

# **Solaris Bus & Coach** in the **Hybrid Commercial Vehicle** project

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# About Solaris Bus & Coach

- Founded in 1996
- **Electric mobility since 2001 (trolleybuses), 2006 (hybrid buses) and 2011 (battery buses)**
- Building trams since 2009
- **2,300 employees in Poland and 200 in international sales and after sales subsidiaries**
- Headquarters and four production sites in Greater Poznań region
- €358 million turnover (2013)
- **Largest independent city bus builder in continental Europe**
- **Production capacity 40 buses/week and 1 tram/week**



# Product development timeline

**Road**  
combustion  
engine /  
hybrid



**Diesel**  
1999



**CNG**  
2004



**Parallel hybrid**  
2006



**Series hybrid**  
2010

**Road**  
electric



**Trolleybus**  
2001



**Electric bus**  
2011

**Rail**  
electric



**Tram**  
2009

# Trendsetter for hybrid buses in Europe

- First European city bus with **volume-production hybrid technology** (2006)
- Offer of different diesel-electric hybrid technologies gives operators the choice of suitable hybrid drive systems
- **Fuel consumption** reduced by up to 29%, **emissions** by up to 78%



# Almost 200 Solaris hybrid buses in service or on order



# Main targets for Solaris in the HCV Project

Solaris takes part in two sub-projects SP2000 & SP6000 under HCV project:



**SP2000** → The main objectives of this sub-project are the definition, adaptation and optimization of the auxiliary technology for particular applications under consideration of vehicle boundaries and interfaces, and control functions.

The following electrification of auxiliaries are developed and validated by Solaris:

- Auxiliaries for passengers comfort function (e-heating, e-compressor)
- Chassis auxiliaries (e-steering servo)
- powertrain auxiliaries (e-fans, High Power Generator)



Fig. e-heater

# Main targets for Solaris in the HCV Project

Solaris takes part in two sub-projects SP2000 & SP6000 under HCV project.

**SP6000** → the main objectives for Solaris under this sub-project are:

- Bus providing and support in validation of hybrid test cycle and procedure
- Bus providing for demonstration of Hybrid bus (Prague, Grudziadz, Pforzheim)



Fig. Road test in Prague



Fig. Demonstrations in Pforzheim

# HCV project results for SOLARIS vehicle users

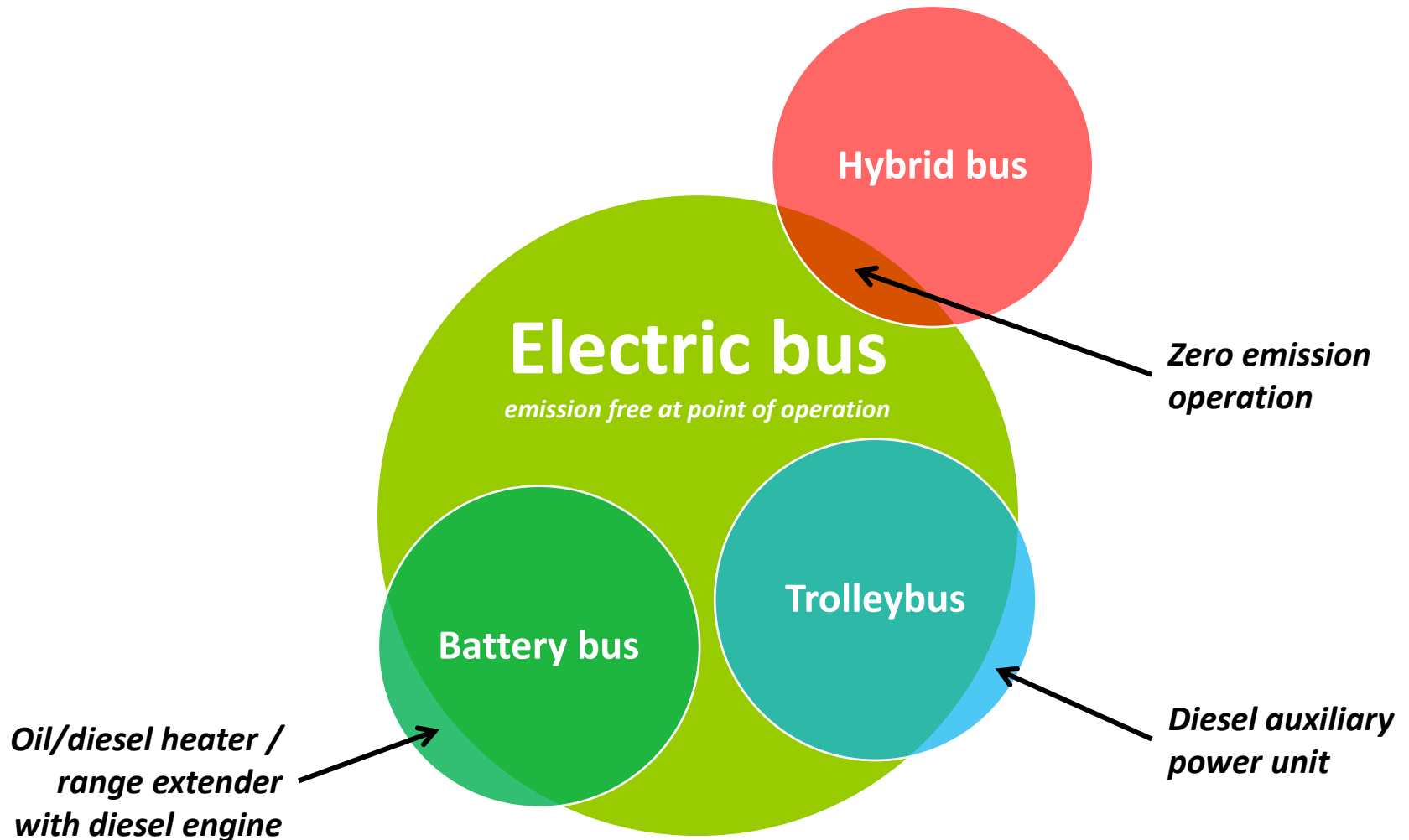
Definitely, the most important outcome of HCV project for users and passengers is the fact that the most of selected and tested auxiliaries are **successfully applied by SOLARIS** to modern hybrid, electric and trolley buses as well as to the new buses with combustion engines passed EURO VI emission standard.

As part of SP2000 the market research has been carried out and based on the decision matrix tool the best auxiliaries for end users was selected taking into account such parameters as price, efficiency, energy consumption and curb weight.

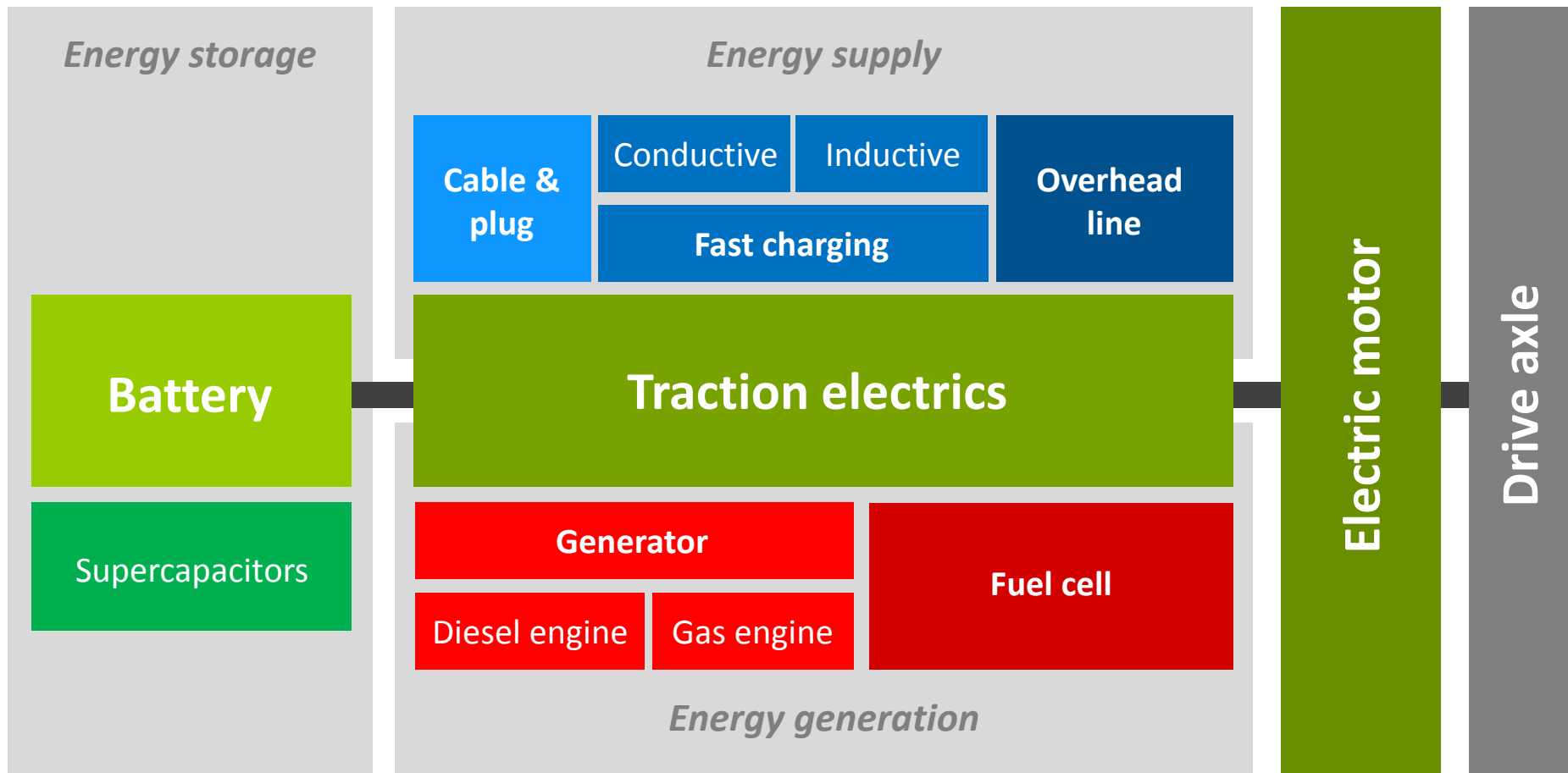
**HCV project and cooperation with partners** within European Consortium helped SOLARIS to select and apply the best solutions that will be used in the nearest future in the public transport vehicles.



# Hybrid buses are part of electric mobility

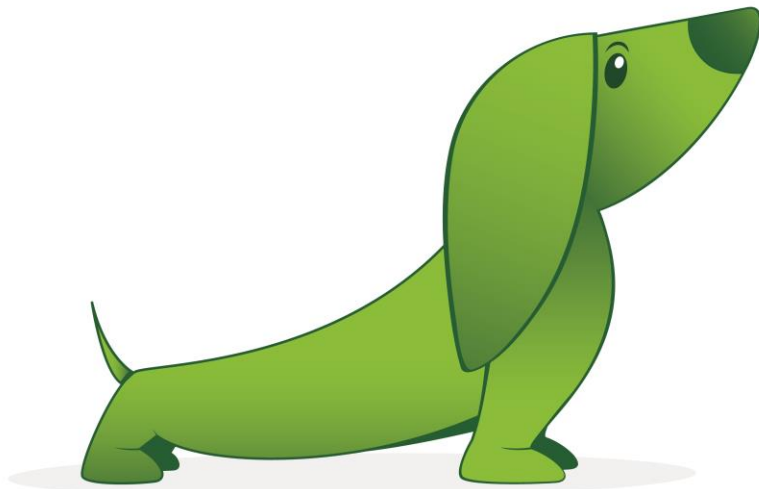


# Hybrid buses are part of electric mobility



# Thank you!

Any questions?



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