



German Aerospace Center (DLR) *Institute of Vehicle Concepts*

Electromobility+ Brokerage Event
January 13, 2011
Cologne, Germany

Bernd Propfe



Deutsches Zentrum
für Luft- und Raumfahrt e.V.
in der Helmholtz-Gemeinschaft

Bernd.Propfe@DLR.de
+49 711 6862 562

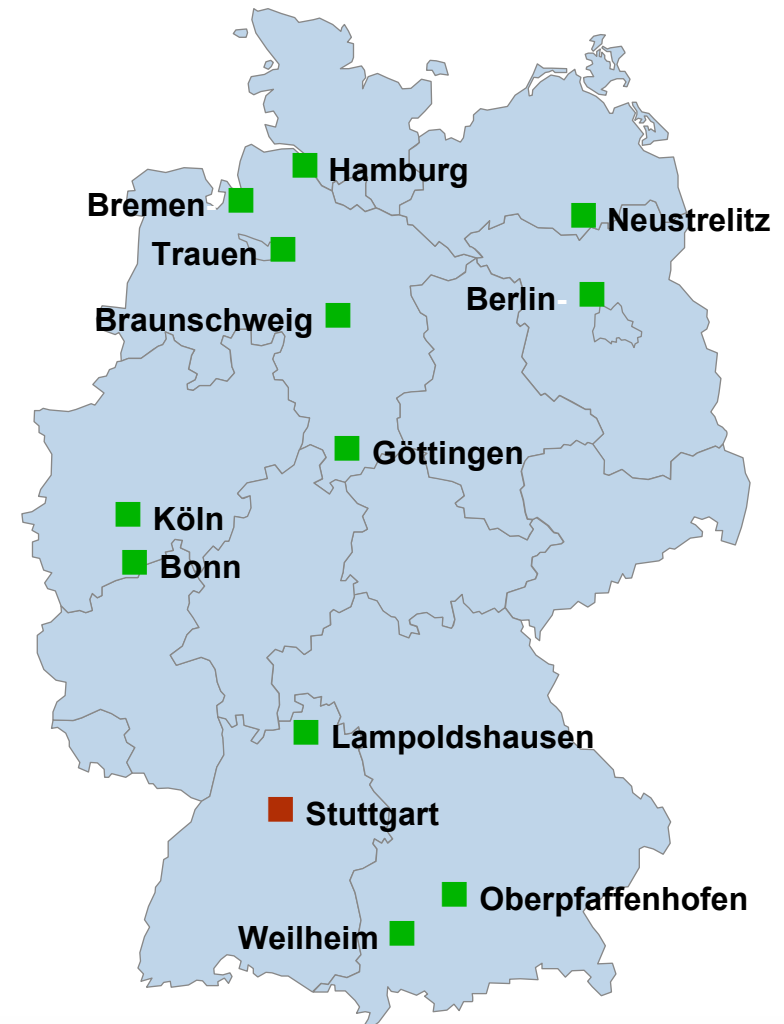
German Aerospace Center (DLR)

Backup

6.000 employees work at 29 research institutions at 13 different locations

The DLR is organized in 4 research areas

- Aeronautics
- Space
- Transport
- Energy
- *Space Agency*
- *Project Management Agency*



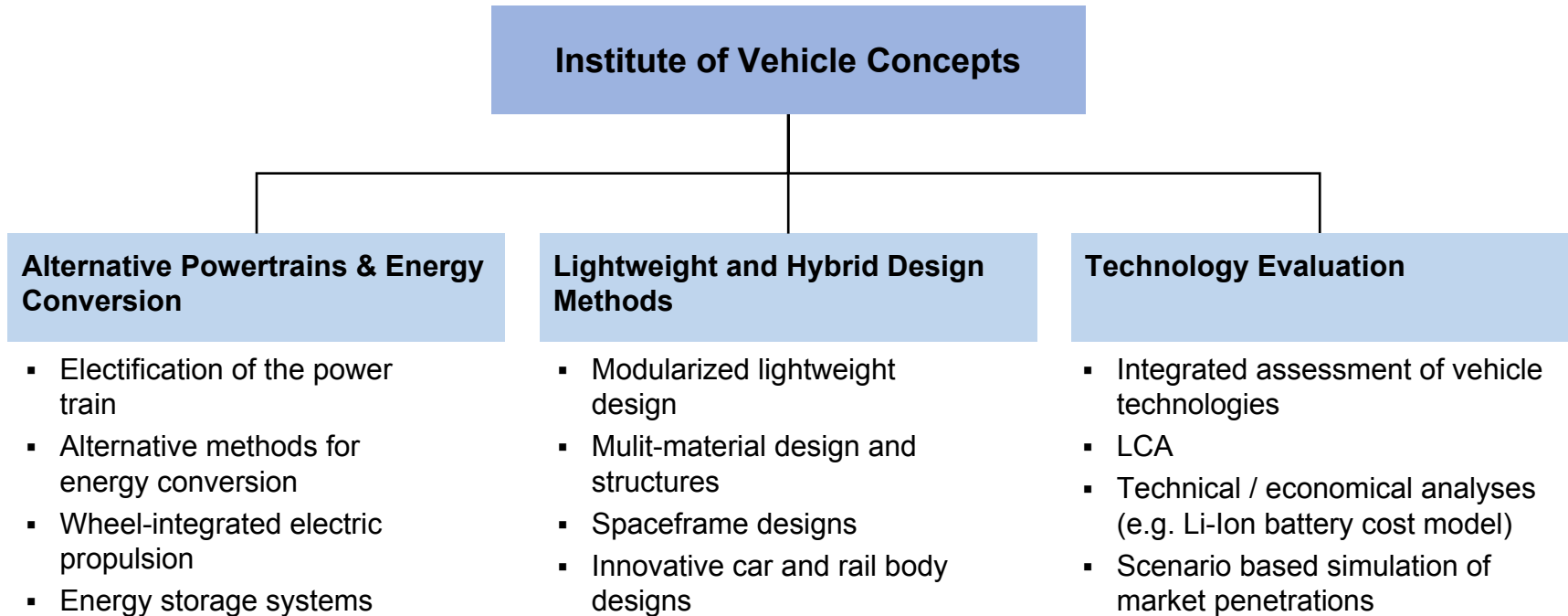
Portfolio of the Research Area ,Transport‘

The research area is divided into three main sub-areas, all dealing with research topics regarding surface transportation

Research Area ,Transport‘ Mobility, Environment, Safety, Economy		
Terrestrial vehicles	Traffic management	Transport systems
<ul style="list-style-type: none"> ▪ Road vehicles ▪ Rail vehicles 	<ul style="list-style-type: none"> ▪ Road traffic management ▪ Rail traffic management ▪ Airport management ▪ Sea traffic management ▪ Traffic management for major events and disasters 	<ul style="list-style-type: none"> ▪ Transport development and the environment

Institute of Vehicle Concepts

Our institute is organized in three research areas



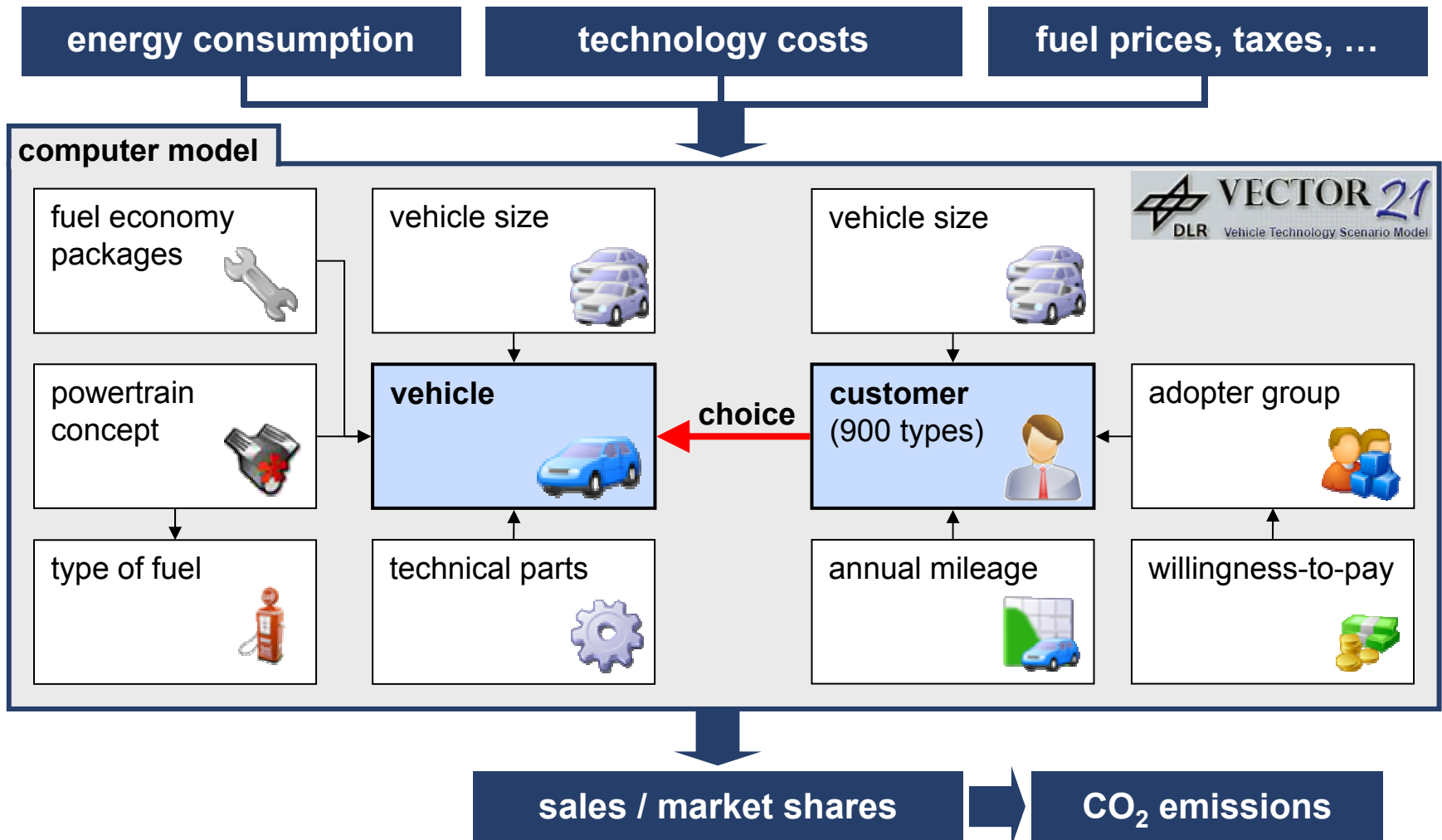
Innovative vehicle concepts for a sustainable transportation system (road & rail)



Scenario model: VECTOR21

Backup

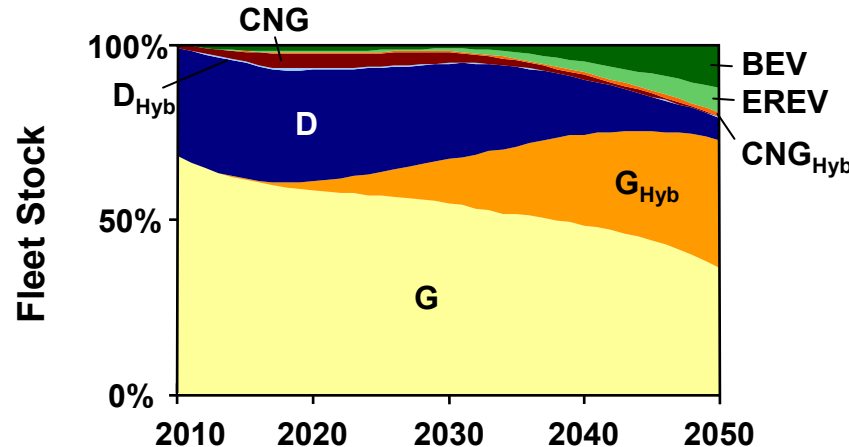
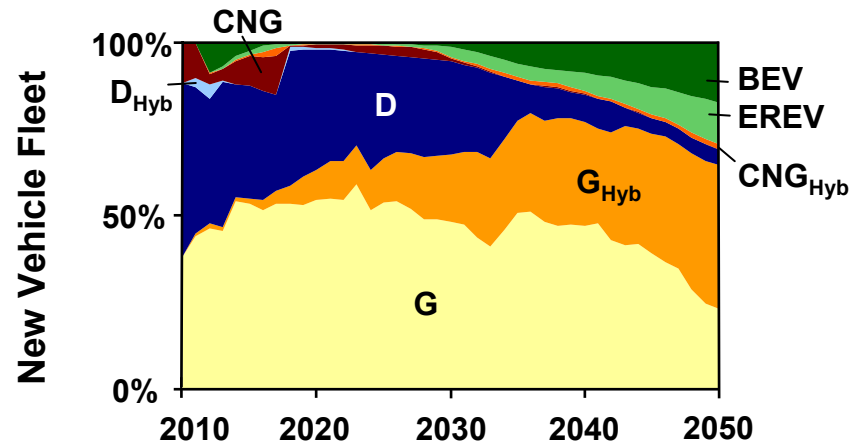
Modeling both technology supply and customer demand



VECTOR21 – Vehicle technologies scenario model

Our model is capable of simulating the competition of car and fuel technologies. Currently, it is calibrated for the German passenger car market

Example scenario



Scenario parameters

- Oil price
- Electricity price/mix and CO₂ balance
- Hydrogen price and CO₂ balance
- Infrastructure (H₂ and e⁻)
- Taxes and policies
- Subsidies and penalties, including CO₂ targets for the new vehicle fleet
- WTP of customers
- Technical developments, including learning curves for new technologies (batteries, fuel cells, e-motors, ...)
- ...

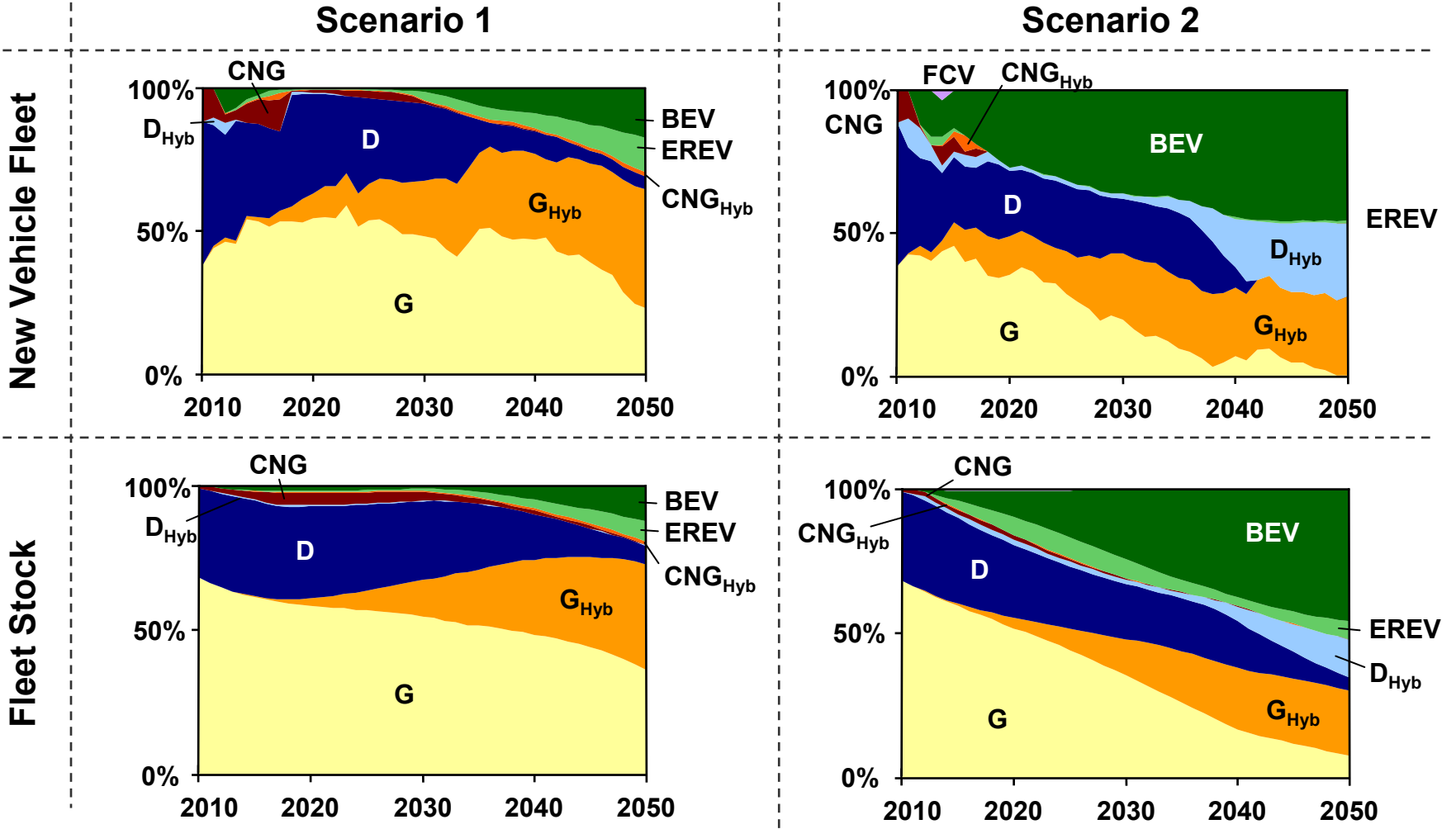
► Extension to European level would lead to significant synergies

G: Gasoline, D: Diesel, CNG: Compressed natural gas, Hyb: Hybrid versions (all), BEV: Battery electric vehicle, FCV: Fuel cell vehicle, EREV: Extended-range electric vehicle

VECTOR21 – Scenario 1 vs. Scenario 2

Backup

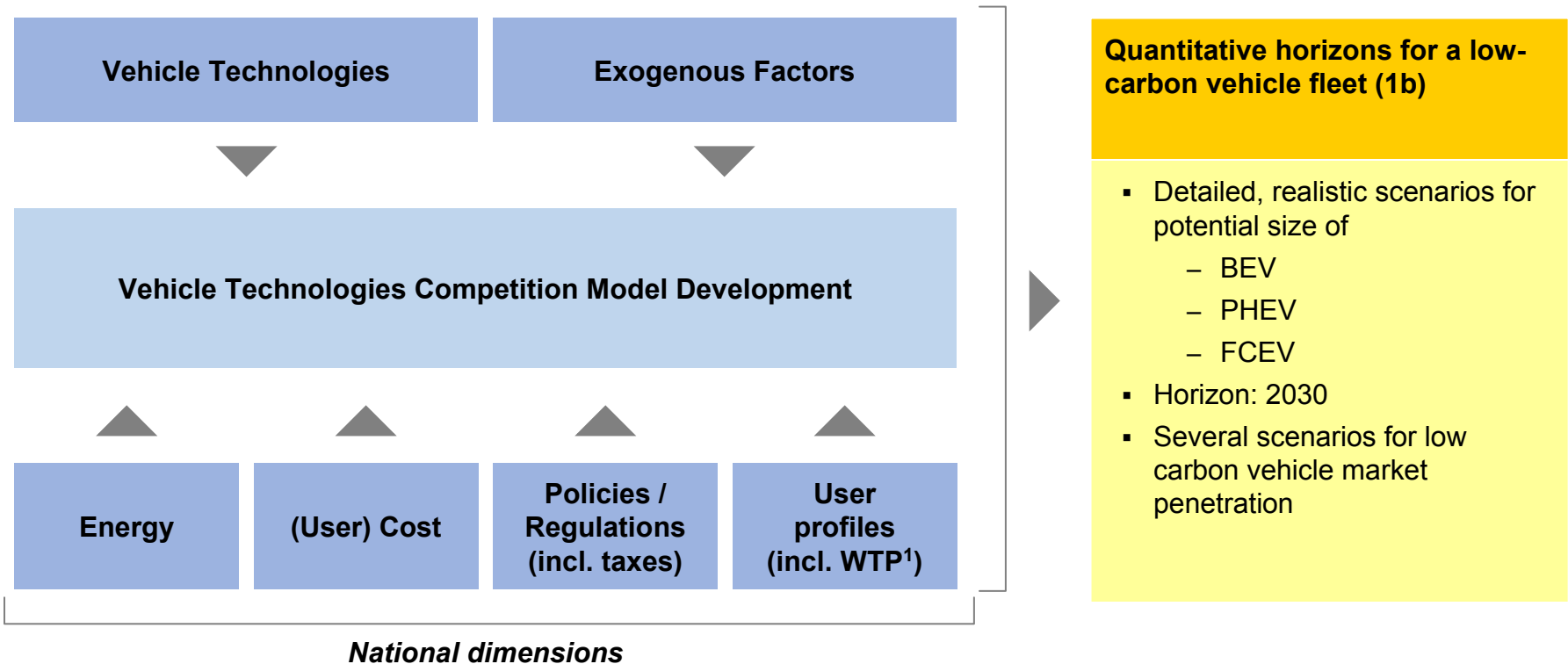
Our model is capable of simulating the future German vehicle fleet



G: Gasoline, D: Diesel, CNG: Compressed natural gas, Hyb: Hybrid versions (all), BEV: Battery electric vehicle, FCV: Fuel cell vehicle, EREV: Extended-range electric vehicle

Project proposal - Electromobility+

In order to respond to the “Quantitative horizons for a low-carbon vehicle fleet (1b)”, our project proposal combines several topics named in the call



BACK UP



We are looking for project partners!

Bernd.Propfe@DLR.de

+49 711 6862 562



DLR

**Deutsches Zentrum
für Luft- und Raumfahrt e.V.**

in der Helmholtz-Gemeinschaft

**German Aerospace Center
Institute of Vehicle Concepts**