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Consumption-based Accounting and Policy

Impacts of the consumption-based improvement options on the EU economies and beyond

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7th November 2016

COP22, Marrakesh

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Tasks

1. Consumption-based climate policy scenario modelling including the base case (reference) scenario
2. Using three different macroeconomic models
3. Harmonising the data in these models
4. Defining baseline and policy scenarios and related inputs for the scenario modelling
5. In-depth analysis and synthesis of outputs of the models

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Models

- **FIDELIO** (IPTS, Spain) a dynamic econometric input-output model based on Eurostat's supply and use tables and the WIOD
- **EXIOMOD** (TNO, Netherlands) a Global Computable General Equilibrium (CGE) model based on detailed EXIOBASE MREEIO
- **E3ME** (Cambridge Econometrics, UK) macroeconometric energy-environment-economy (E3) model

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Scenarios

Scenarios 2020- 2050:

- Reference scenarios
  - IEA WEO 2014 **current policies** (baseline)
  - IEA WEO 2014 **current policies +** Paris COP21 pledges – **NDCs** – one model (E3ME) only

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Consumption based scenarios

Scenarios 2020- 2050:

- **Buildings with 2 sub-scenarios**
- **Transport with 8 sub-scenarios**
- **Food with 2 sub-scenarios**

Run one-by-one and all together for each of the EU MS (including the UK)

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Modelling outputs

Scenarios 2020 - 2050 will give us changes in

- sectoral outputs,
- changes in GDP,
- employment,
- trade,
- CO_2 and CH_4 emissions

in the EU, in the rest of the world and globally

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Scenarios

Scenarios 2020- 2050:

- **Food**

1) Reduce over purchasing and food waste

2) Shift from meat to veggie
Less dairy
Less food with low nutritional value

3) = 1) + 2)

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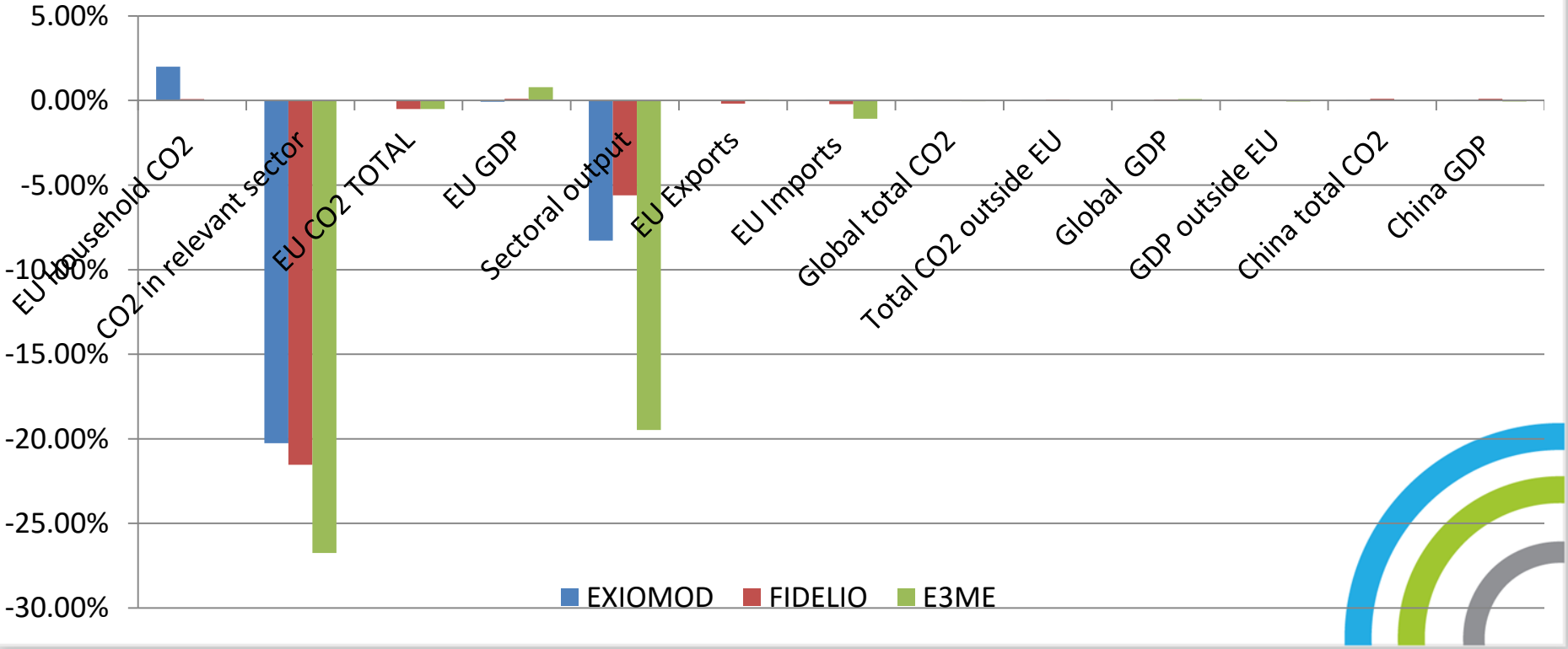
Scenarios

Impact of the food scenarios in 2050, % change from the IEA current policies scenario, maximum uptake



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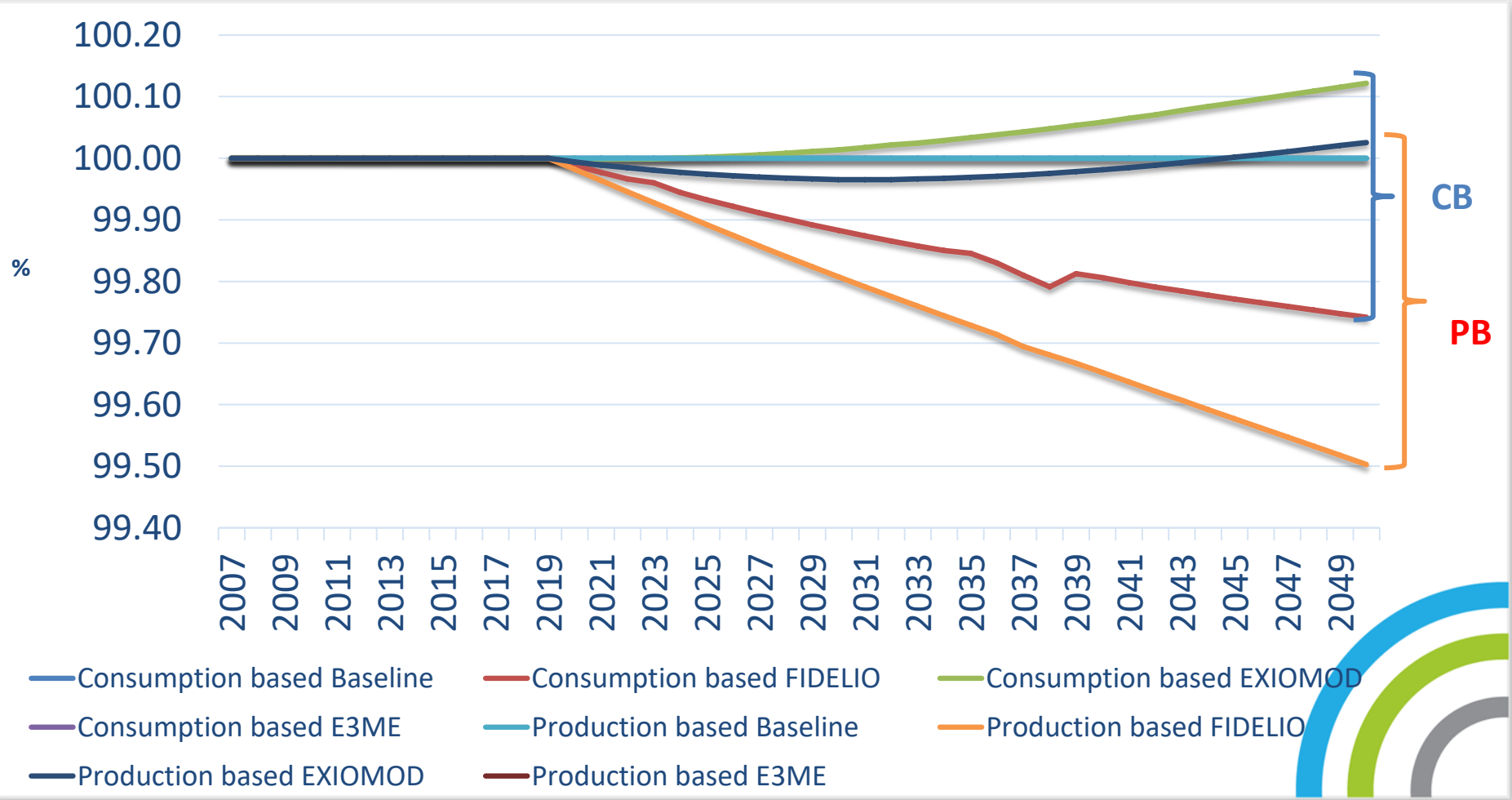
Food scenario EU emissions



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Scenarios

Scenarios 2020- 2050:

- **Food improvement options pickup rates (%)**

SCENARIO	2020	2030	2050
Food (less waste only)	0	35	50
Food (less meat/dairy/low nutritional food)	0	15	25

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Scenarios

Scenarios 2020- 2050:

- **Buildings**

1) Zero-emission houses/Passive houses plus
Use timber-frame constructions instead of concrete or steel framed constructions

2) Thermal insulation of houses (New sealings to reduce ventilation, additional facade insulation, additional roof insulation, replacement of windows)

3) = 1)+2)

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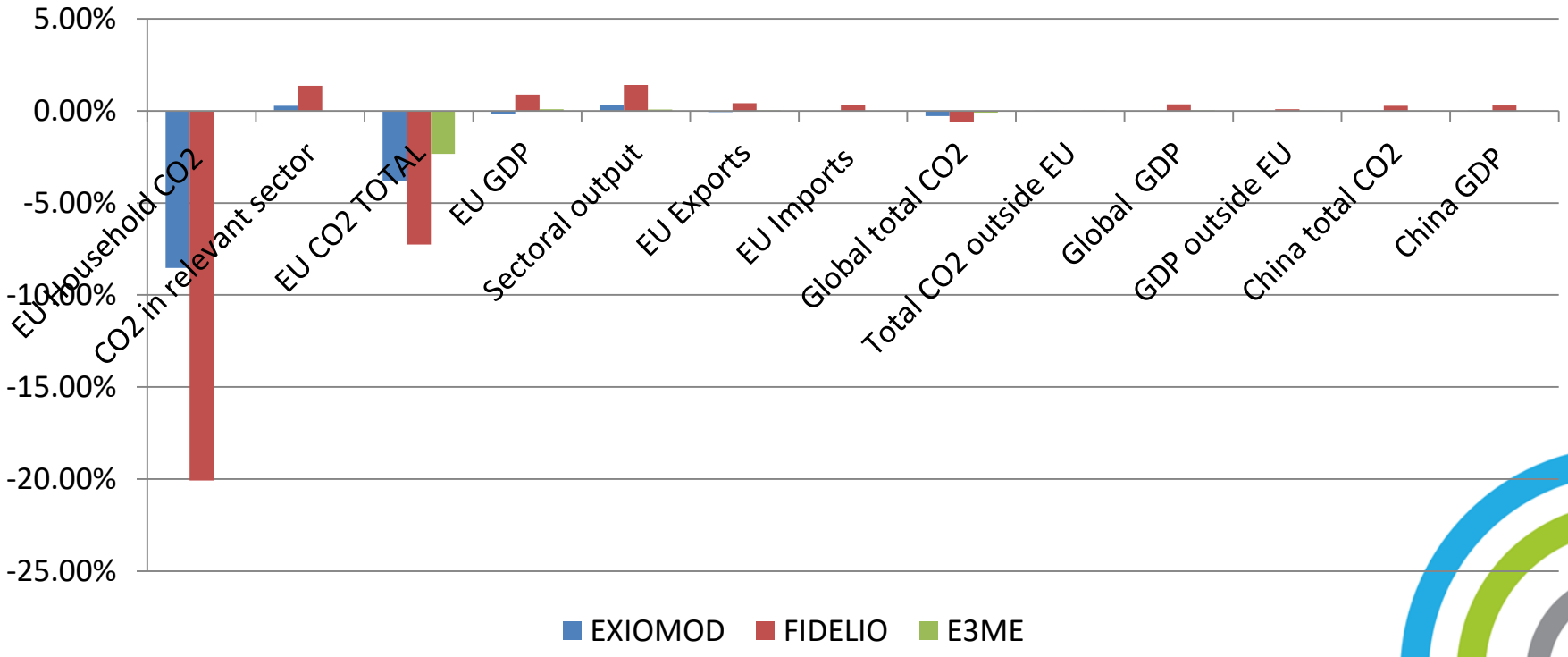
Scenarios

Impact of the building scenarios in 2050, % change from the IEA current policies scenario



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Scenarios

Scenarios 2020- 2050:

- **Transport**

1) Electric (BEV) and hydrogen (FCEV)

Reduction of cars per households/car sharing

Car pooling

Shift to public transport

Lighter cars

Cars from recycled materials

2) Reduced air travel

3) = 1) + 2)

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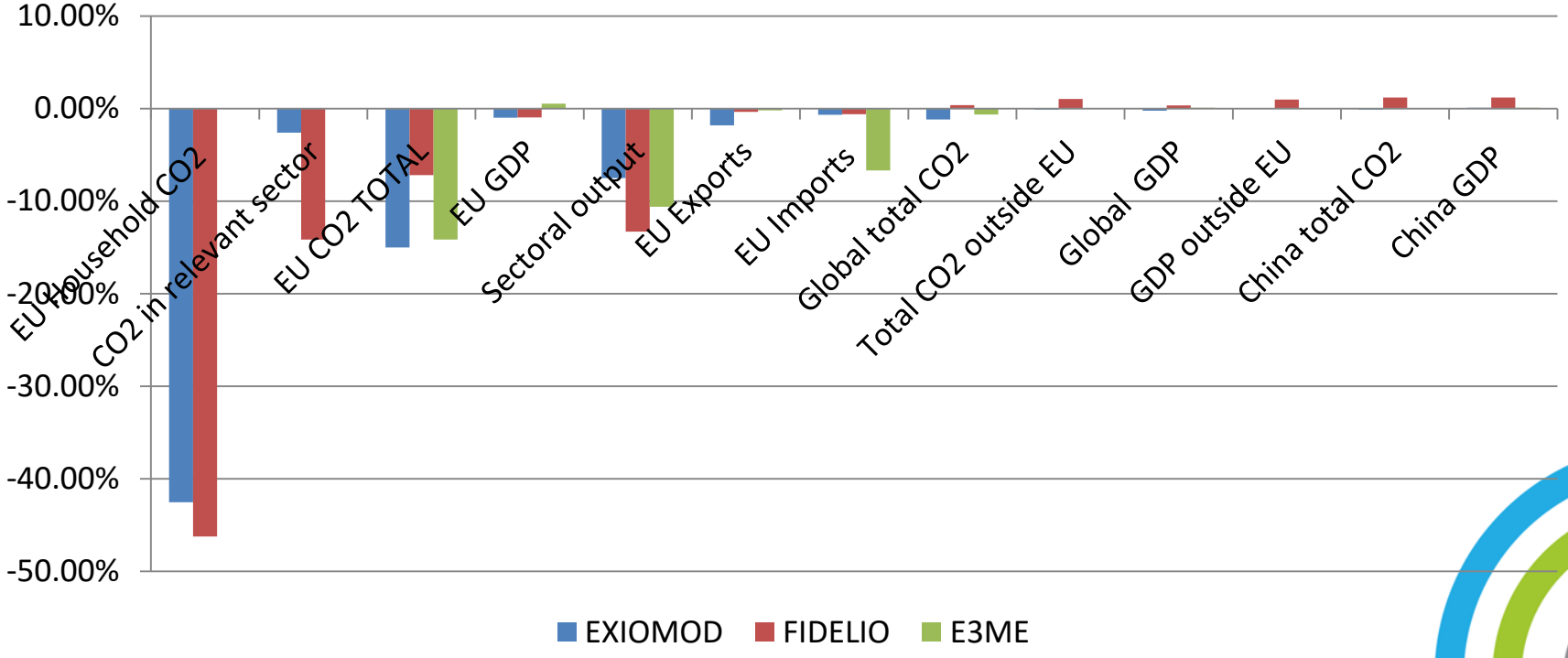
Scenarios

Impact of the transport scenarios in 2050, % change from the IEA current policies scenario



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Conclusions

1) Food options EU level CO_2 emissions reductions insignificant, reductions in CH_4 add value (ca 3-4% CO_2eq in 2050)
2) EU CO_2 emission reductions (15-19% in 2050) vastly user emission reductions (50-60% of direct household emissions) – transport and buildings *i.e.* reduction in emissions related to domestic consumption
3) Economic impacts small but some negative industry specific impacts that are compensated by increase in output in other sectors

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Thank You!

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Food scenario EU emissions EXIOMOD