Kinetic Energy Recovery for Trucks
The world is covered in trucks

- Trucks deliver 75% of all goods in Europe
- 18 billion tons of goods per year
- An example: A truck travelling 20,000 km/year
- Consumes 6,900 liters per year
- ~300,000 trucks per year manufactured for the past four years in Europe
KERS will reduce fuel usage up to 25%

-25%  

- 1,725 liters per year

- 517,500,000 liters per year

If every of 300,000 heavy trucks in Europe manufactured each year were equipped with KERS

An automobile could drive around the Earth 258,272 times

13,476 people could drive their automobile to the moon and back
Adgero expect KERS to reduce CO2 emissions by 25%.

The European Commission has introduced a limit by 2021 for cars and vans. When truck emissions are eventually regulated – as they surely will – KERS will be ready.

- 120,000,000 pounds of CO2

KERS can prevent from being released into the atmosphere by 2030.

The same amount of CO2 that the average European automobile would produce if it were driven for 412,000,000 kilometers.

535 times to the moon and back.
Key issues for operators: Fuel consumption and brake wear

The truck’s engine must provide peak power to accelerate the vehicle to cruise at which point only a fraction of this power is required to remain at cruise speed.

The truck’s brakes and retarder are subject to great stress that can lead to excessive brake wear or damage to the retarder.

The solution? **Kinetic Energy Recovery**
Kinetic Energy Recovery

How it works

Adgero is an intelligent system comprising two control units; one on the tractor and one on the trailer.
Kinetic Energy Recovery

Acceleration

During acceleration, the tractor control unit communicates with the trailer to manage the boost provided by the trailer’s electrically-motorised axle. Power is provided by a bank of ultracapacitors.
Kinetic Energy Recovery
Regenerative braking

During braking the motor becomes a generator, recovering kinetic energy that would otherwise be lost as heat and storing it in the ultracapacitors.
Not vapourware.

We built it.
Kinetic Energy Recovery

- Can be fitted in a post transmission driveline configuration.

- If you can fit a Telma retarder, you can fit our motor/generator.

- Post transmission means you can use a standard transmission.

- No change to your truck’s bill of materials. No expensive, bespoke, low-volume hybrid specific transmission.

- System can be removed and the truck returns to a standard configuration, eliminating any potential negative impact on resale value.
Future-Proof your Investment
Retrofittable On-The-Fly Electric-Only Mode

Implemented through ECU patch.
Requires only Adgero KERS + battery.
Can be retrofitted to your existing Adgero KERS.

Hybrid mode: Adgero KERS captures braking energy to provide boost power to ensure diesel engine runs at its most efficient.

Electric-only mode: Adgero KERS provides all power.
Distributed Generation Applications: Bringing Electricity to the Developing World

Only 62% of people in South Asia and only 24% of people in Sub-Saharan Africa have access to electricity. Solar power projects require expensive backup diesel gensets at night.

In areas with poor infrastructure, truckers avoid driving at night, leading to unproductive downtime.

The solution? Use Adgero-fitted trucks as gensets, transforming unproductive downtime into distributed electrification in energy-poor areas. Fuel burn is offset by the enhanced fuel economy provided by the KERS when the truck is driving.
Genset Mode

Disconnect rear driveshaft quick release. Diesel engine spins Adgero electric machine as generator. Produces 400V AC 3-phase electricity.

Genset mode: Adgero KERS runs in regen mode, turning power from the diesel engine into 3-phase 400VAC.
Development Impact

Wood and charcoal account for over 70% of the primary source of fuel used for cooking and heating in developing nations, yet thousands of Adgero-compatible trucks are on the roads in these same areas.

Installing Adgero on these trucks would create an ad hoc, distributed generation system whose outlay is dramatically less than installing, fuelling and maintaining diesel gensets in remote areas.

In a country like Cambodia, just one 100kW-output Adgero truck genset can provide the average per capita yearly consumption in just over 2 hours of operation.
Who we are: Founders

- **Mack Murray, 40 years old, President**
  - MSc. in Educational Science from Louis Pasteur University
  - Former language trainer for Mercedes Benz Custom Tailored Trucks for teams working on civilian and military heavy vehicle projects. http://tinyurl.com/merc-CTT
  - Founder and former co-director of the training firm Skills Inc.

- **Soun Schuller, 55 years old, Embedded Systems Developer**
  - Graduate degree in industrial automation
  - Entrepreneur in embedded systems design, founder of BeeProcess
  - Former system developer, SAIT Mining Saverne R&D

- **Frédéric Soulier, 40 years old, Cloud Services Developer**
  - Professor at ENSIIE (National Graduate School of Computer Science for Industry and Enterprise)

- **Gines Linares, 62 years old, Chief Technical Officer**
  - Founder and former president of Til Technologies, the leading French secure access company. http://www.til-technologies.fr/en/index.php

- **Jean-Pierre Hannebert, 37 years old, Chief Operating Officer**
  - COO, Til Technologies
  - Former QA manager, ST Microelectronics
Partners & Clients

- **Skeleton Tech**, Tallinn: Ultracapacitors. Only manufacturer currently mass-producing graphene capacitors. Adgero holds worldwide exclusivity on these capacitors in KERS.

- **SDC Trailers**, Belfast: Largest semi-trailer manufacturer in the UK (> 10,000 units/year). Built first road-going trailer to feature our KERS, second unit in production as of June 2016.

- **Eddie Stobart**, Carlisle: Largest private road freight operator in the UK (> £570M turnover in 2013), purchased our first operational KERS trailer built by SDC.

- **Fraikin**: Part of largest fleet services company in Europe. Demo client for rigid lorries, providing test vehicle to DHL.

- **ENSIIE, INSA and University of Strasbourg**: Telematics, electrical engineering and cloud services development.