



Blueprint Germany- decarbonising transport by 2050

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Structure of the presentation

- 'Blueprint Germany' overview
- Energy use and GHG reductions in the transport sector
- Main strategies for GHG reductions in the transport sector



- **‘Blueprint Germany’ overview**
- Energy use and GHG reductions in the transport sector
- Main strategies for GHG reductions in the transport sector



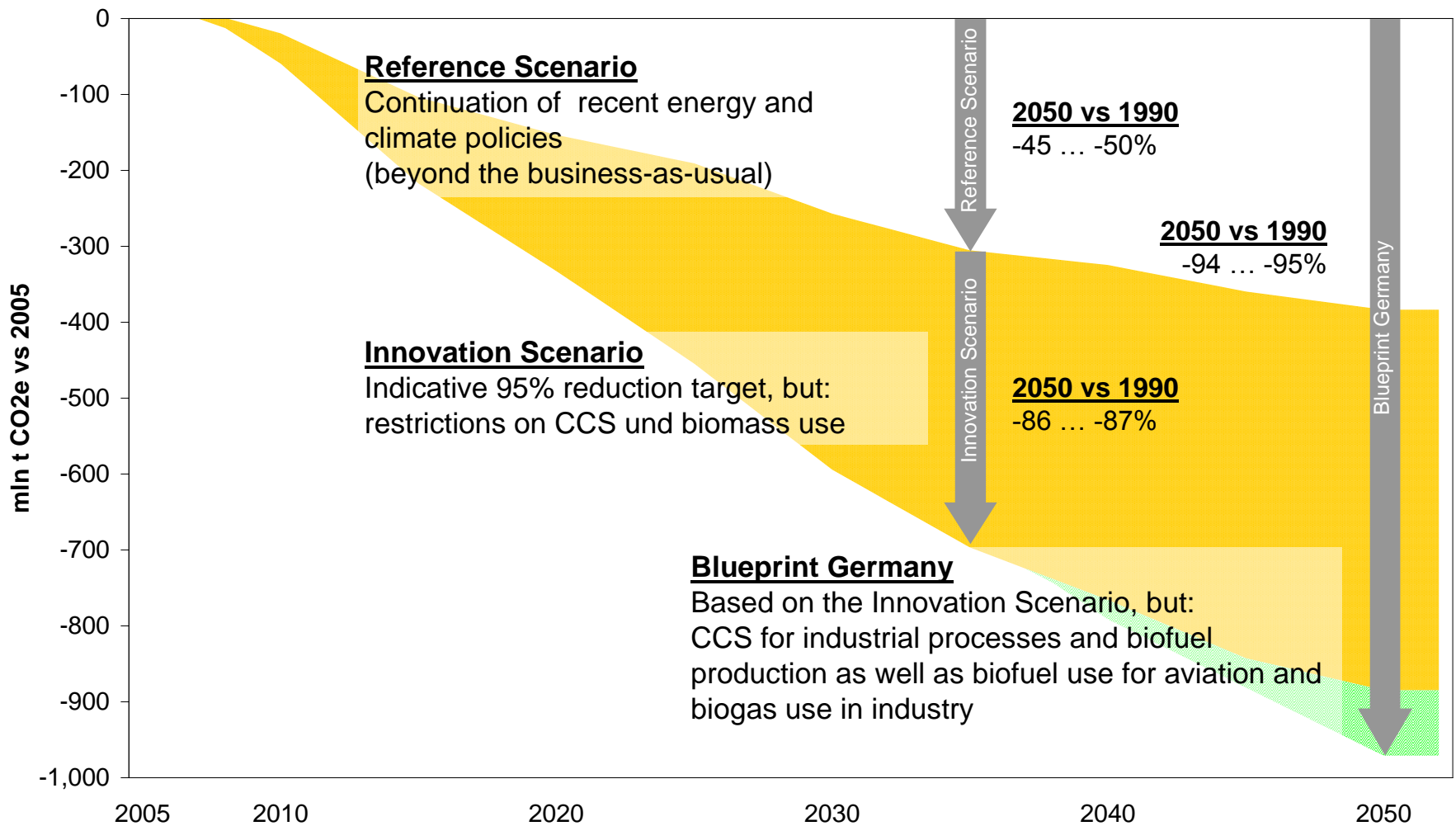
Approach of the study



- Bottom-up projections
 - Energy sector and energy-related GHG emissions
 - Non-CO2 and non-energy GHG emissions (incl. LULUCF)
- Top down components analysis
 - Emission reduction contributions
 - Sectoral targets
- Key long-term strategies
 - Technologies & infrastructures
 - Innovation
 - Policies and measures
- A medium-term climate and energy package

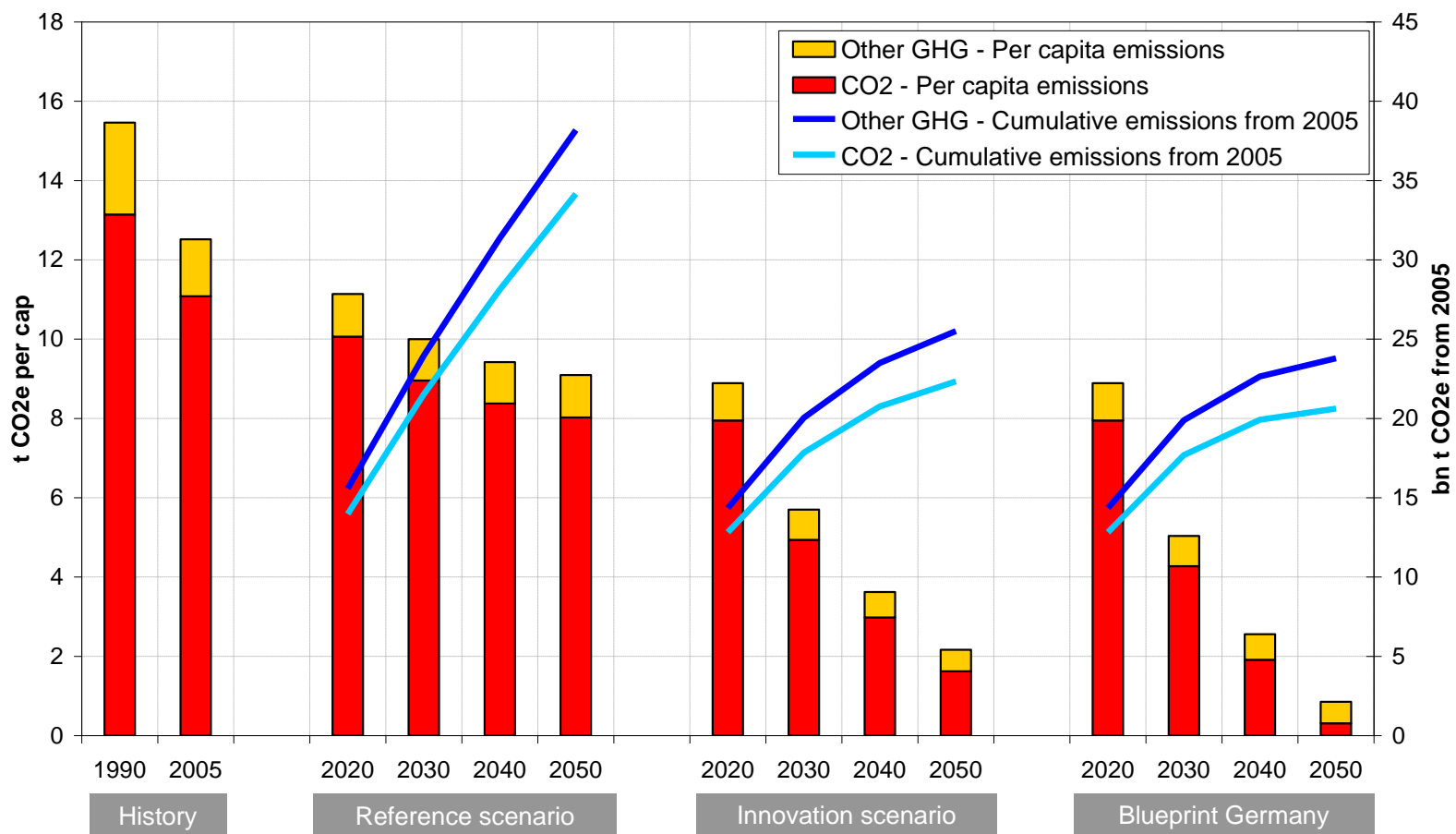


The 'Blueprint Germany' Scenario design



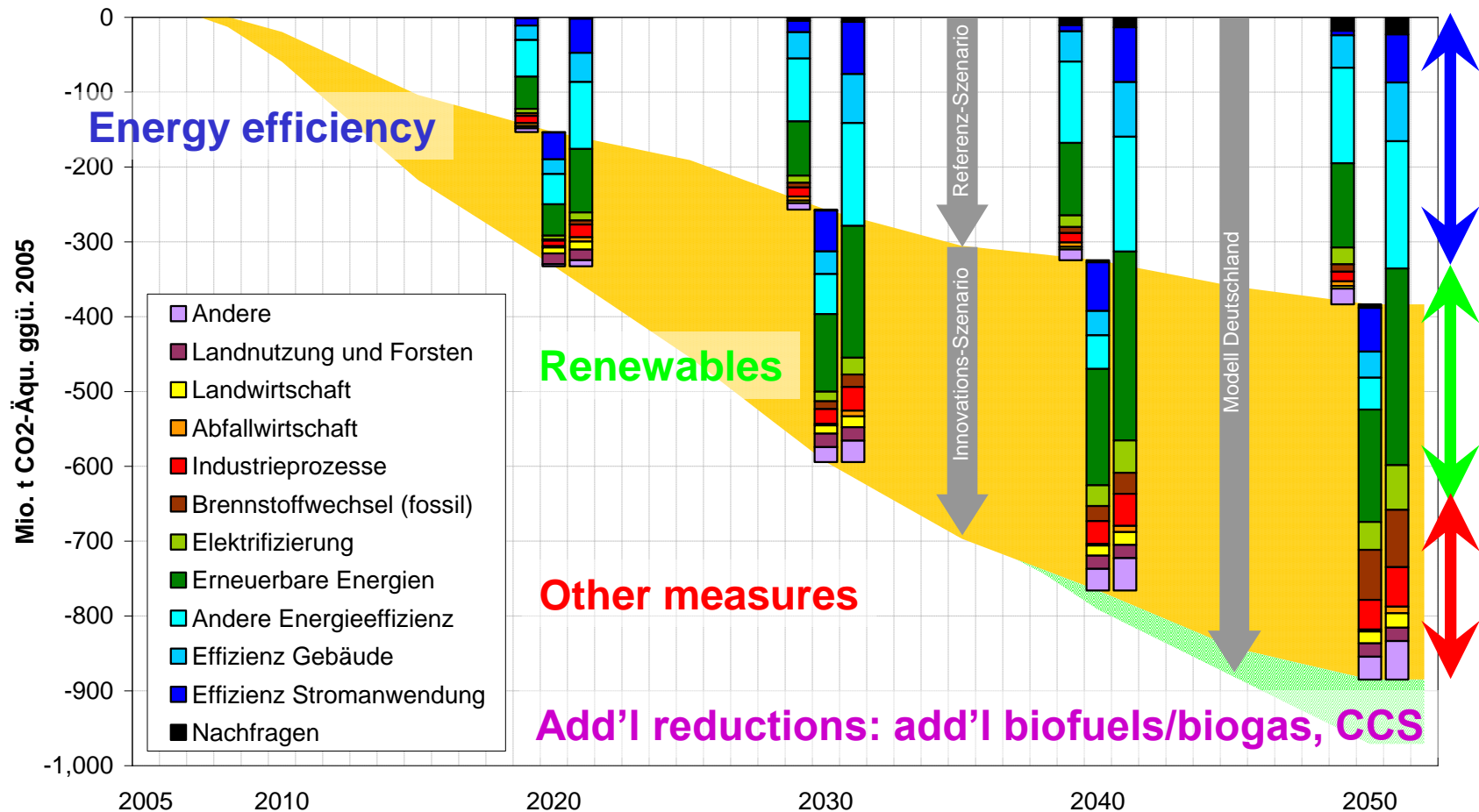


Carbon budget





Reduction contributions





'Blueprint Germany' at a glance:

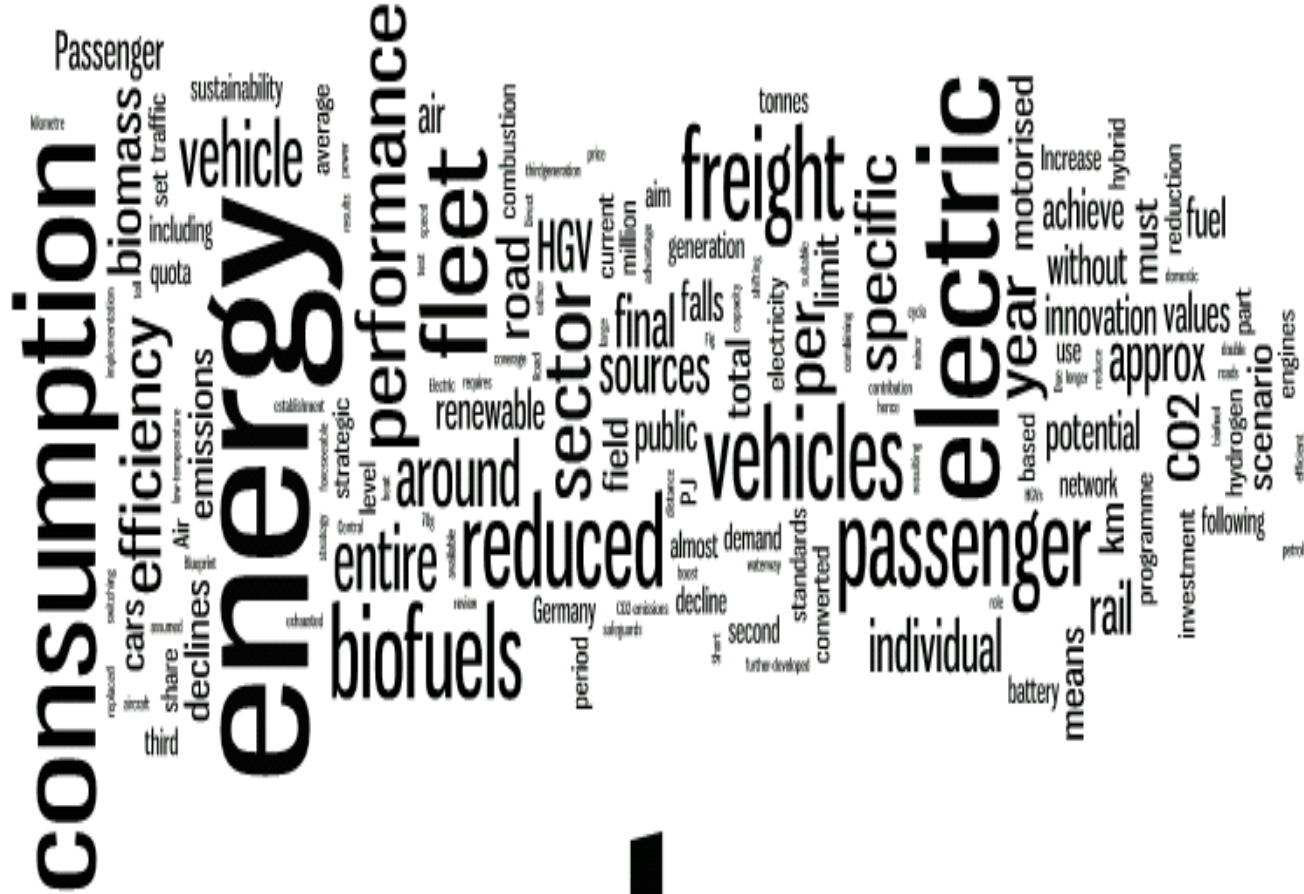


- Available: sufficient technologies and options will be available to reduce GHG emission by 95% compared to 1990 in a highly industrialized country
- Achievable: a 95% GHG emission reduction can be achieved
 - if the windows of opportunity are used (60% of reduction is related to long-living capital stocks)
 - if the necessary innovation is triggered (60% of reduction depends on innovative technologies and options)
- Affordable: 0.3% of GDP in average, 0.6% at the maximum
- All sectors must deliver significant emission reductions, key role of power, industry and transport



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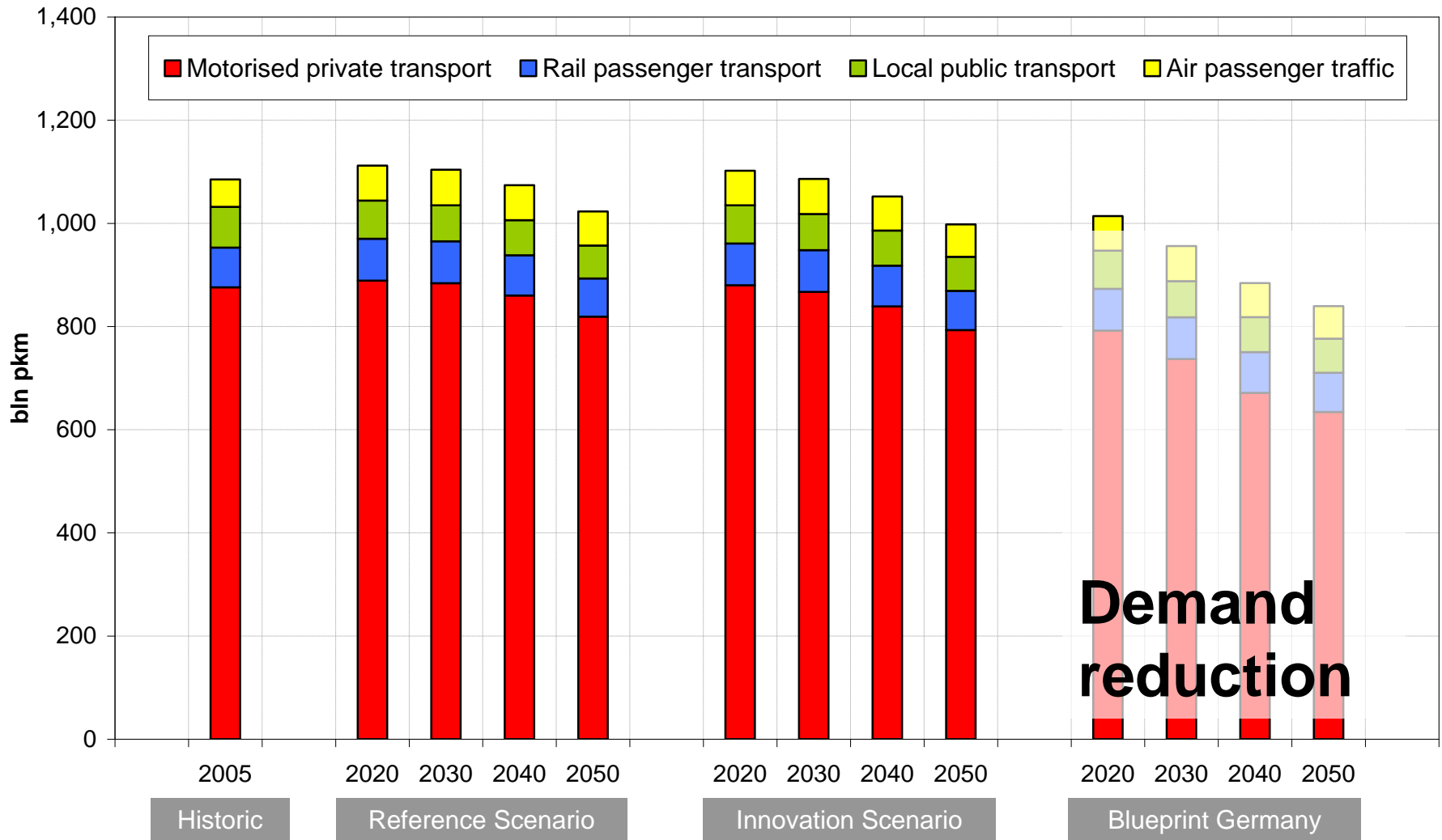
transport





Drivers for passenger transport

Decreasing population & climate policy

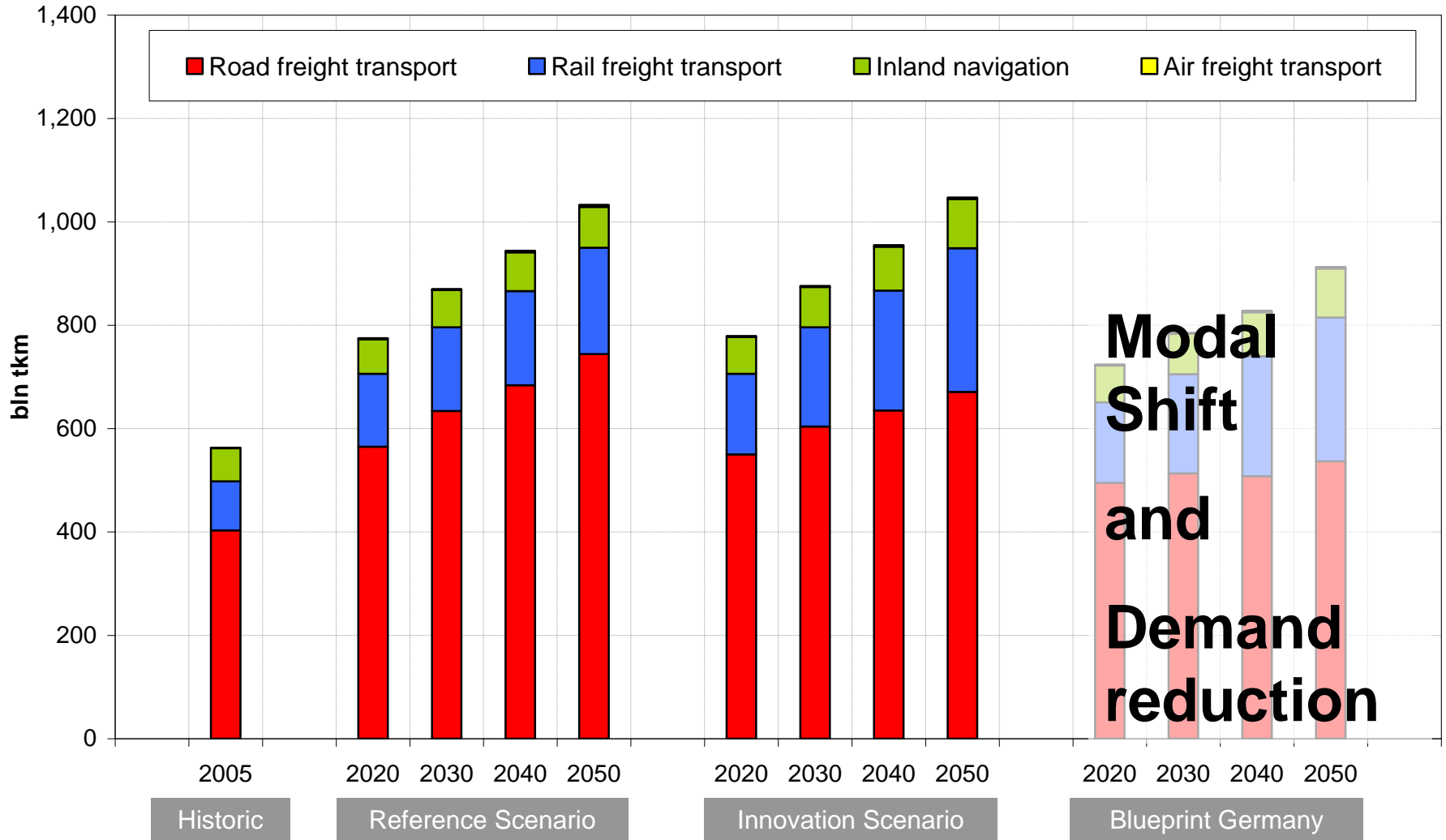


Demand reduction



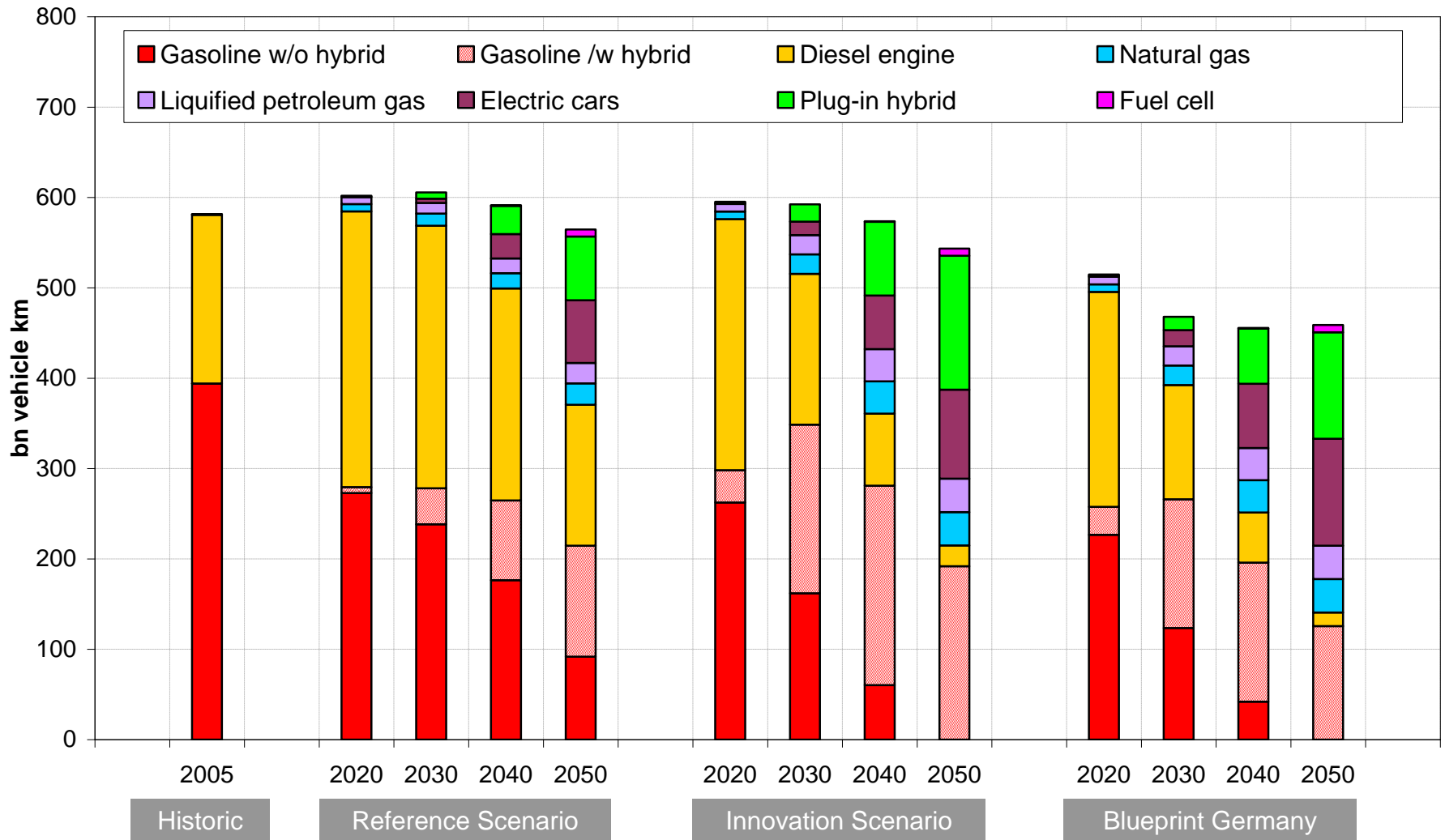
Drivers for freight transport

Strong economic growth & climate policy



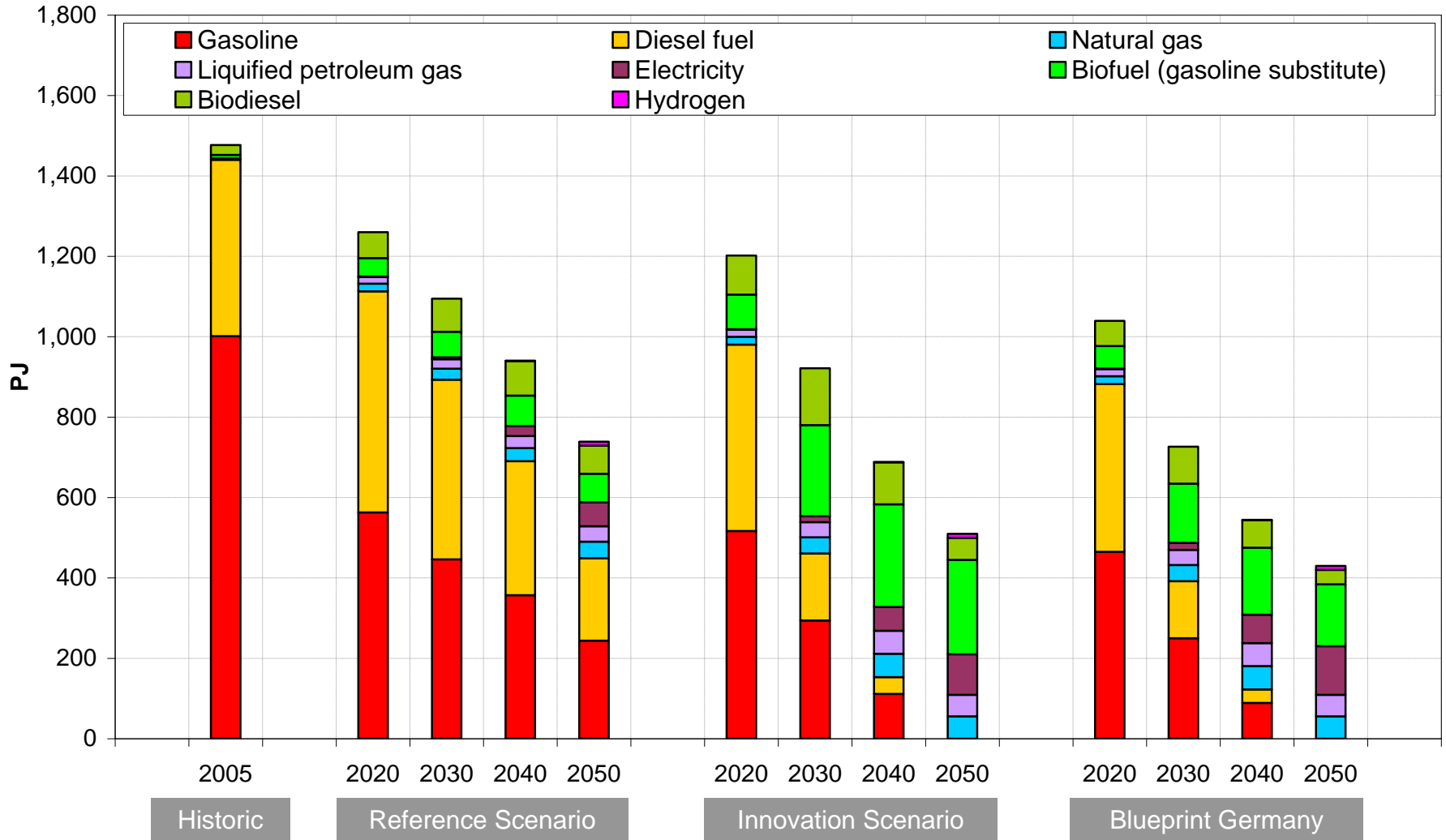


Energy use in motorised private transport (1) Diversification



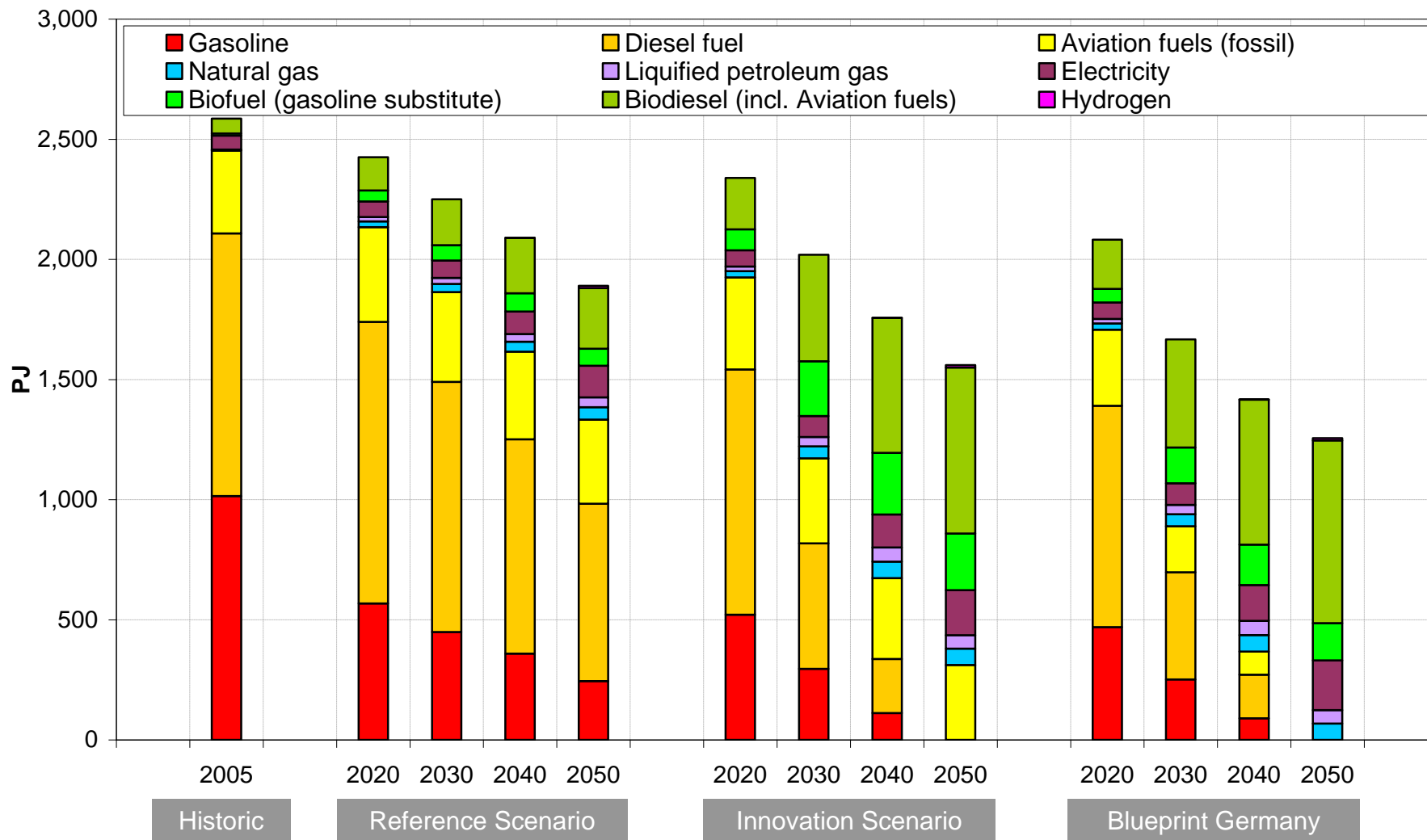


Energy use in motorised private transport (2) Efficiency, electrification & biofuels



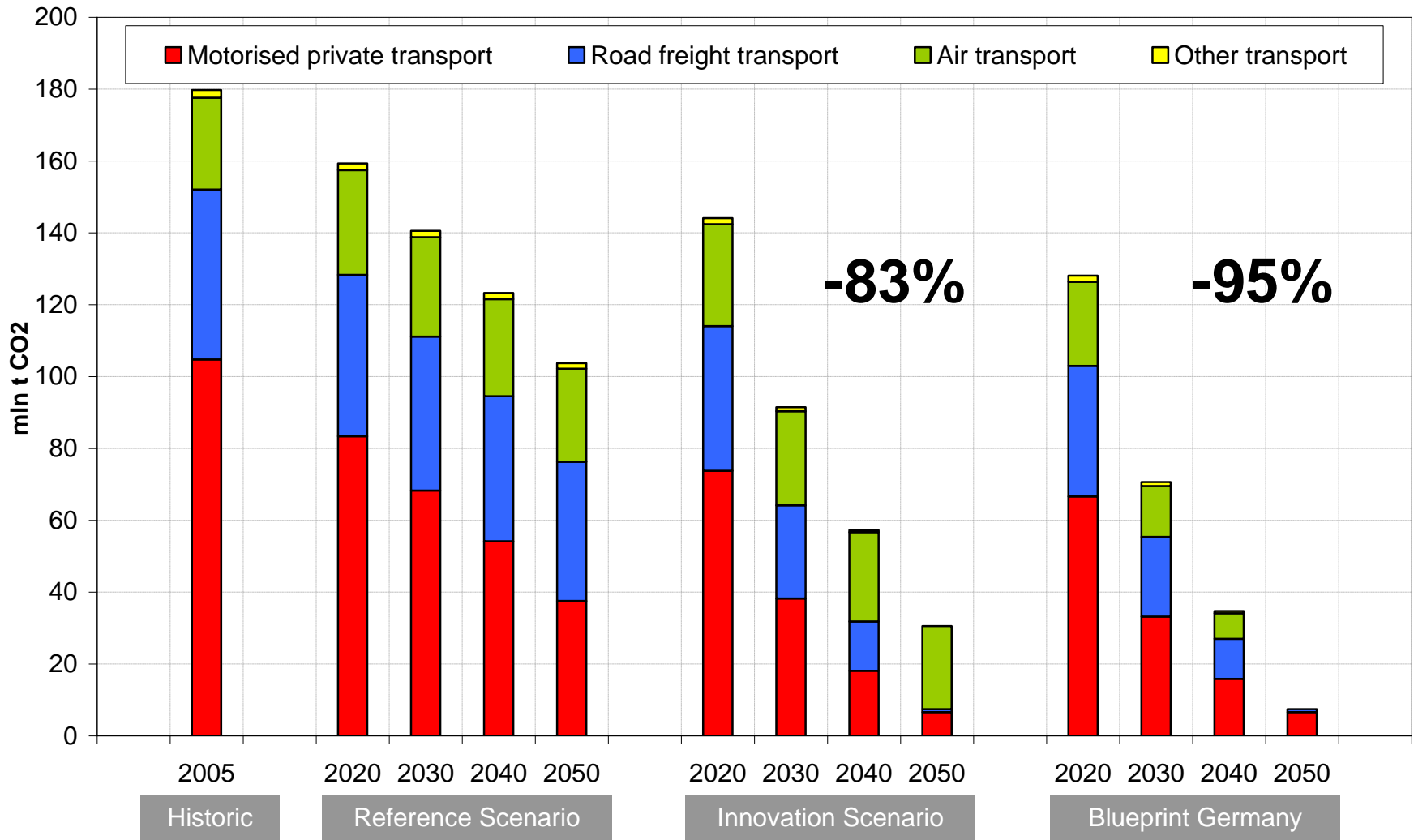


Total energy use from transport





CO2 emissions from transport





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Results from the 'Blueprint Germany' project

Main GHG reduction components (transport)

- CO₂ reduction by 95% in transport is possible through:
 - Significant increase in vehicle efficiency in passenger by over 60% and freight transport by over 30%
 - Significant modal shift to rail in freight transport (from 17 to 27 %)
 - Transport demand reduction: 20% below Reference Scenario in passenger and in freight transport
 - Electrification of motorized individual transport (85% of fleet at least partly electric)
 - Use of biofuels from sustainable sources in road freight transport, aviation, and the remaining share of motor fuels for passenger transport



Strategic targets: Cars

- transport avoidance or modal shift should reduce performance by 2030 by around 20% and by 2050 by around 30%;
- specific final-energy consumption of the vehicle feet (including the efficiency effects resulting from electric vehicles) should be reduced by more than 60% by the year 2050;
- the aim should be to achieve a 7% share of electric drives in total performance by 2030 and around 50% by 2050;
- the aim for the year 2050 should be to achieve almost complete coverage of final energy demand through renewable (biofuels) or emission-free (electricity, hydrogen) energy sources.



Strategic targets: Freight

- performance in 2050 should not exceed the current level by more than one third;
- specific energy consumption by the entire vehicle fleet should be reduced from today until 2030 by 30% and by 2050 by around 50%;
- the entire remaining fuel consumption must be converted to renewable energy sources (biofuels, hydrogen) by 2050.



Strategic targets: Air



- specific energy consumption by the entire aircraft fleet should be reduced by 20% by the year 2030;
- fuel use must be fully converted to regenerative energy (biofuels) by the year 2050



Set of measures (1)



- German specific set of policy instruments until 2030
- An investment programme to double the capacity of Germany's rail network by 2030.
- An investment programme to boost by 25% the performance of public passenger transport by 2030 (and to make public passenger transport more attractive).
- Stricter limit values for passenger cars to be set at 70g of CO₂ per km in 2030 (without the inclusion of biofuels and without zero counting of electric vehicles).
- Creation of HGV feet limit values of about 30% below the current values by 2030 (including the establishment of a suitable test cycle and calculation basis);



Set of measures (2)



- Increase in the HGV road toll to 50ct per km in 2030, granting of an efficiency bonus and expansion to include all HGV and the entire road network
- Increase in fuel tax to a level that results in 2030 in a price of €2.50 per litre for conventional petrol.
- Biomass strategy: Considerable increase in the share of biofuels by combining high and reliably verifiable sustainability standards for biomass and a further-developed biofuel quota based on a biomass strategy (the height of the quota is determined by the sustainability standards and the CO₂-emissions reduction potential) by the year 2030.
- A speed limit of 120kph on all motorways.



Challenges



- Available biomass from sustainable sources is directed towards freight transport and aviation fuels due to the lack of alternatives
- Targeted investments for innovation in 2nd generation biofuels
- Infrastructure investments for electric vehicles (sufficient power production from renewables, decentral load management – smart metering/ smart grids)
- Targeted investments in battery technology