Accumulator charging unit for hybrid motor vehicles
Garbage truck
Power converters
Hybrid garbage truck

Benefits:
• Silent
• Improved efficiency (the braking energy returns to the battery)
• No pollution in to the center of city
5 journeys are made each night
Each journey reduces the stored energy of the battery in a variable amount
When returning to the collector truck the battery is recharged using the diesel motor
The battery is at 30% when returned to the base

NiMH

700V/100Ah

(70kWh)
The charge is C5: 20A during 5 hours

- 20A
- 700V
- 100mA ripple current  \( \text{ESR} = 0.5 \text{Ohm} \)
- 50mV ripple voltage
A customized power converter has to be designed:
- AC input: 3 phase 400Vrms
- Galvanic isolation
- Current control: 10A / 20A
- Output voltage < 700Vdc
- Extremely low output voltage ripple
- High efficiency / small size
- Dedicated interface with BMC
Why HF technology?

\[ B(t) = \int \frac{v(t)\,dt}{A_c} = K_{A_c} \int v(t)\,dt \]

- Reduced size of magnetics (and the converter)
- Reduced weight
- Reduced cost
- Smaller output filter (higher frequencies)
- Higher current control bandwidth
HF Full bridge converter

- 6 pulse rectifier
- IGBT Full bridge DC/AC converter
- 2 ferrite 7.5kW transformers
- Series connected HF rectifier
- Low pass LC output filter
THANK YOU VERY MUCH FOR YOUR ATTENTION