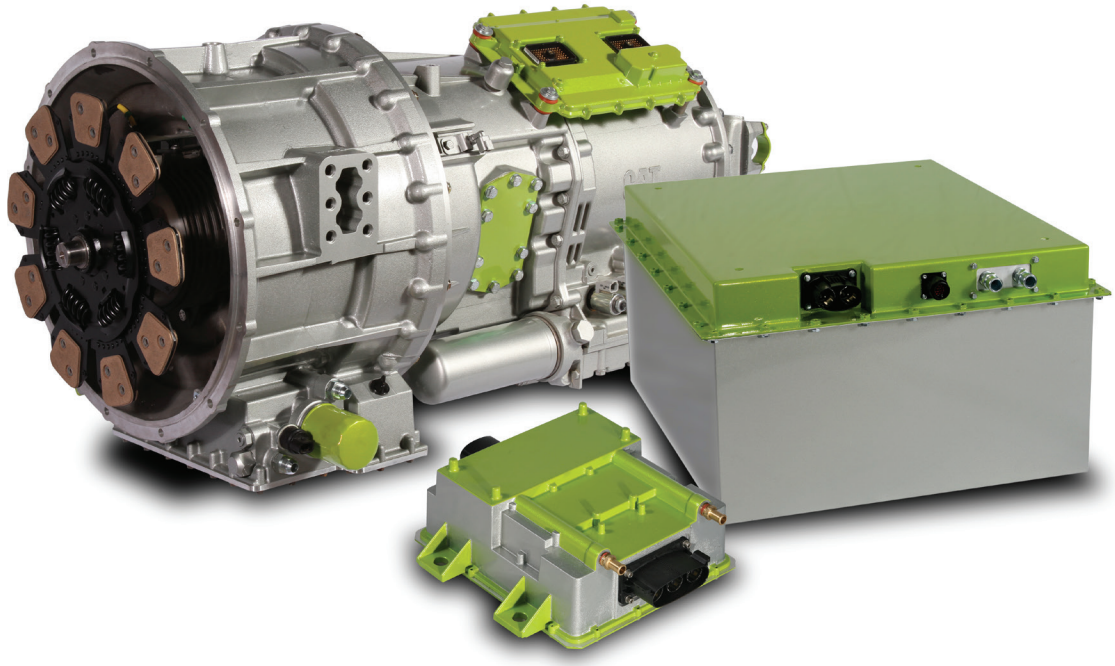
BAE SYSTEMS
INSPIRED WORK

Hybrid parallel propulsion system



BAE Systems' hybrid parallel system is ideal for coach buses, refuse, construction, and pick-up and delivery vehicles.

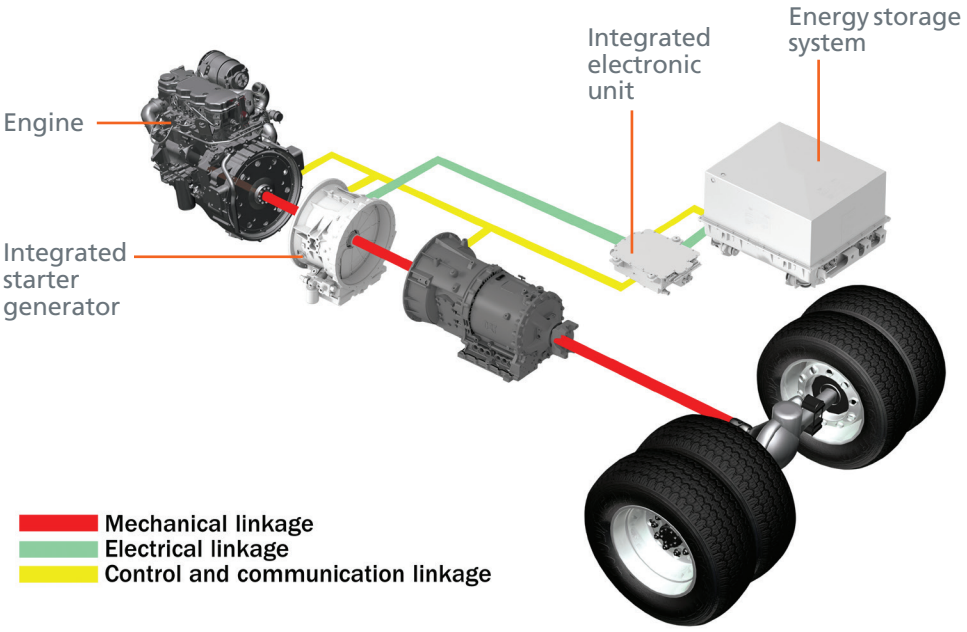
- Hybrid-electric propulsion
- Significant fuel and brake savings while reducing harmful emissions
- Onboard power plant for a path to future electrification of the vehicle body
- Complements both diesel and CNG engines
- Lower weight than many other systems

Our parallel hybrid is a heavy-duty hybrid, delivering significant fuel savings without compromising payload. It combines high power and torque for superior drivability. The system is safe and is packaged lighter than most competing hybrid systems.

Parallel hybrid system options to meet power and performance needs

Product	System		Hybrid		# of PTOs
Model	Max power kW (Hp)	Max torque Nm (ft-lb)	Max power kW (Hp)	Max torque Nm (ft-lb)	
HDP 750	260 (350)	1700 (1250)	110 (145)	800 (590)	3
HDP 800	400 (540)	2350 (1740)	110 (145)	800 (590)	3

Hybrid parallel propulsion system



BAE Systems' hybrid parallel system is composed of four main components:

Energy storage system (ESS)

The energy storage system provides power during acceleration using power stored in our proven lithium-ion batteries. Lithium-ion is lighter, longer-lasting, easier to maintain, less expensive, and more efficient than competing alternatives. The system is flexible and can be integrated in multiple orientations and locations.

Integrated electronic unit (IEU)

- Power inverter
- System/motor controller

The integrated electronic unit is the controller for the hybrid system. The system controls power flow. Based on vehicle speed, the IEU controls when power is drawn from the engine and electronic power sources and efficiently blends them to provide optimum fuel usage. It also controls when energy should be stored during deceleration.

Integrated starter generator (ISG)

- Motor/generator
- Hybrid transmission

The integrated starter generator receives signals from the integrated electronic unit and connects with the appropriate power source for efficiency. When the vehicle is accelerating, it is drawing power from the electrical power source (stored power from the ESS). Once the vehicle is at an efficient engine speed, the power is drawn from the engine. During vehicle deceleration, energy is converted and stored in the electronic storage system.

Engine

Our parallel hybrid system can be configured to operate with any heavy- or medium-duty engine.

Save fuel with engine-off technology:

For additional fuel and emissions savings, our hybrid parallel system has an efficient "engine stop/start" capability. When the vehicle is at an idle position, the IEU signals the engine to power off to eliminate unnecessary fuel consumption

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CS-16-B63