

## KIA Optima T-Hybrid/Hyundai i40 Hybrid

### T-HYBRID

A 'mild hybrid', using a 48V advanced lead-carbon battery, offers an excellent approach to emission reduction because the technology required is significantly easier to install into current vehicle platforms at a more beneficial cost/benefit ratio.

#### Key facts:

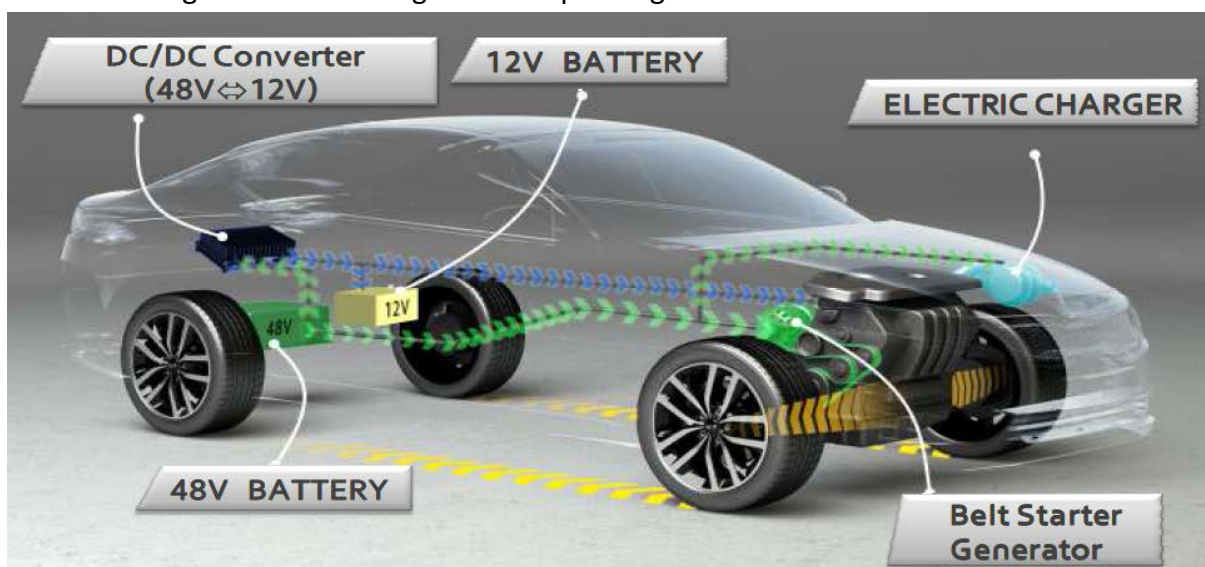
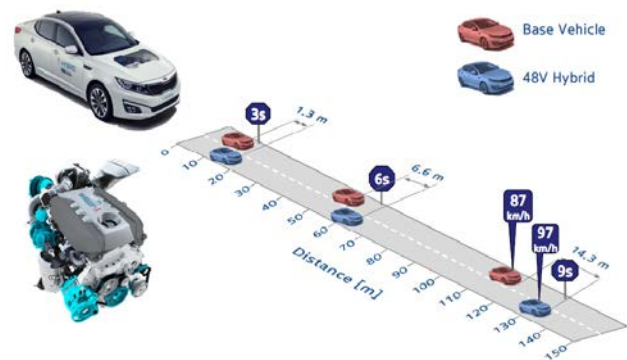
48V mild hybridisation applied to 1.7L

Diesel Engine comprising:

- **11Kw 48V belt starter generator:**
  - Improved start-stop operation
  - Regenerative braking
  - Torque assist
  - Efficient electrical generation
- **48V low-cost advanced lead-acid battery:**
  - High carbon battery to operate mild hybrid Duty cycle without reduction in life
- **Electric ancillaries:**
  - 48V electric supercharger
  - 48V/12V DC/DC converter
- **Other features:**
  - Enlarged turbocharger
  - Gearbox elongation 14% for engine downspeeding.

#### Project Results

- **CO<sub>2</sub> emissions: reduced by 16%**
- **Engine power: increased by 23%**
- **Acceleration: 0-100kph in 9.5 seconds against 10.5 seconds for the base car**
- **System cost: 45€/ %CO<sub>2</sub> for a 48V vehicle compared to 100€/ %CO<sub>2</sub> for a full hybrid**



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