaner cities



For a 30,000 kg tram a flywheel solution is \$900,000 CHEAPER than the equivalent ultracapacitor system over the life of the vehicle.



94% round trip efficiency
30 year service life
 5×10^6 cycle life
Modular design
Small footprint

- Our flywheel systems are modules of approximately 120 kW, 750 Wh units
- 3 - 4 modules are ideal for a tram or single metro vehicle
- 20 units would provide 2.4 MW for approximately 20 seconds (wayside)
- 1 - 2 units may be enough for diesel anti-idling applications
- Provides redundancy for risk mitigation
- The modular approach "future proofs" new vehicle design

Contact us today for more information or to obtain a quote.