

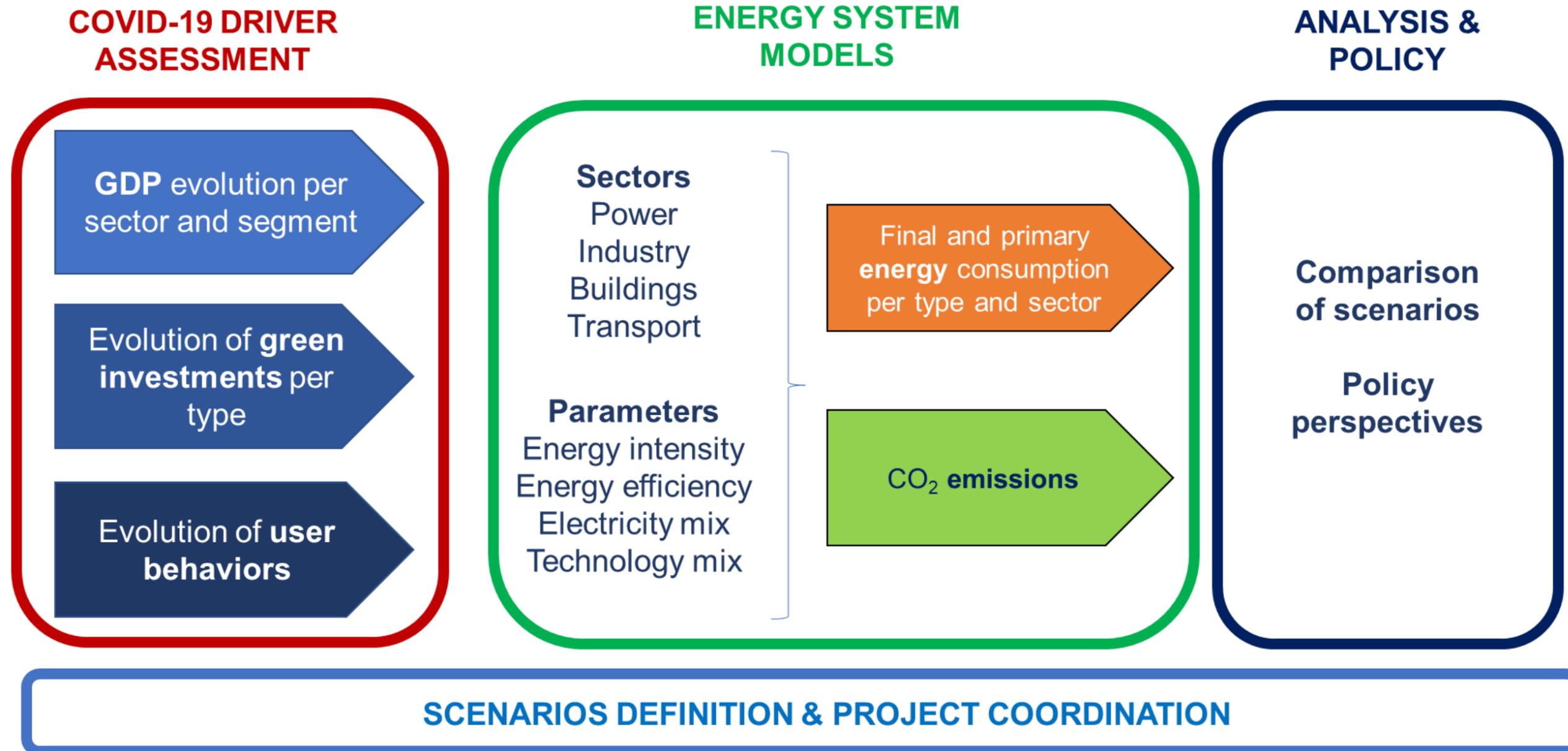
Impact of COVID-19 to Energy systems and the Environment in Italy

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In cooperation with



Modelling concept

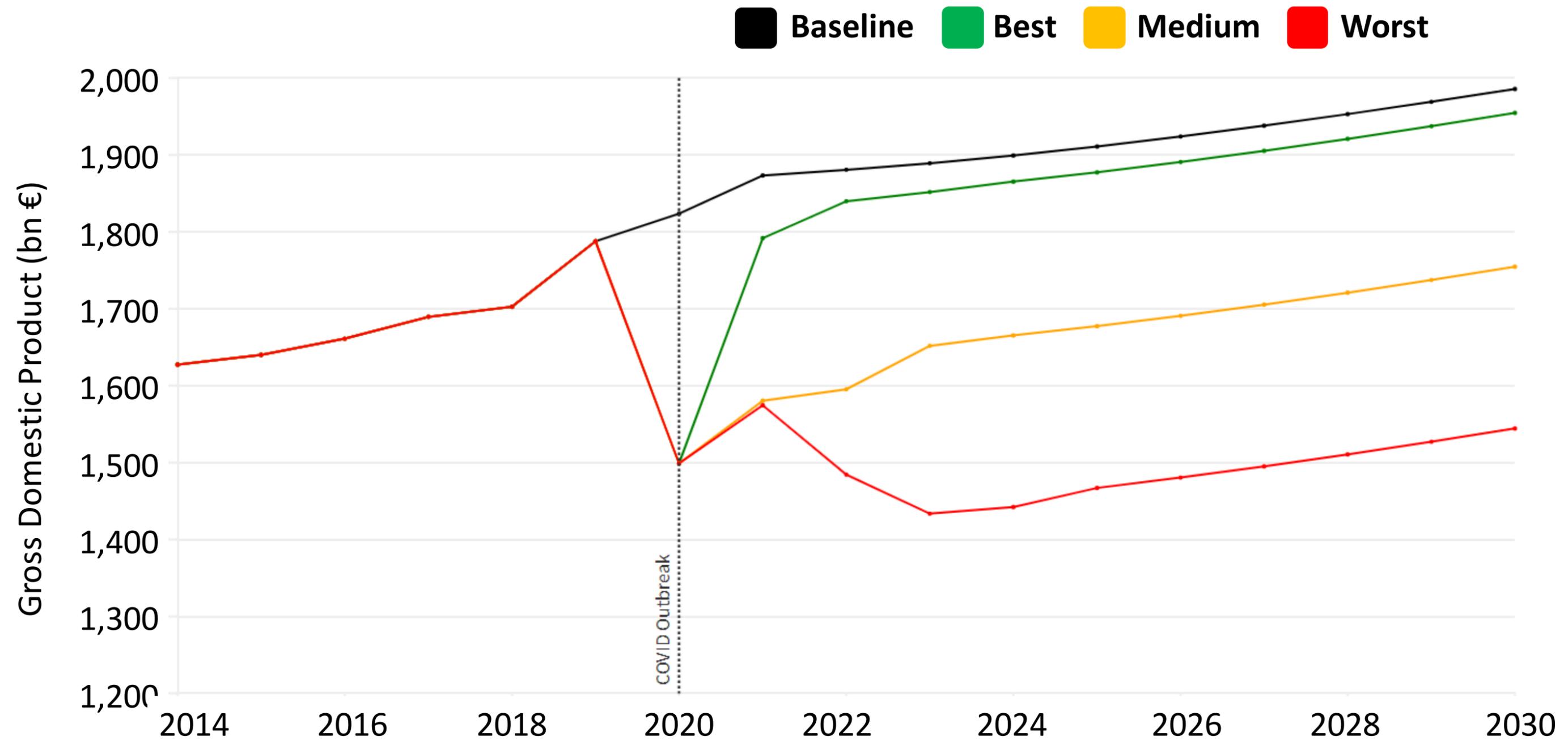


Three different scenarios

The scenarios are based on the moment in time where getting infected by COVID-19 is not a problem anymore (we have a vaccine or a very effective treatment that makes it inoffensive):

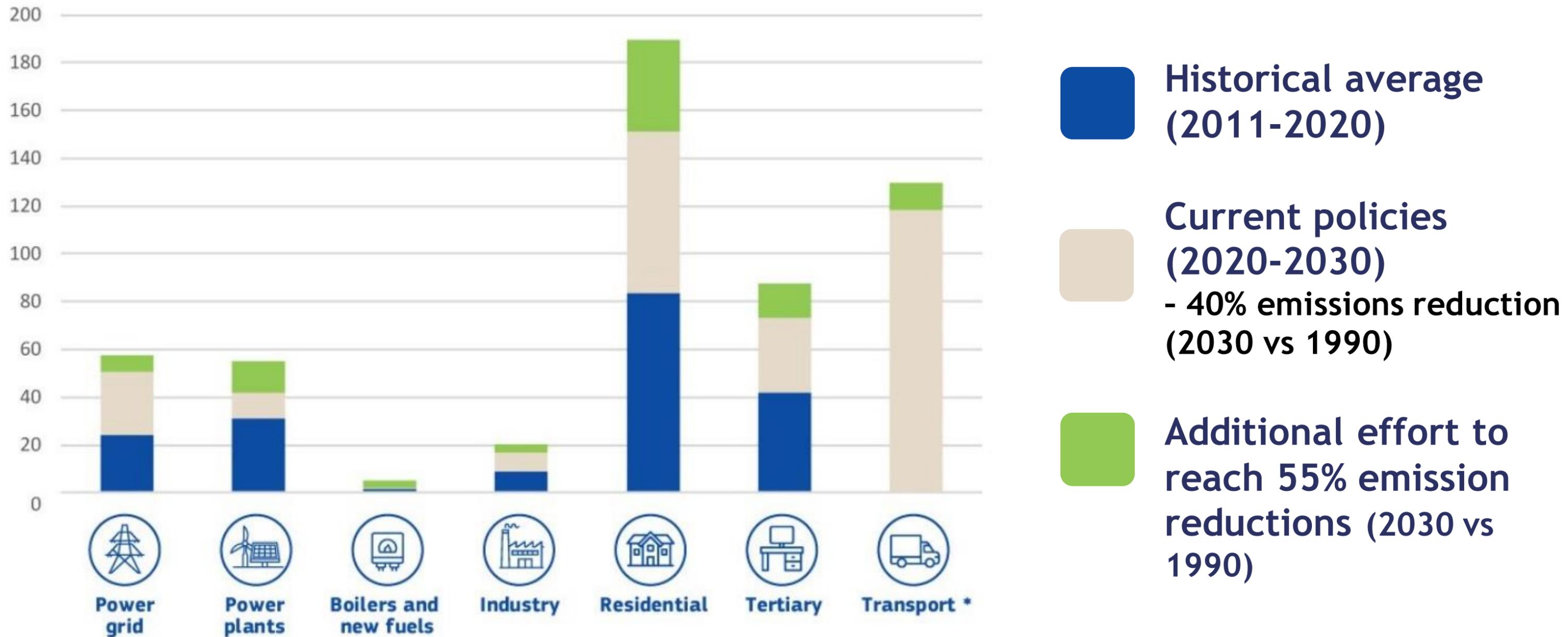
- **Best scenario: 1 year (up to January 2021)**
- **Medium scenario: 2 years (up to January 2022)**
- **Worst scenario: 5 years (up to January 2025)**

Economics: The effects on GDP



Green investments in the EU

Annual average investments in billion euros



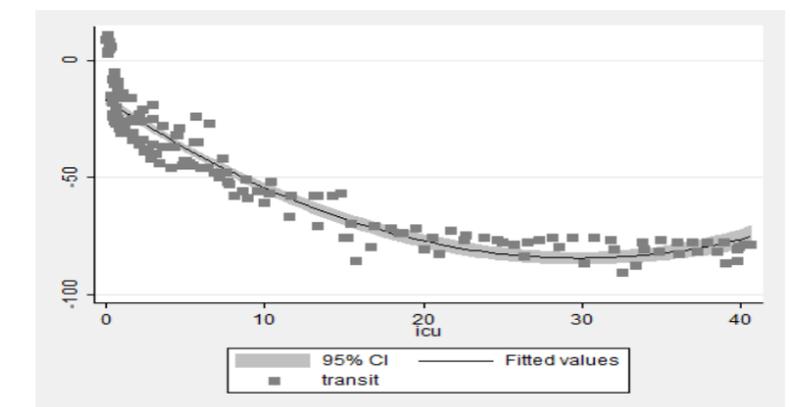
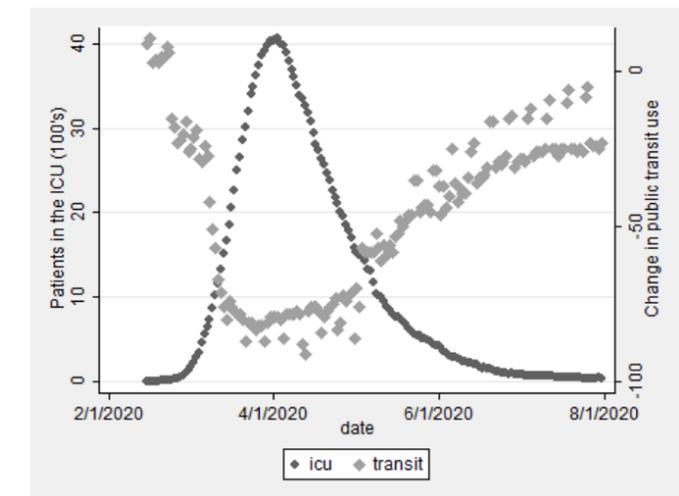
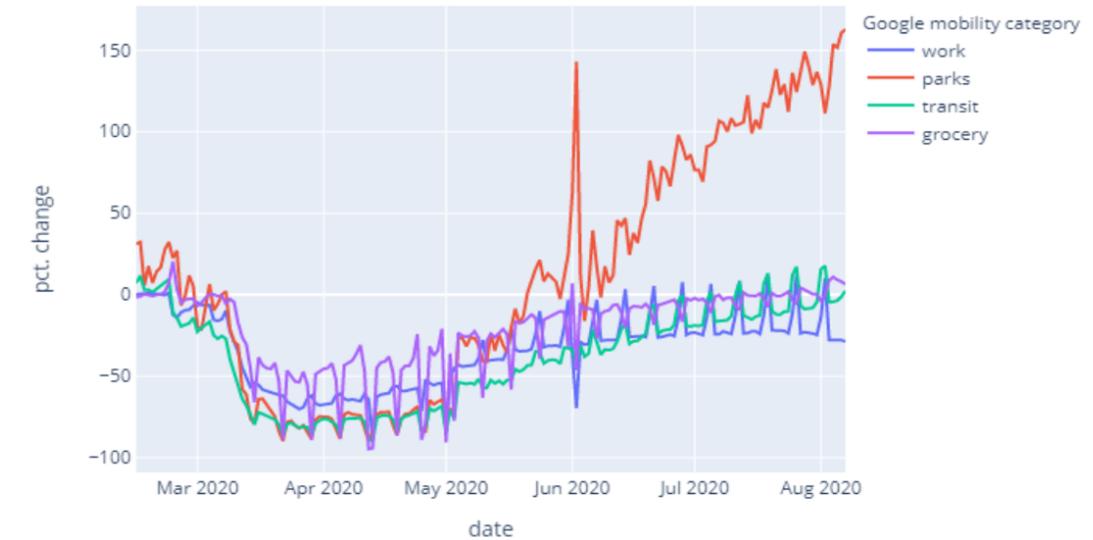
Source: https://ec.europa.eu/commission/presscorner/detail/en/QANDA_20_1598

Behaviours: Transport modelling

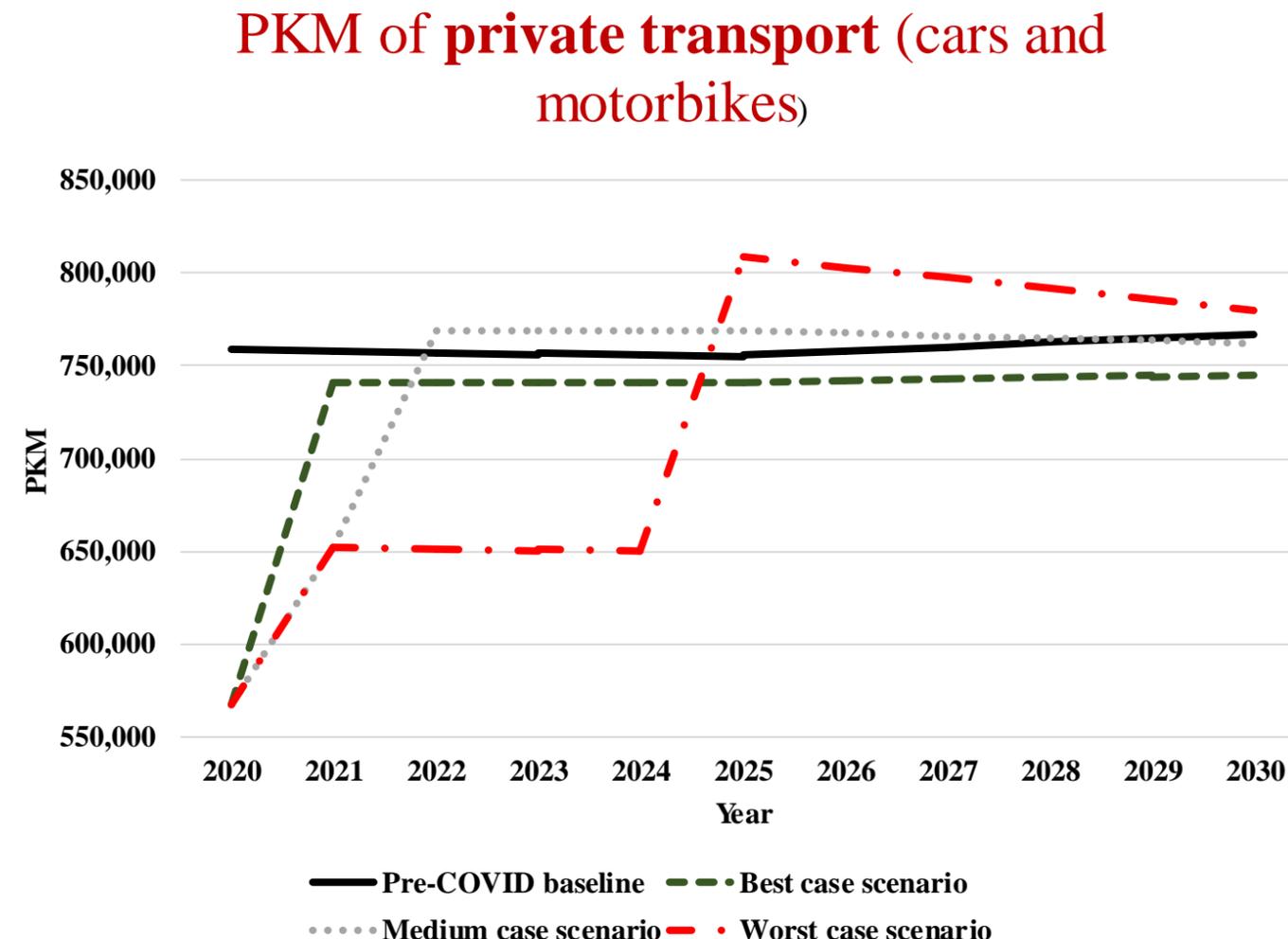
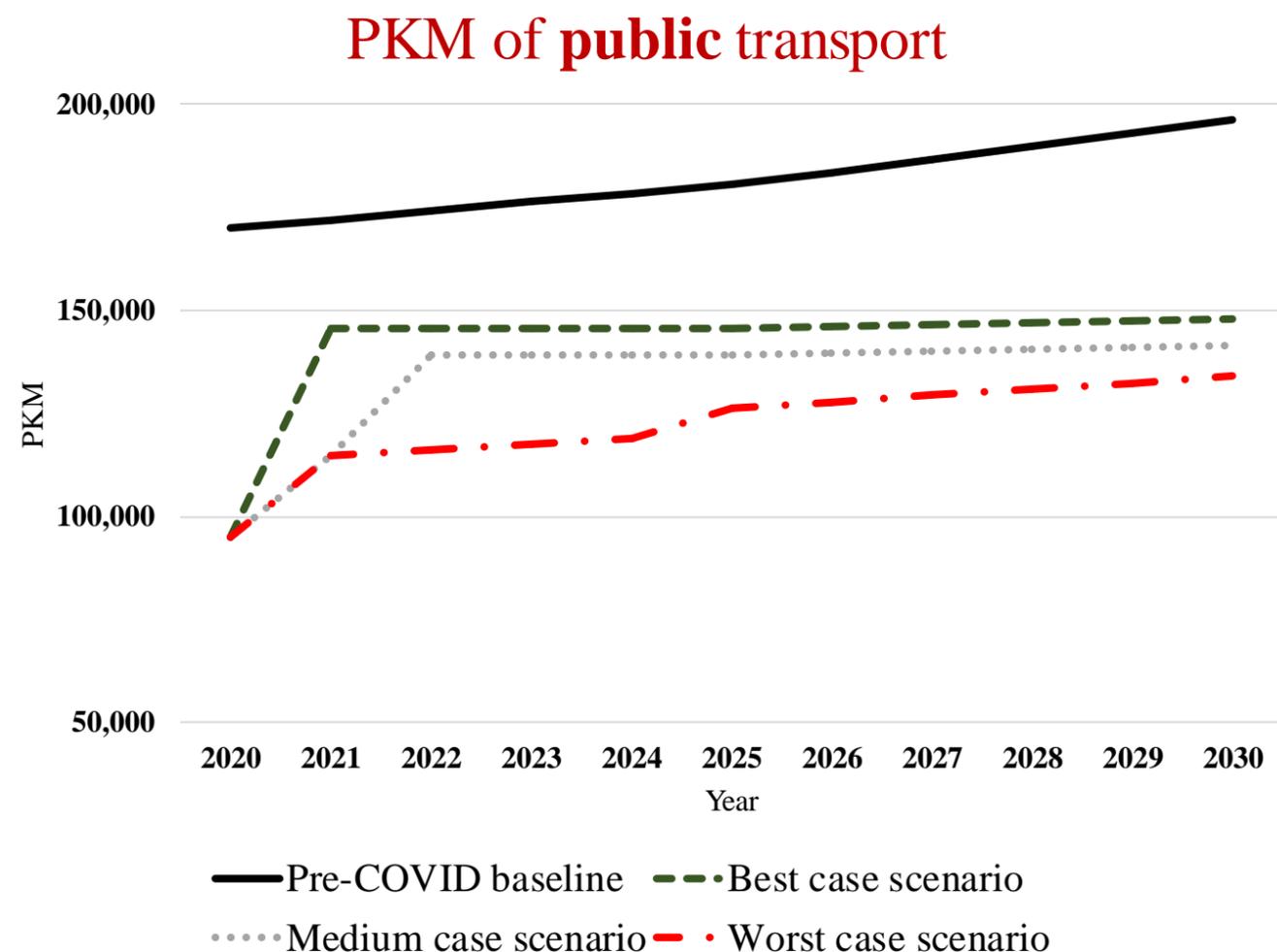
How to account for transport behaviour changes?

The analysis has three distinct parts:

- **Econometric assessment** linking COVID-19 severity, measured by number of patients in the ICU, with the mobility behaviors of Italian citizens as measured through Google Mobility Data.
- **An expert survey** as a foresight exercise to predict the long-term impacts of the pandemic on transport demand.
- **The merging of steps 1 and 2** to produce predictions of PKM values for 4 categories of passenger transport, i.e. **car, motorcycle, public road transport and rail**.



Users' behaviour in transport



- Personal vehicle use will be 2% higher and public transit use will be 30% lower in 2030 than in a situation where the pandemic never happened!
- The longer the pandemic, the greater the expected shift towards less sustainable modes of transportation

Modelling approach

How these drivers affect energy consumption

S_i

INPUT DATA

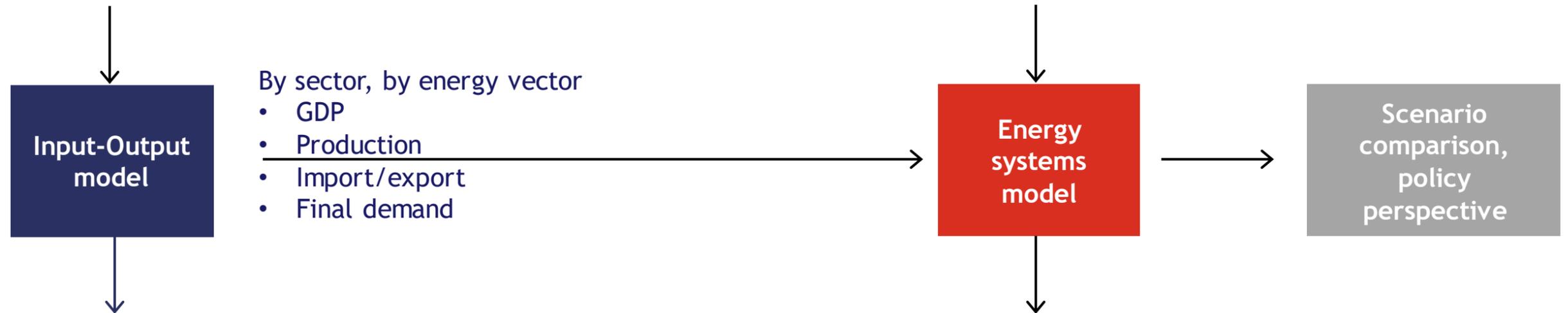
Covid-19 driver assessment

- Labor force and capital availability by sector
- Evolution of green investments
- Change in consumers' behavior

Covid-19 driver assessment

- Green investments (electricity mix)
- Change in transport use preferences

MODELLING STAGES



- By sector, by energy vector
- GDP
 - Production
 - Import/export
 - Final demand

RESULTS

For every scenario

- Energy use by sector, by energy vector
- Emissions by sector, by energy vector

CROSS-CHECK

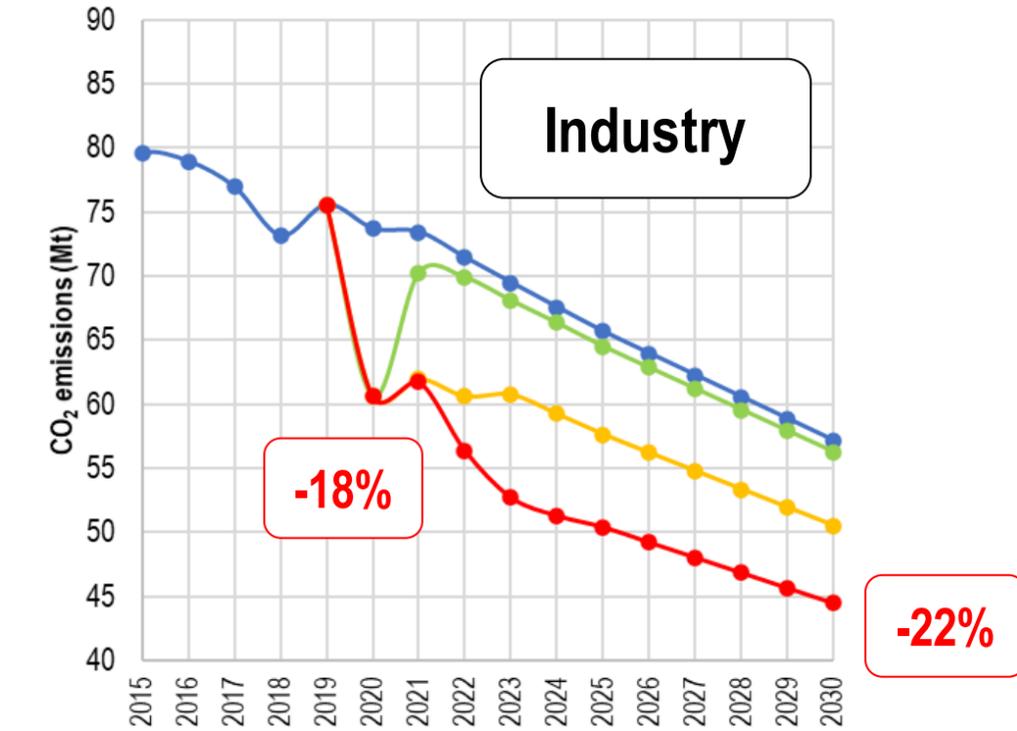
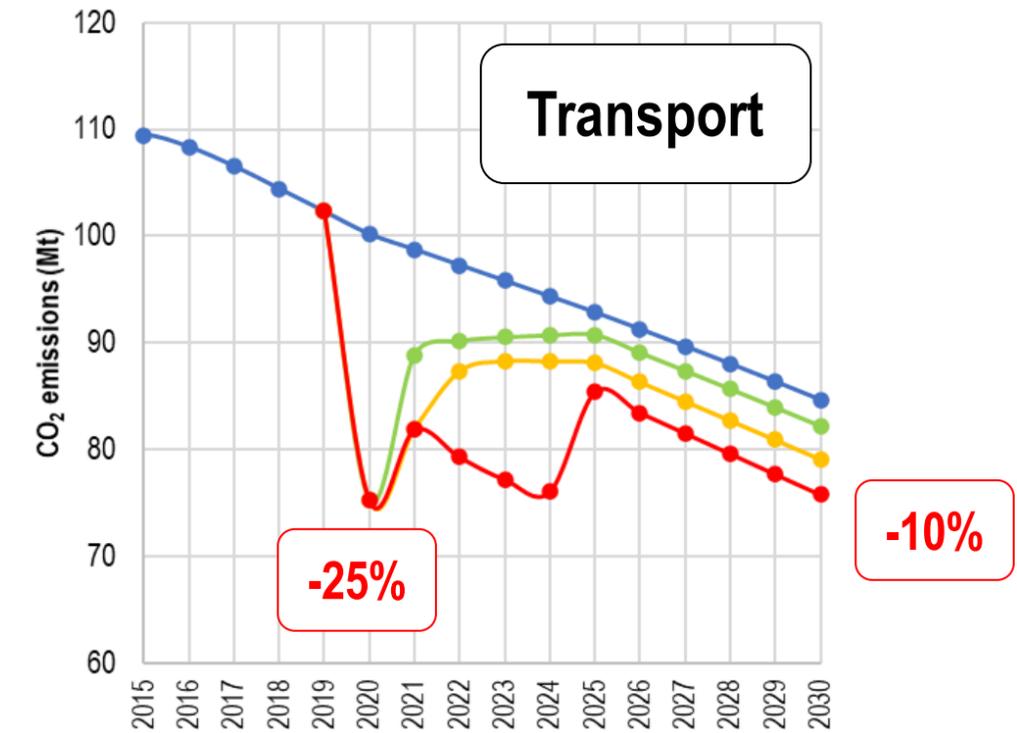
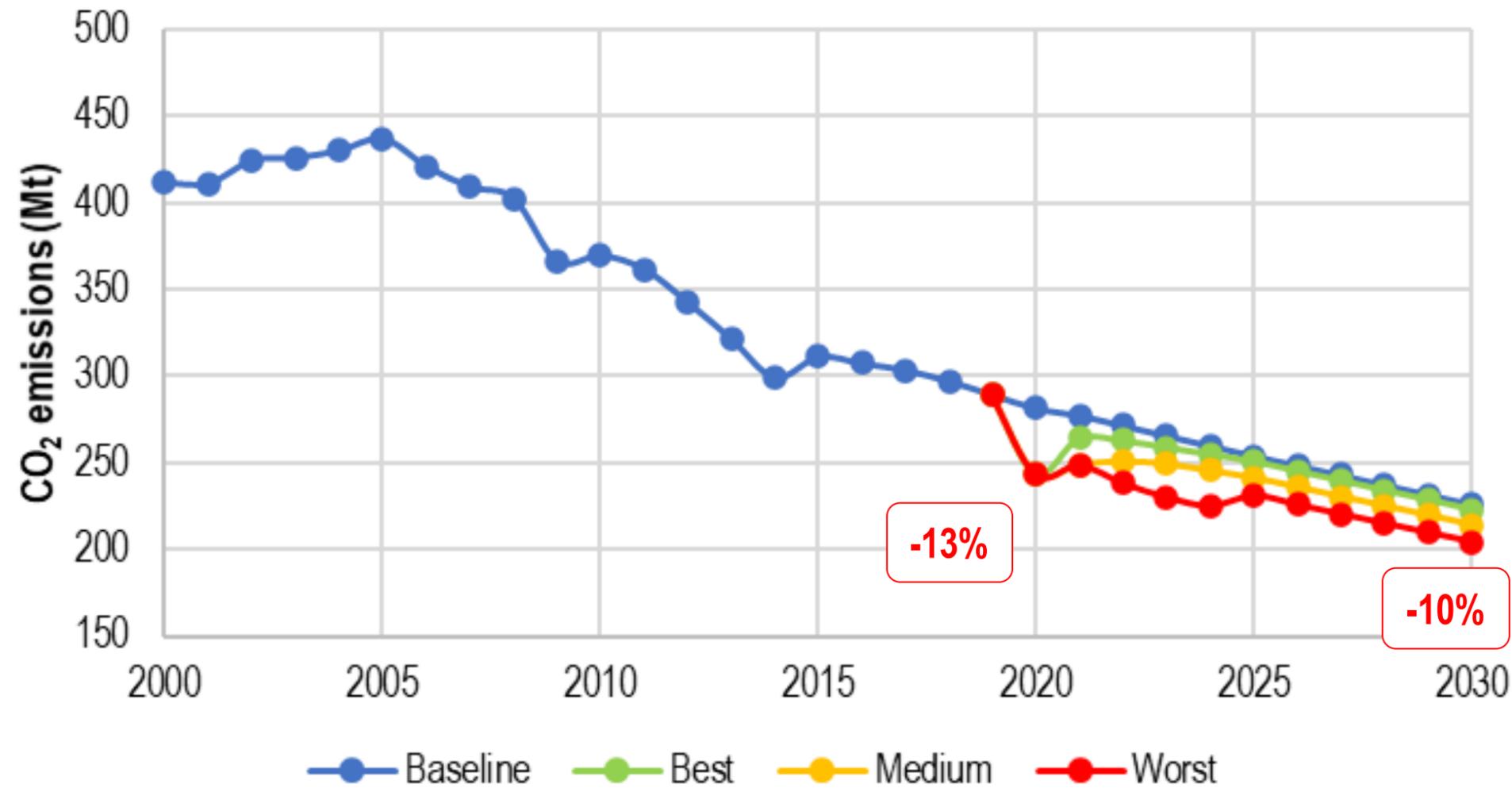
For every scenario

- Energy use by technology, by energy vector
- Emissions by technology, by energy vector

Preliminary Results

The effect on energy-related emissions

Italy - CO₂ emissions from the energy system



Promote public policies to:

- Verify that **green investments** will support the expected results, by developing proper measures towards energy efficiency and low-carbon technologies;
- **Innovative technologies and digital solutions** are needed to support a recovery of future GDP in European countries;
- Dedicated policies will be needed to support **active transport** in urban environments, to limit the expected increase in private transport.

This work can be **replicated** for any other European country and for the EU as a whole

Thank you !

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