Rail
Make faster, cleaner progress.
With the MTU Hybrid PowerPack®.

Also available for repowering.
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With the MTU Hybrid PowerPack®.

Saving fuel through braking energy recovery
With hybrid drives, braking energy is converted into electrical energy and stored in the battery. This energy can then be reused later as a boost on gradients or to accelerate. As a result, up to 25 percent of the diesel fuel can be saved. Hybrid technology is especially efficient for use on local lines where braking and acceleration in stop-go mode is frequent, and much of the braking energy can be recovered. In this case, the hybrid drive is amortised after just a few years.

Significantly reduced emissions through load point optimization
If during periods of low load factors the diesel engine is operated at a more favorable energetic operating point or switched off entirely, emissions can be reduced substantially: per kilometer, up to 230 grams less CO₂ and up to 0.92 grams less NOₓ compared with conventional systems.

Optimizing travel times with the Boost Mode
With a combined diesel and electric drive, the train accelerates even better. When it comes to keeping tightly calculated schedules or catching up on delays, the electric motor provides additional torque. This means that the railcar can travel uphill faster or reach the target speed quicker. For example, the time for a 72-kilometer-long route can be shortened by more than five minutes.

Significant noise reduction
The electric motor can be used as the main drive when rail vehicles need to be operated as quietly as possible: For example, during travel through residential areas and tunnels or while stopped at a railway station. The noise level when stationary can be reduced by up to 21 decibels.

Flexible vehicle deployment and simple retrofitting
Naturally, rail vehicles with hybrid drive can also be powered exclusively by the diesel engine. This also means great flexibility for the operator: The trains can be deployed on both electrified and non-electrified rail routes. In addition, upgrading to a trimodal* power system – with an additional pantograph – is easy because the system is already equipped with an electric motor. This gives the operator considerable freedom with regard to deployment of the vehicles – it’s a big plus when they can respond flexibly in the future to every route requirement or tender invitation.

* diesel + battery + catenary

Marketable technology – tailored solutions
Extensive test runs in a Siemens Desiro Classic Railcar (DB Series 642) have proven the reliability of the MTU Hybrid PowerPack®. The projections of the simulation have also been confirmed. As a result, MTU can make reliable statements to customers with regard to efficiency as well as the reduction of noise pollution and exhaust emissions, and offer them tailored hybrid solutions that in every case will generate the greatest possible benefits for the application.

The Intelligent Drive Manager is an intelligent driver assistance system which, combined with the Hybrid PowerPack, achieves significant additional fuel savings and fewer emissions. This is done by taking into account the individual parameters of the route being travelled, and real-time data:
- Location
- Speed
- Route profile
- Timetable, and
- Stations

Based on these parameters, the adaptive MTU Intelligent Drive Manager continuously improves its anticipative driving tactics. The system is located between the driver’s cab and the traction unit, and helps the driver by keeping driving style optimized throughout. This ensures the entire traction system is operating efficiently in its “sweet spot”. It also controls the electrical coupling and control of multiple hybrid traction systems across different parts of the train. In emissions-sensitive and noise-sensitive areas such as cities or tunnel stations, the system switches automatically to electric-only operation.

All benefits at a glance*:
- Further significant reduction in fuel costs
- Further reductions in noise and exhaust emissions
- Better adherence to timetables thanks to improved acceleration
- Extension of the traction system’s service life

* Compared to a standard-issue MTU Hybrid PowerPack

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Integration of the energy storage with roof installation:
1. Diesel engine
2. Electric motor/generator
3. Transmission
4. Exhaust aftertreatment (SCR)
5. AdBlue® tank
6. MTU EnergyPack
7. System control

Underfloor mounting