BAE Systems has been powering electric accessories on more than 4,000 hybrid buses for nearly five years. Now we are bringing that technology to conventional Powertrain vehicles. CNG & Diesel-powered transit buses in 30', 35', 40' & 60' lengths, and 40' & 45' over-the-road coaches can now fully electrify their accessory systems with our new REAL (reduced engine accessory load) system to lower their operation and maintenance costs, as well as reduce noise, vibration, and harshness. Unlike other products in the market, REAL is a simple, compact system with proven service on hybrid vehicles. REAL consists of a high-voltage permanent magnet generator and an Accessory Power System (APS). We replace the conventional powertrain’s A/C compressor and 28V hi-current alternator with a single accessory belt. Our APS integrates all power processing and management functionality in a single unit which supplies power for all vehicle accessories including: electric A/C compressor(s), electric oil-less air compressor, electric engine cooling, solid-state 28 Vdc supply, power steering, and supplemental heat.

**REAL**
*electric accessories for conventional powertrains*

**Benefits**
A simple and economical solution to enable electric accessories on conventional vehicle platforms

- Delivers “more-electric” benefits on conventional propulsion transit buses and over-the-road coaches in support of agency-wide environmental objectives
- Operates equally well on engines using diesel or CNG fuel
- Provides operational and maintenance (O&M) savings compared to conventional engine driven accessories
- Uses existing power management and conversion hardware proven on 4,000 hybrid electric vehicles (HEV) in service
- Reduces scheduled and unscheduled maintenance costs
- Reduces external noise emissions and improves internal noise, vibration, and harshness (NVH) for passengers
- Eliminates hydraulic oil in the engine compartment and the associated fire potential

![REAL Diagram](image-url)
APS (accessory power system)

Fully powers all electric accessories on conventional powertrains.

Specifications:
- 60 kW generator inverter stage: 4 quadrant control, 600 Vdc nominal output
- 510 Amps (14 kW) of 28 Vdc: replace belt driven alternator(s)
- Provides ample power for:
  - Electric engine cooling fans
  - A/C system fans/blowers
  - Electric power steering (if applicable)
  - All other vehicle 28 Vdc systems
- 30 kW (37.5 kVA) of 230 Vac: 3-Ph, 60 Hz (nominal), with 900V/μs dV/dt filter and variable V/Hz capable output.
- Provides sufficient power for:
  - Electric power steering (if applicable)
  - Electric air-compressor, and
  - 1x or 2x fully-electric HVAC systems

Ratings:
- Coolant: water ethylene or propylene glycol 15 GPM (57 lpm)
- Coolant temperature for full performance:
  - 40°F to 149°F (-40°C – 65°C)
  - 113°F (45°C) nominal
- External ambient -40°F to 167°F (-40°C to 75°C)

Size:
- Height: 10 inches (254 mm)
- Width: 19.5 inches (495 mm)
- Length: 27 inches (686 mm)
- Weight (wet): 167 lbs (82 kg)

High-voltage permanent magnet generator (600V)

Size: 12 5/8” diameter x 13 7/8” long, 130 lbs.

Similar size/weight to conventional 500A class 28V alternators

Ratings: (high-voltage DC @ engine RPM)
- 27 kW @ idle 800 RPM
- 36 kW @ hi-idle 1000 RPM
- 43 kW @ 1200 – 2100 RPM

Accessory demand:
- 43 kW APS-4 max corner point
- 27/17 kW-dc typical for 60’/40’ bus accessory load