

The PRIMES energy model and its use for Energy Scenarios for the EU

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The PRIMES energy system model

1. Energy system model: mixed bottom-up (engineering) and top-down (microeconomic behaviors)
2. Modular, with separate modules for demand and supply by sector
3. Market-oriented: market equilibrium prices drive energy balancing of demand and supply per fuel and market
4. Detailed (for 34 countries) and comprehensive (whole of energy system, EU-wide networks)
5. Environment-oriented (climate change, links with RAINS for air pollution, links with special models for transport)
6. Policy-oriented for a large variety of instruments (subsidies, taxes, certificates, permit markets, R&D, ...)
7. Very detailed electricity sector sub-model

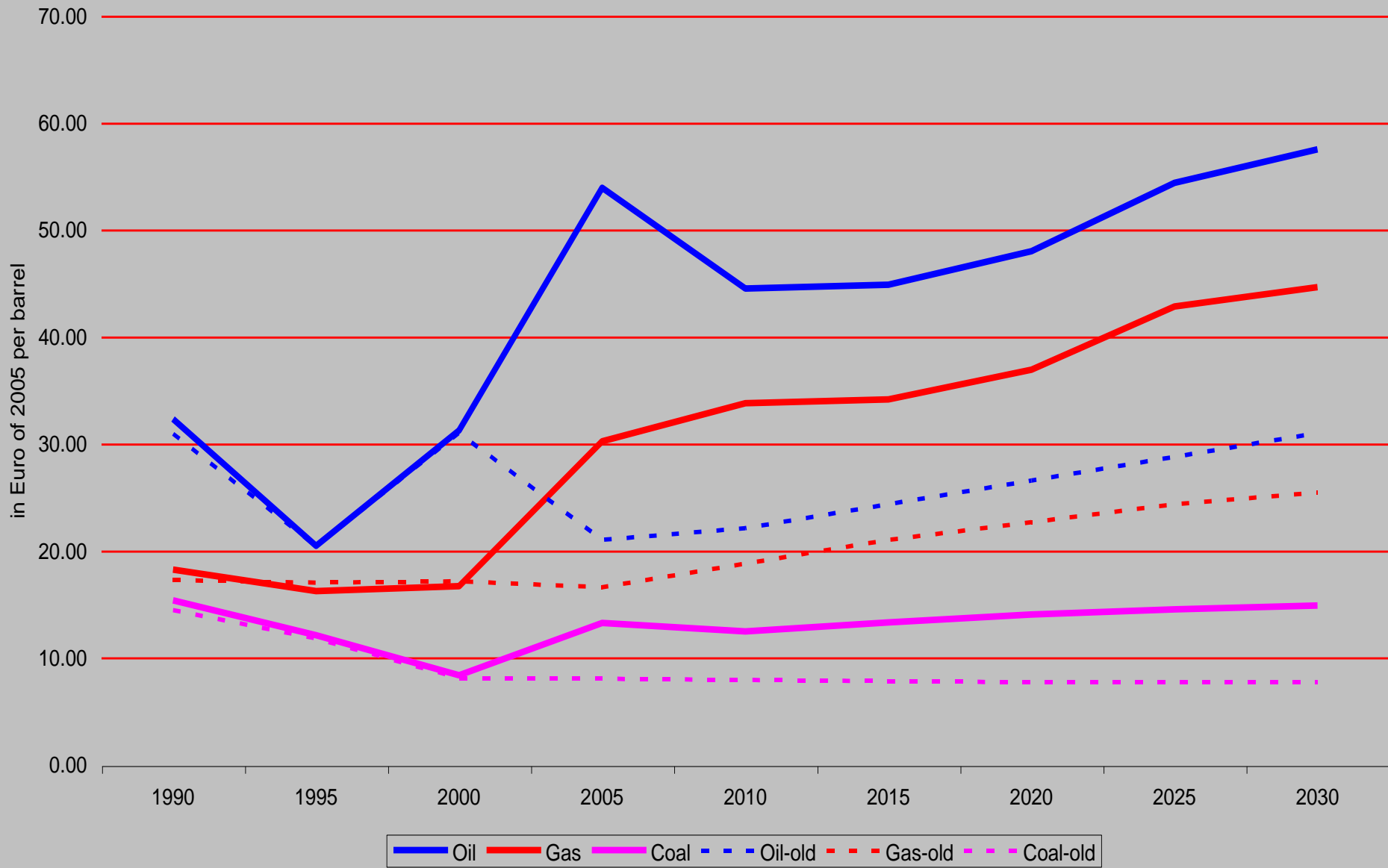
Recent work with PRIMES model

1. Since DG TREN publications ('Trends' and 'Key Drivers') a complete update of PRIMES database carried out
 - Eurostat statistics up to 2003 and available information for 2004, 2005
 - Revision of the power plant database, including information on new constructions and projects
 - Updated information on prices, taxes and tariffs
 - New database on electricity and gas interconnections and future projects
 - Updated information about renewables: potential, non linear cost curves, learning by doing, etc.
2. New improved electricity and steam sub-model: DC linear optimal power flow and investment expansion over a set of regional electricity markets
3. With DG TREN new projections for
 - Economic growth of the EU and sectoral structure
 - International fuel prices

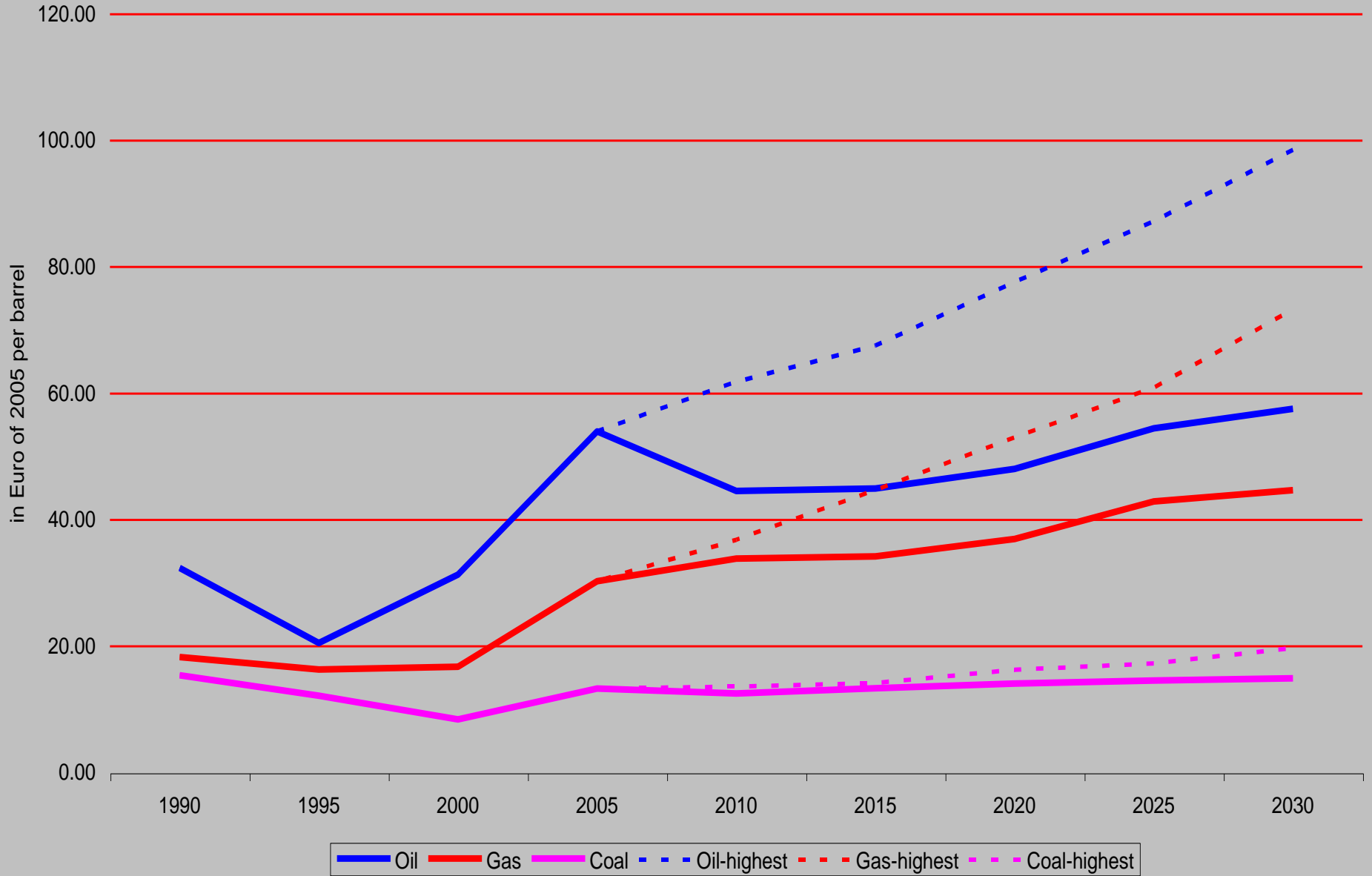
Results for the new DG TREN baseline scenario

PRIMES model

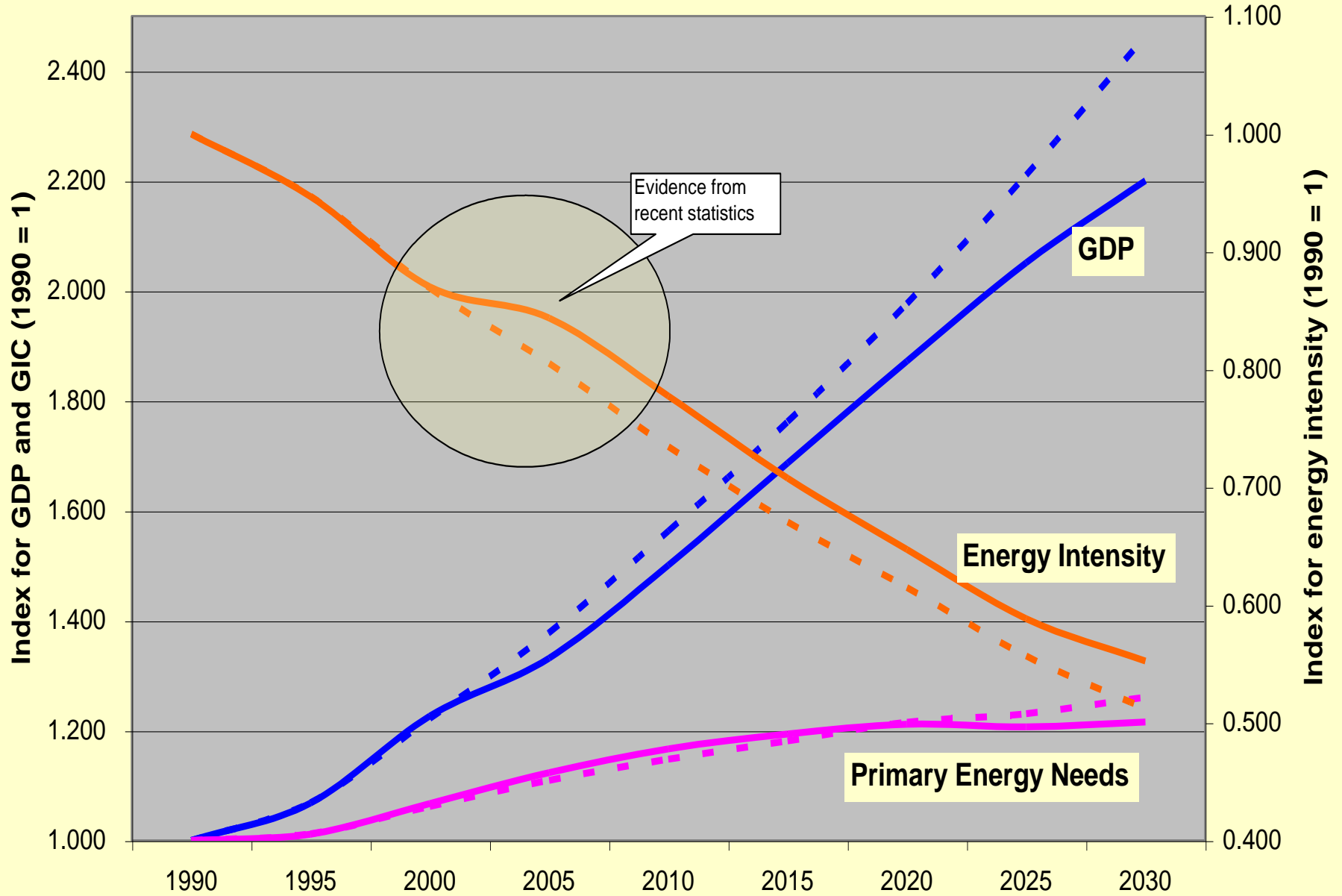
World Fuel Prices in EU Scenarios with PRIMES model



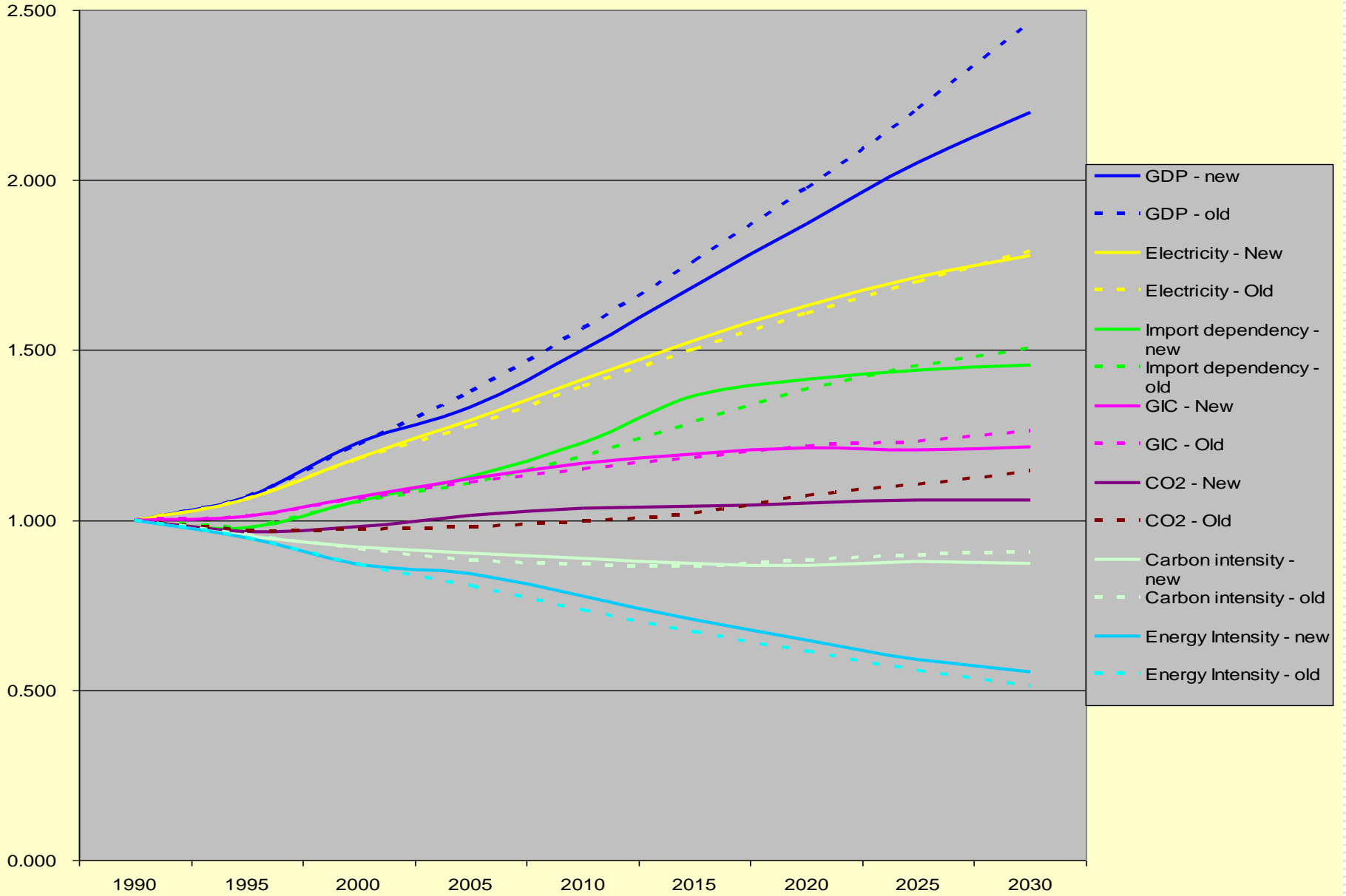
World Fuel Prices in EU Scenarios with PRIMES model



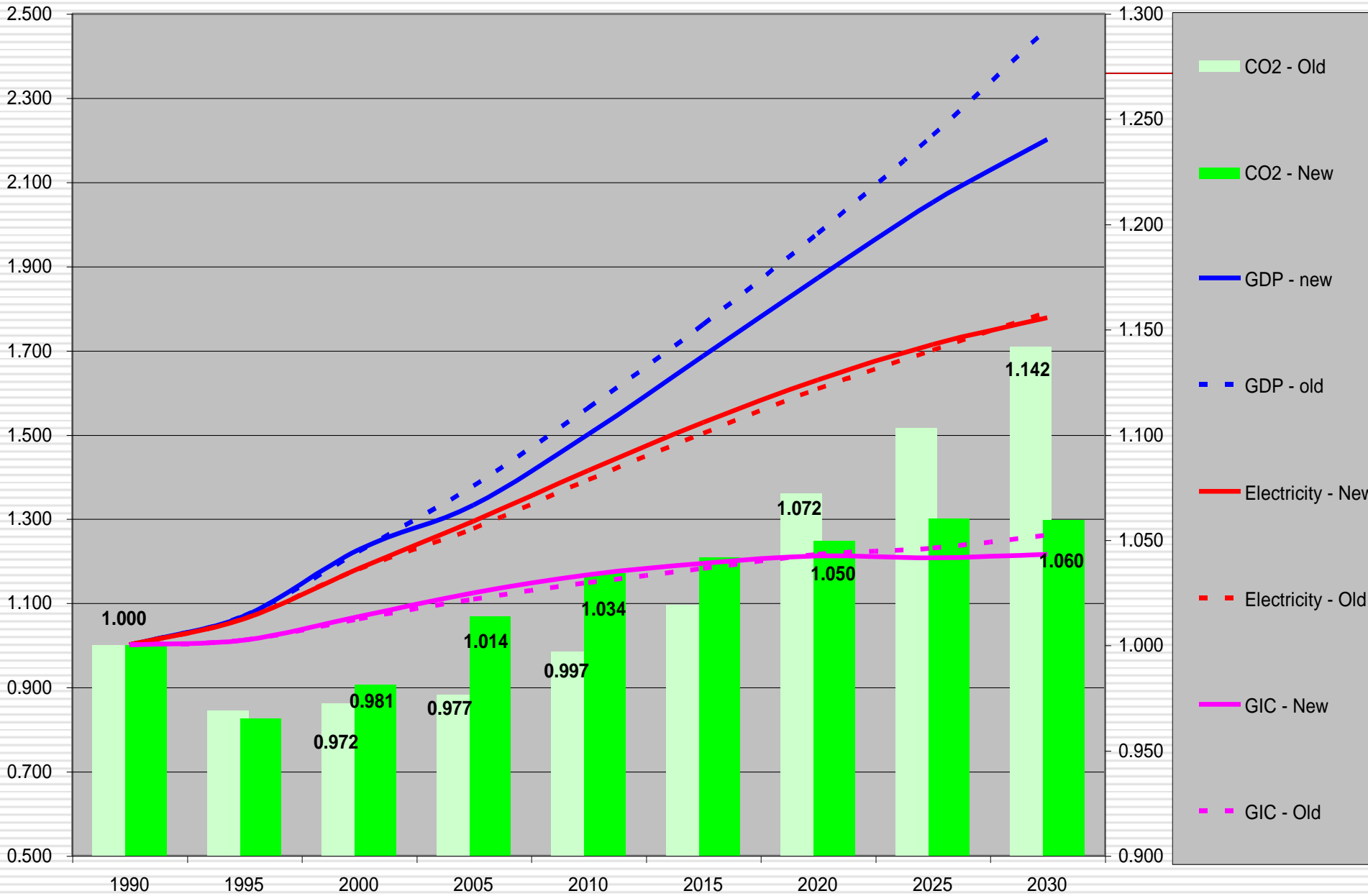
PRIMES model: results for EU 25



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Results for EU25 - PRIMES model



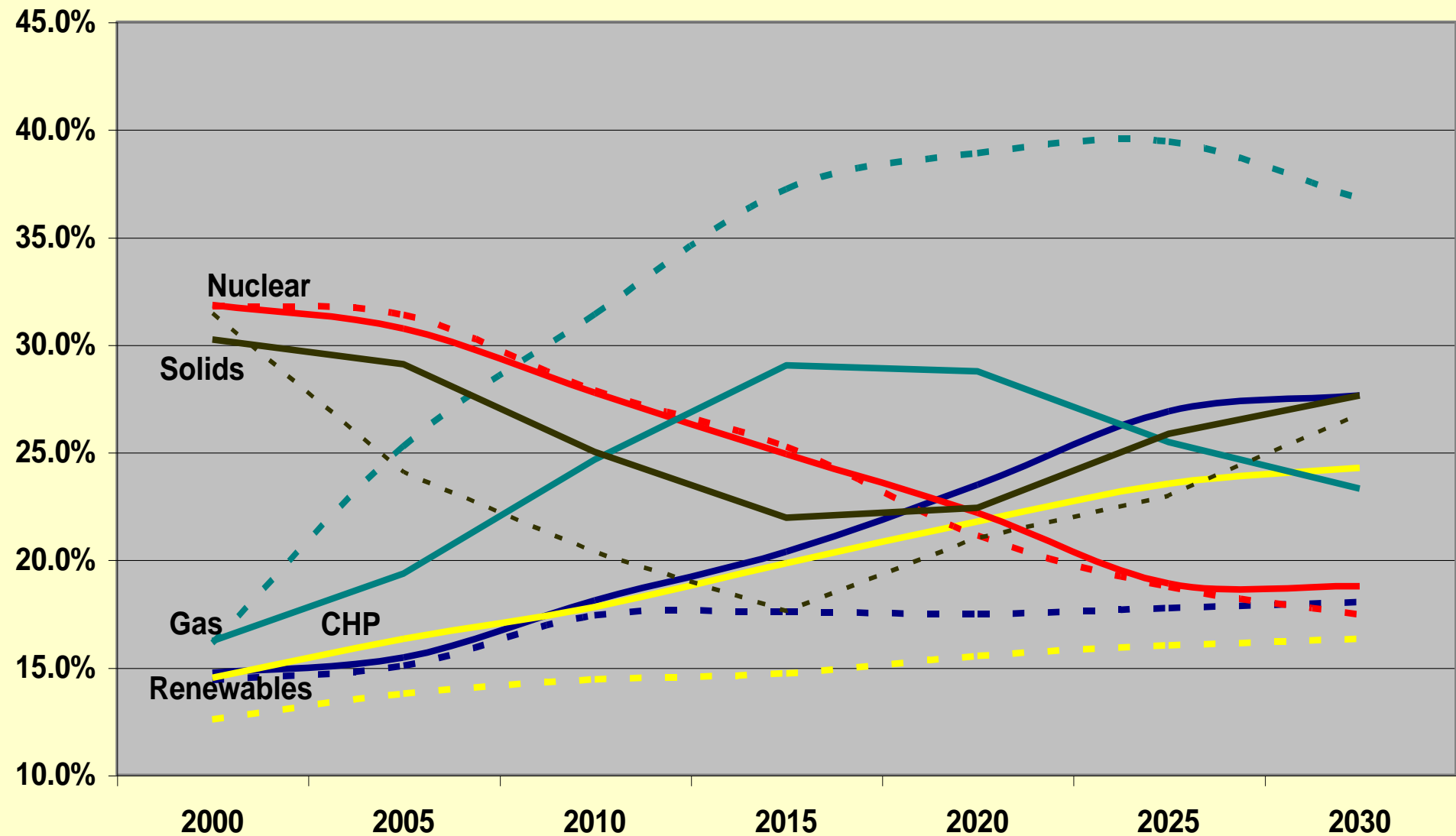
Results for the electricity sector of the EU

PRIMES model

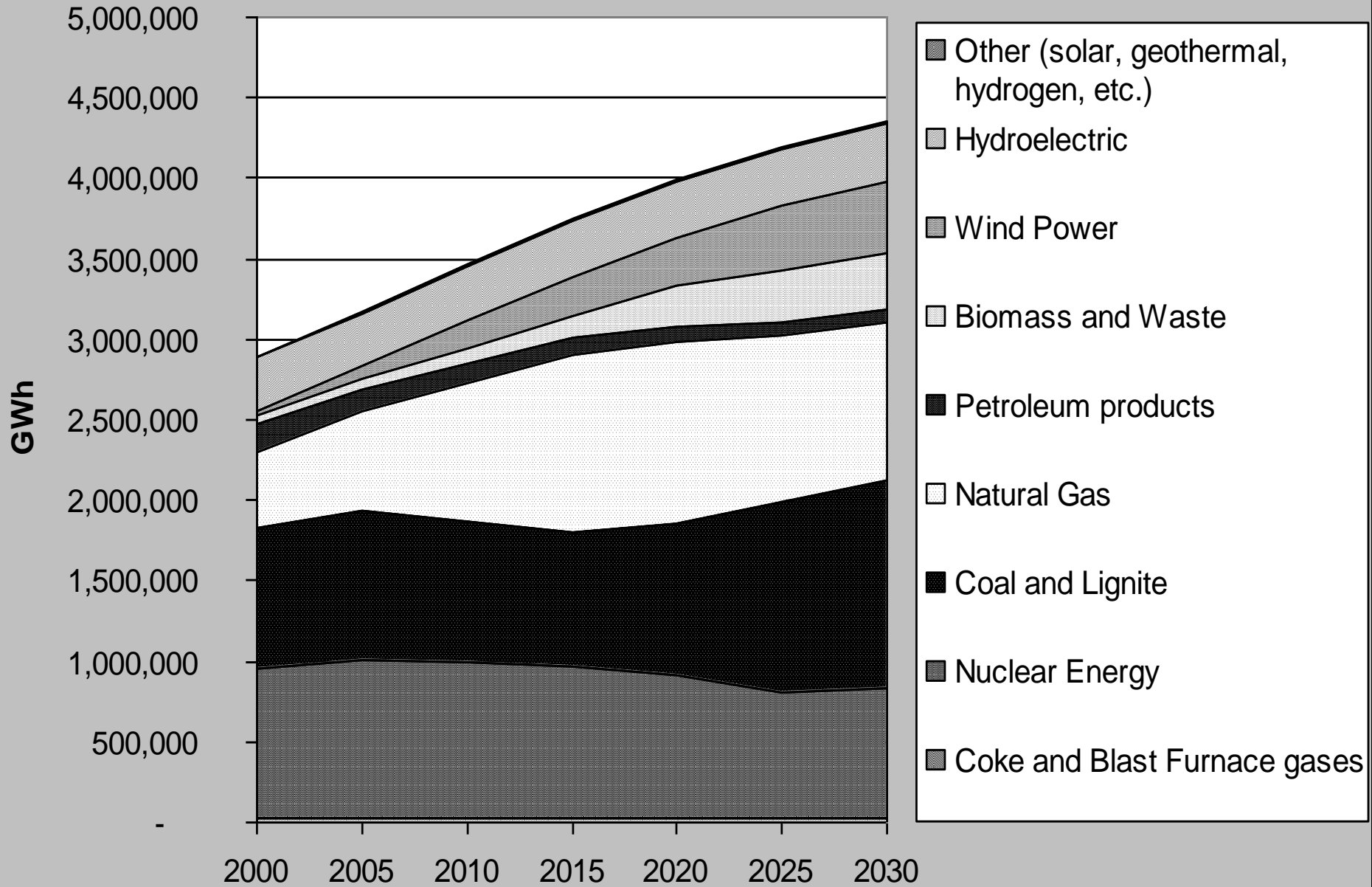
'New' is for the recent baseline

'Old' is for the baseline as in 'Scenarios on Key Drivers' published by DG TREN in 2004

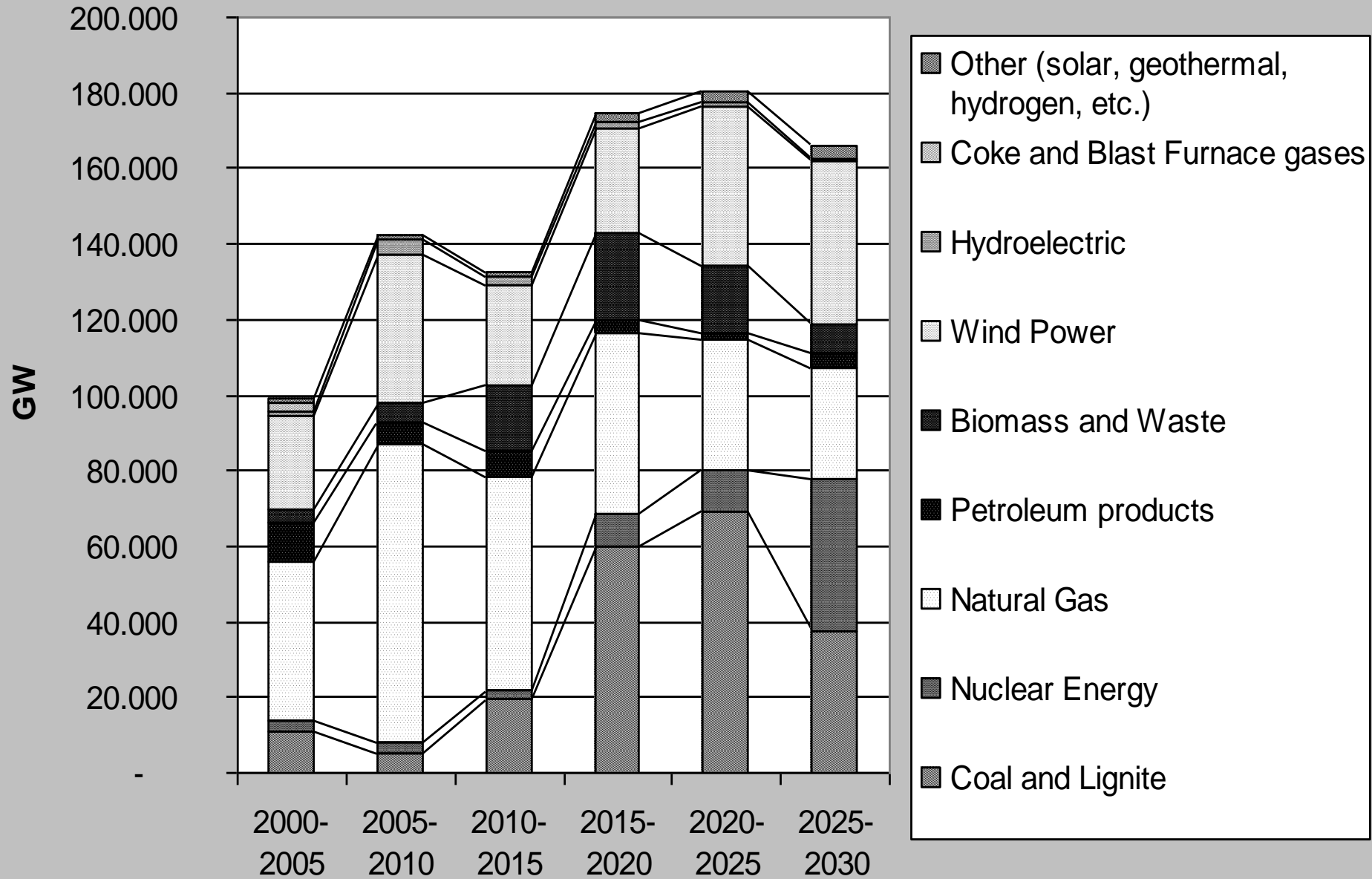
Shares in Power generation (%) - PRIMES model



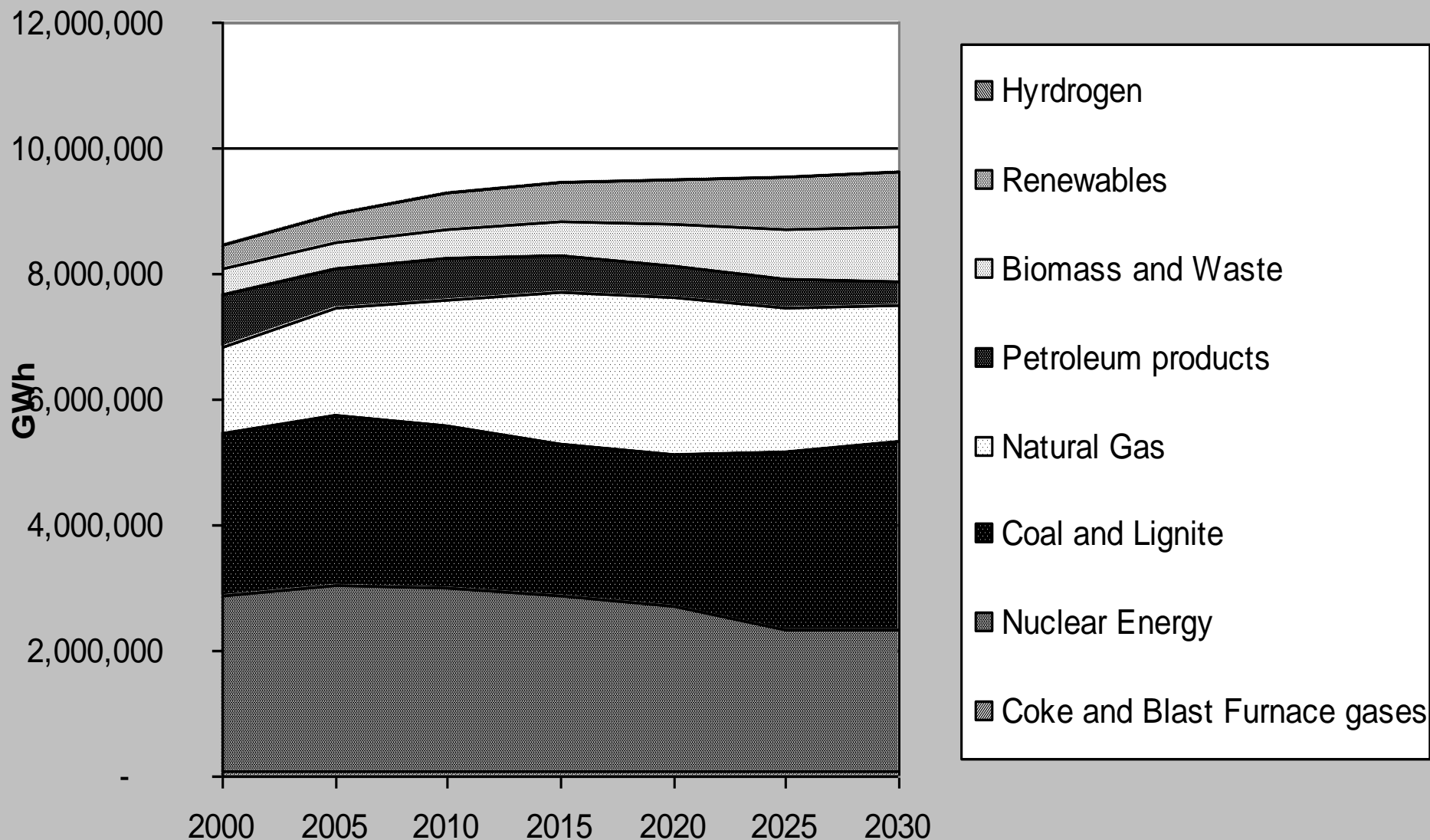
EU25 : Generation of electricity by type



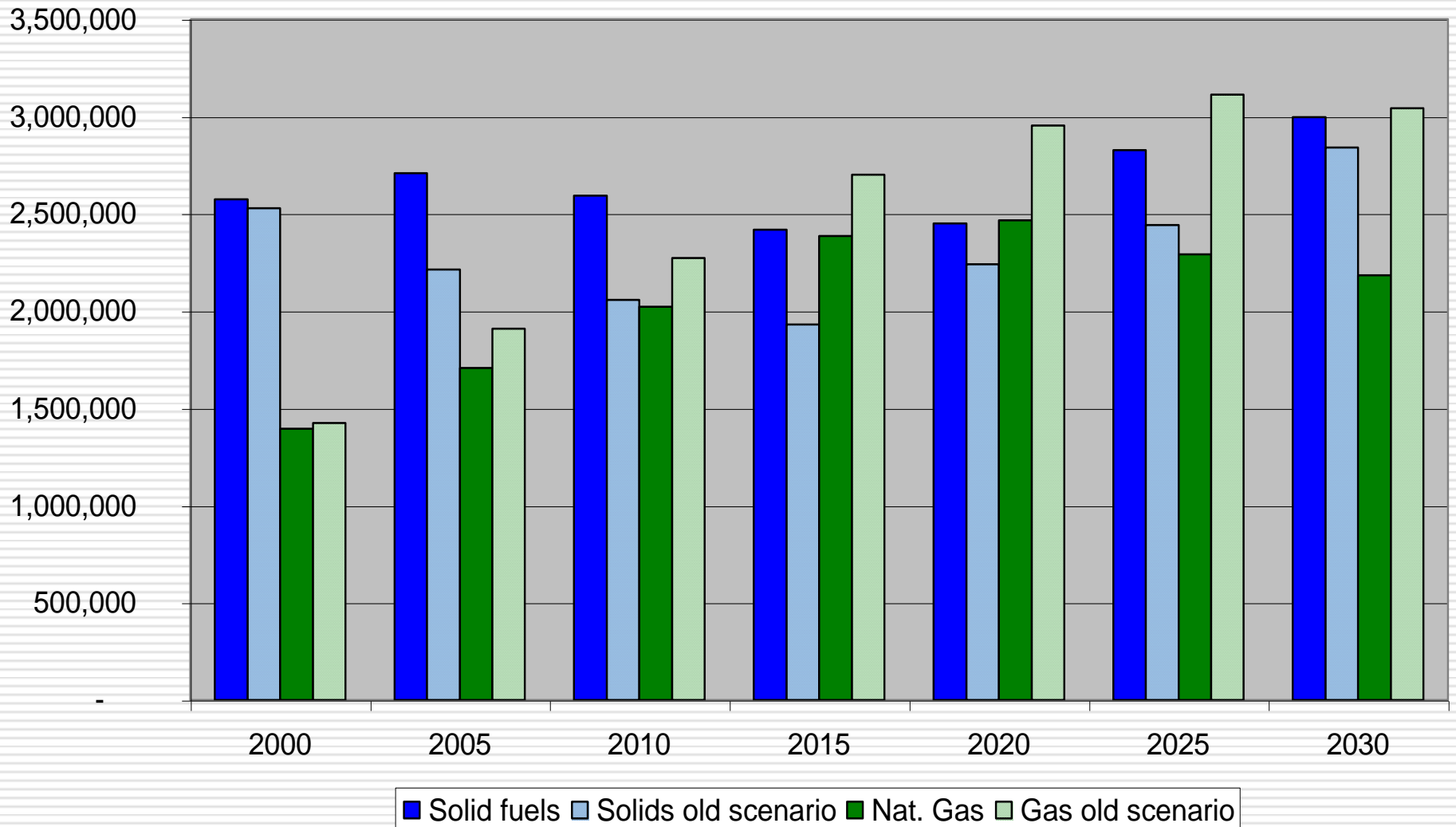
EU25 : New power capacity built by primary energy



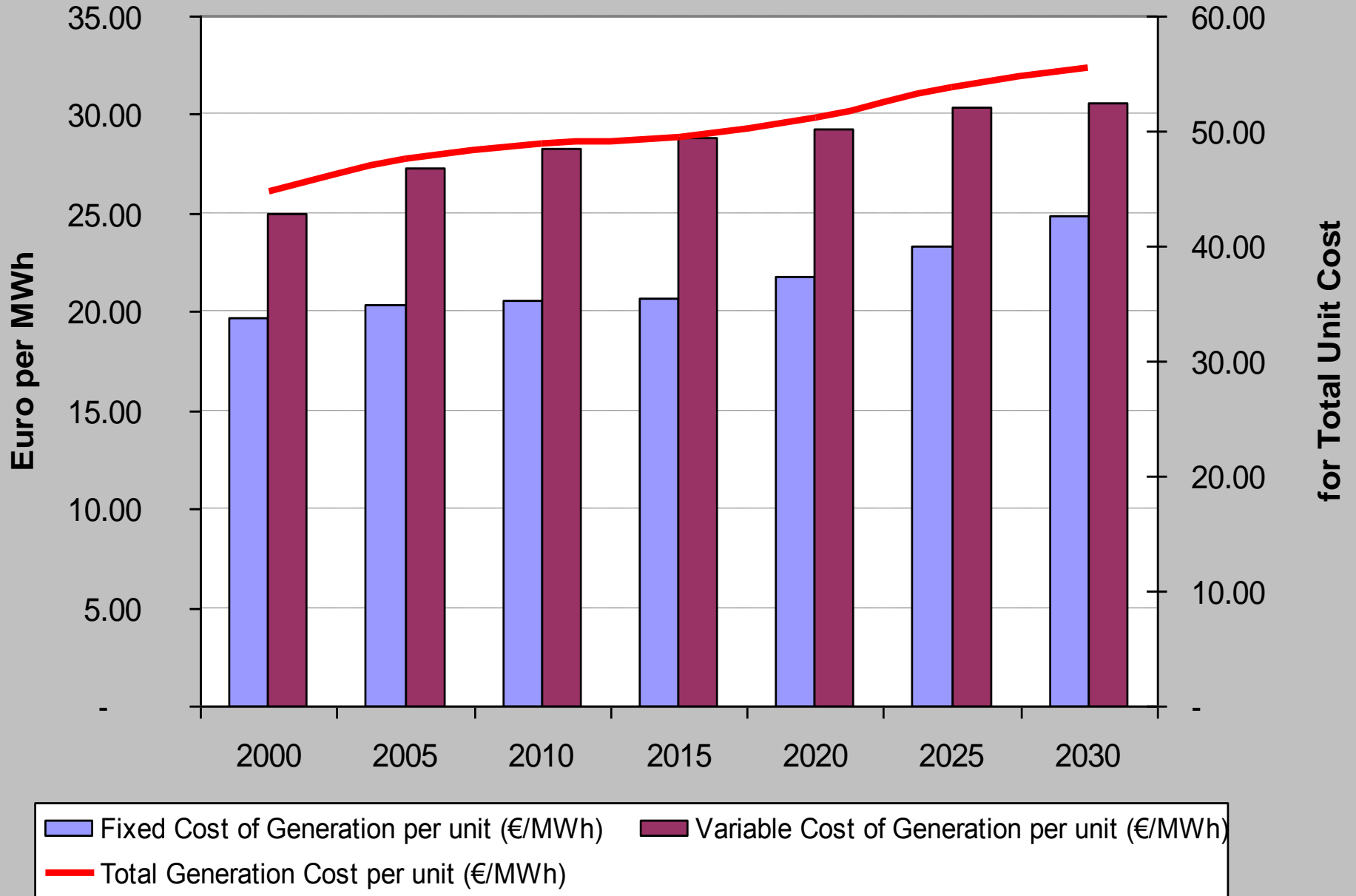
EU25 : Fuel Consumption for electricity and steam



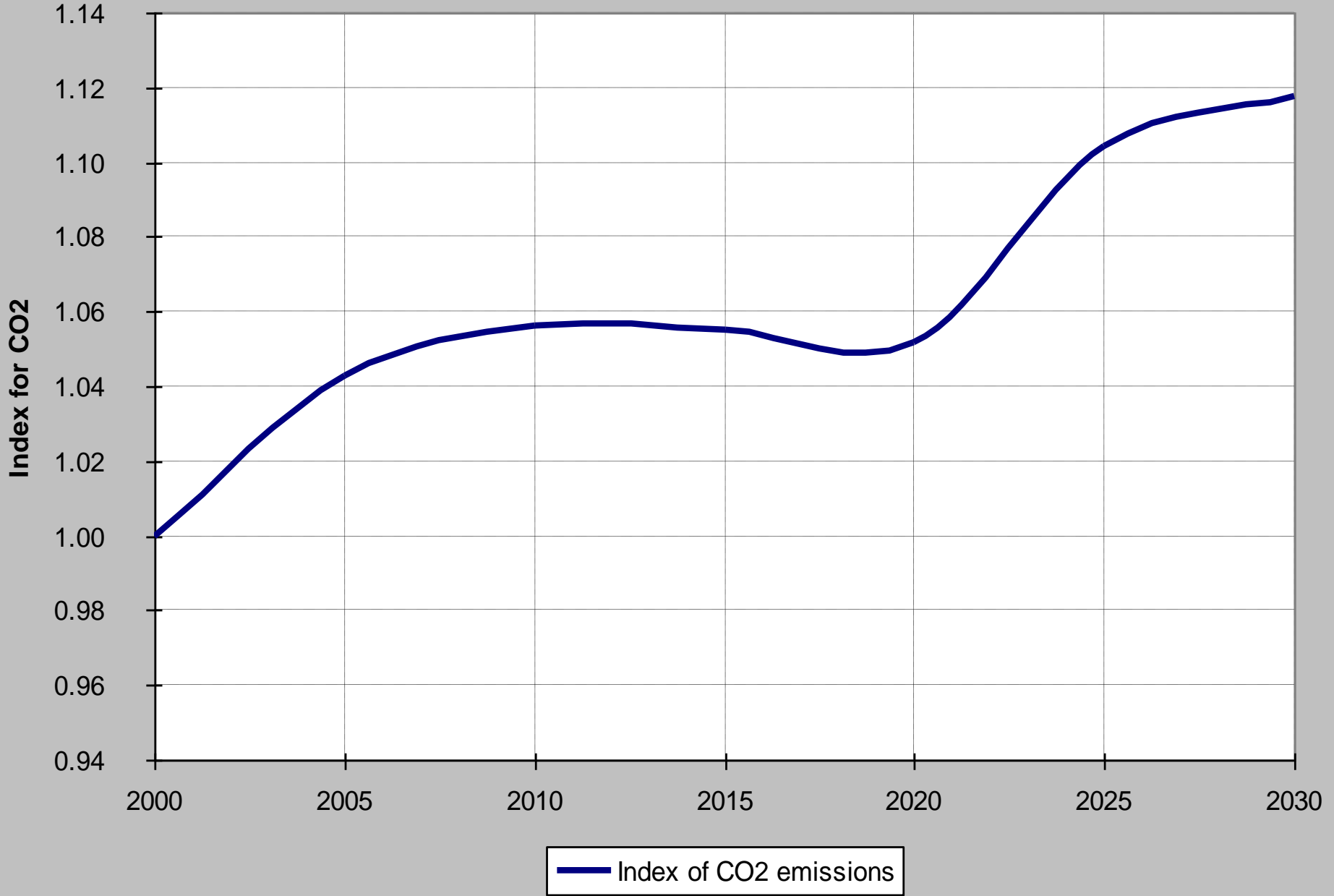
Consumption of Fuels in GWh for Power and Steam



EU25 : Prices and Costs

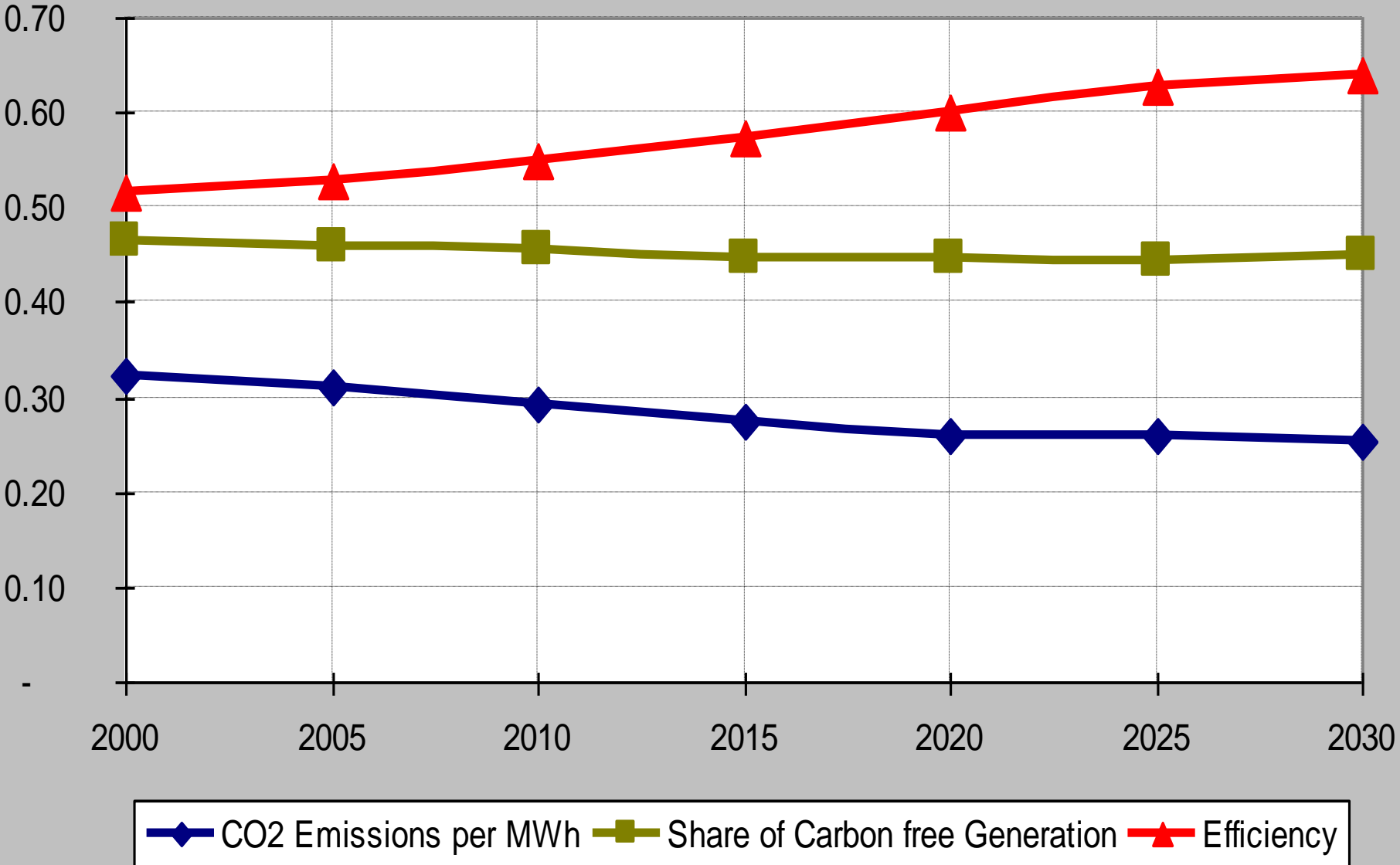


EU25 : Emissions



— Index of CO2 emissions

EU25 : Emissions



Thank you for your attention

Results and publications are diffused
by DG TREN