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# Green recovery pathways to Bulgaria's carbon neutrality by 2050

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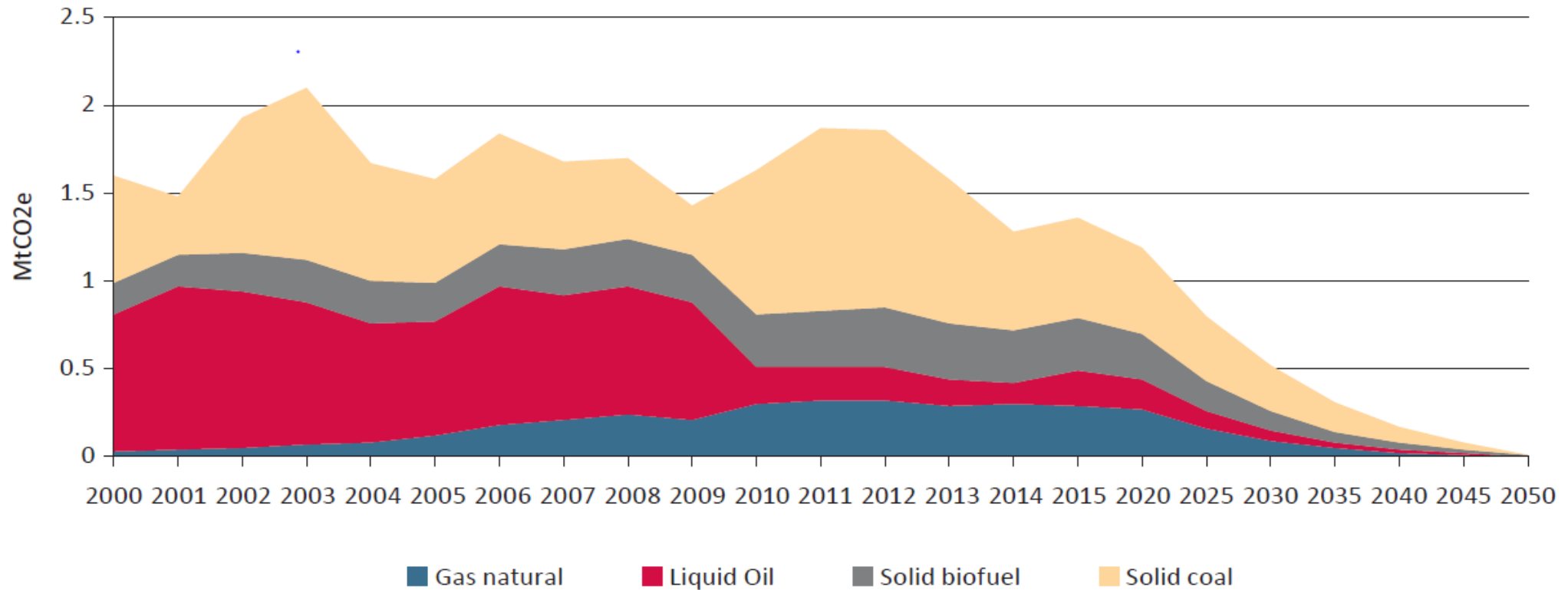
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# Three scenarios for delivering Bulgaria's green recovery

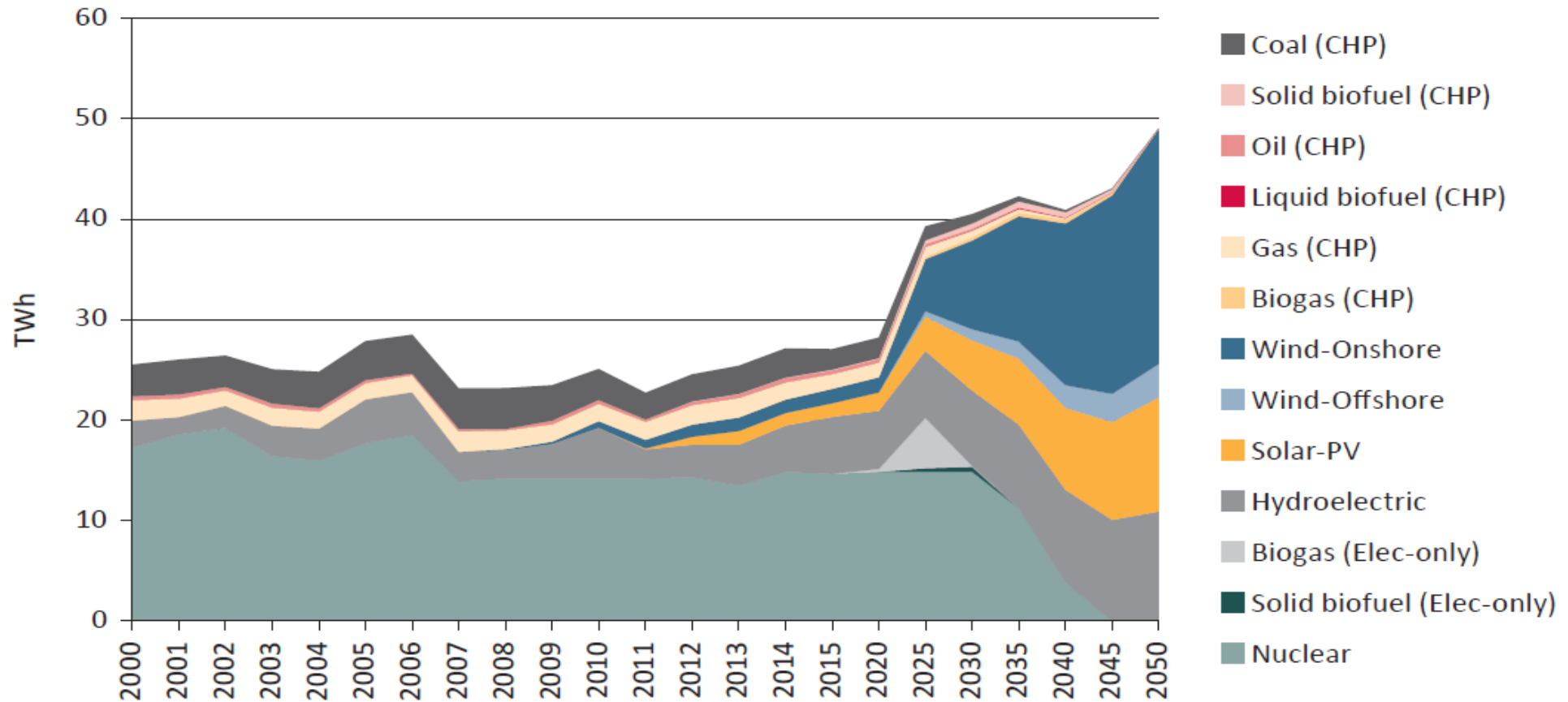
1. Decarbonisation based on **behavioral changes**
2. **Technology-driven** decarbonisation
3. **GreenPlus** scenario – a third-way pathway towards a carbon-neutral economy.

## GHG Emissions in MtCO<sub>2</sub>e from buildings in the behavioral –based decarbonisation scenario



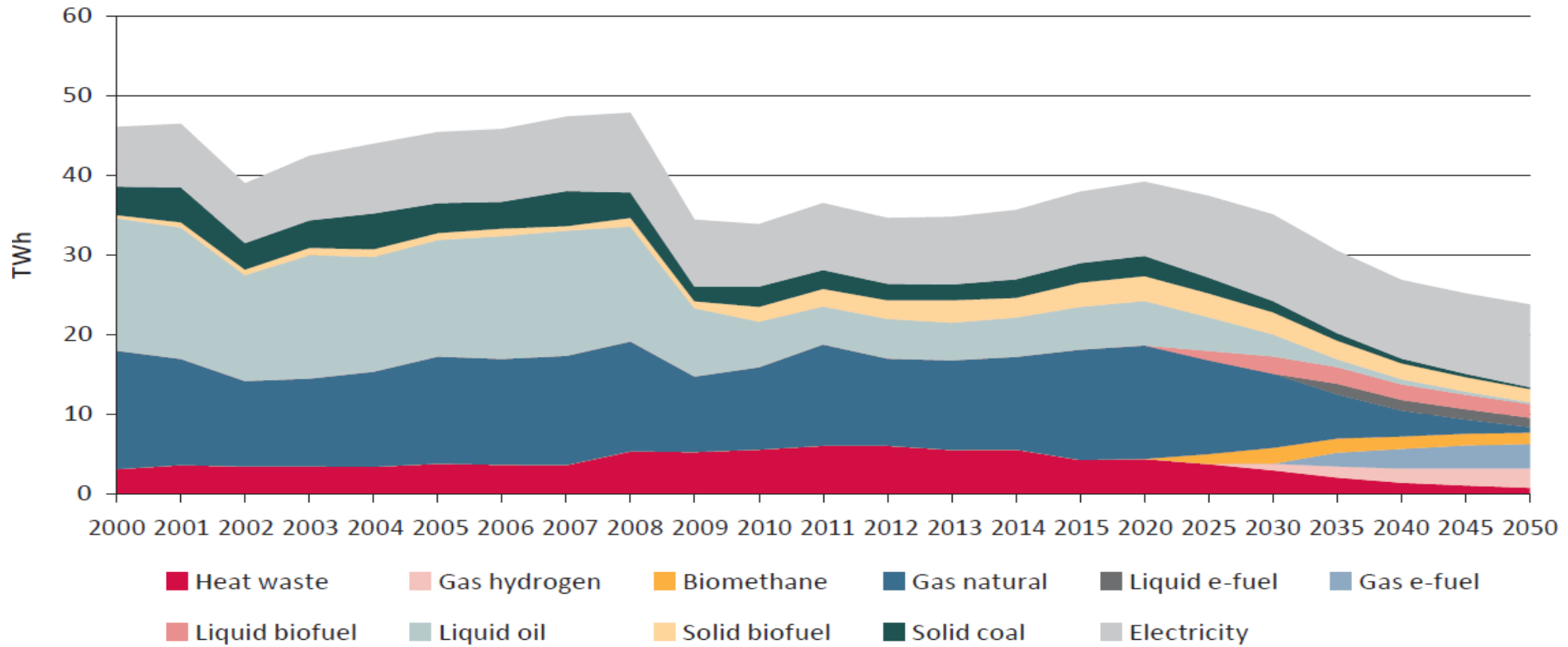
Source: CSD developed scenarios based on the Calculator tool

# Electricity production in the technology-driven scenario



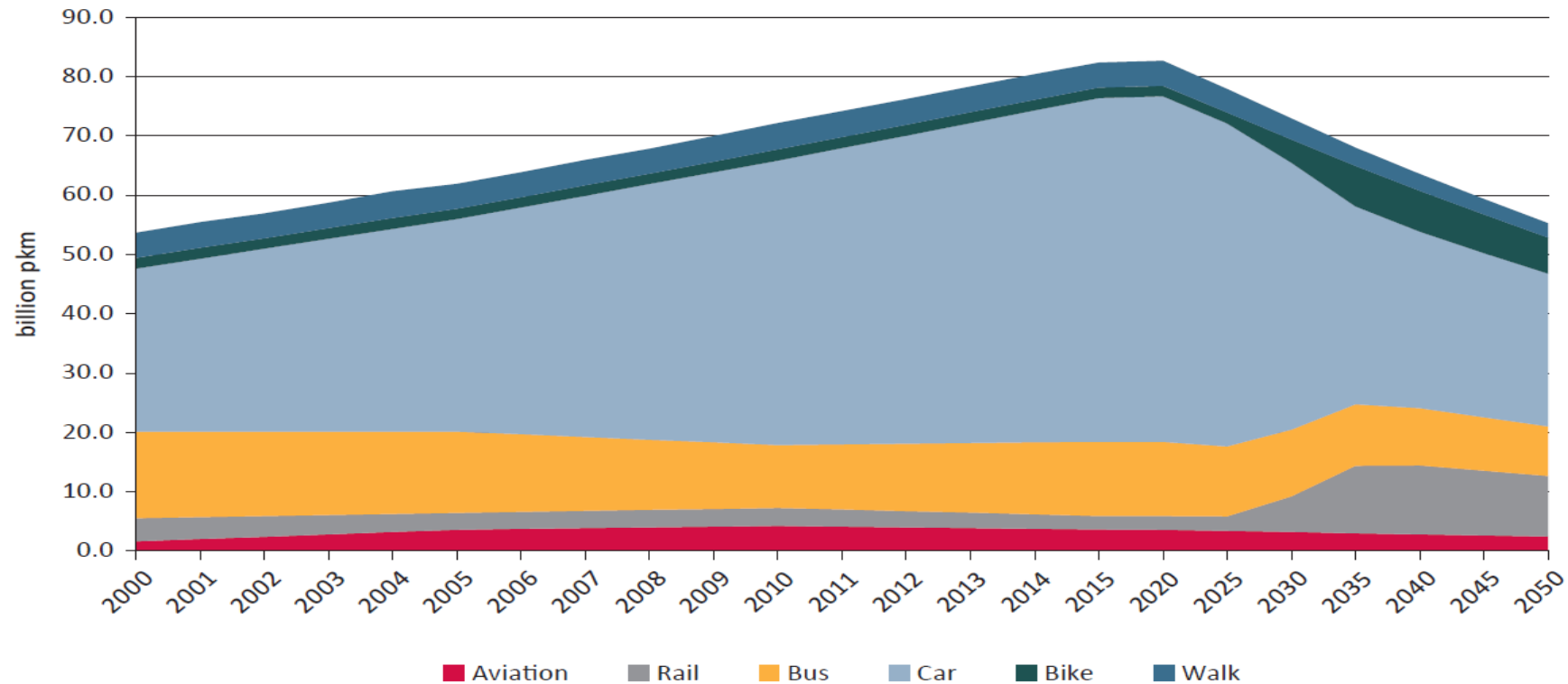
Source: CSD developed scenarios based on the Calculator tool

# Energy demand by vector across industry in the GreenPlus scenario



Source: CSD developed scenarios based on the Calculator tool

# Passenger demand by travel mode in the *GreenPlus* scenario (billion person-kilometers)



Source: CSD developed scenarios based on the Calculator tool

# Buildings

- A comprehensive approach to deep renovations and near-zero buildings
- Accelerating the annual renovation rate to 3-4%
- Innovative financial instruments for energy efficiency and RES co-ownership
- Energy renovation measures tailored to smaller municipalities
- Energy poverty measures should target the most vulnerable consumers

## Power supply

- The national focus away from large infrastructural projects
- The need for an immediate phase-out of lignite-fired power plants
- Decentralized RES-based CSP facilities with thermal energy storage and CPV plants with electrochemical storage
- A swifter transition to hydrogen-based supply instead of gasification of the coal regions
- Unlocking the Black Sea offshore wind potential
- A sub-programme for hydrogen research, including the funding of fuel cell applications
- Targeted measures to support prosumers, energy communities and vulnerable consumers



## **Industrial innovation and reforms**

- Electrification of industrial processes, decarbonizing heat and reducing energy intensity
- R&D programme for green hydrogen and combined use of RES and CCUS technologies
- Focus on industrial innovation, the uptake of hydrogen and synthetic fuels in industrial processes
- Kick-starting a sub-program on recycling raw materials in service of industrial decarbonisation
- Low-carbon infrastructure and services (IT, outsourcing, manufacturing, RES equipment)
- Attracting private and institutional investors to support green start-ups in the decarbonisation fund

## Sustainable mobility

- E-mobility plan and market uptake of low-emission vehicles
- Low-carbon infrastructure investment (including the upgrade of the railway infrastructure and building smart charging stations)
- Disincentives for the use of internal combustion engine vehicles
- Prioritizing measures for pedestrian movement (low-emission zones and city-wide biking infrastructure)
- Possible introduction of a carbon price or carbon tax on fossil fuels

## Sustainable Agriculture & Forestry

- Agro-ecological practices aligned with the FAO standards
- Targeted support of sustainable, small-scale family farmers
- Enhancing carbon sequestration through afforestation measures
- Enforcing coherent forest protection measures
- Dietary changes into social support programmes for food and nutrition (FEAD II)



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**Thank you**

