



**Advanced Model Development and Validation for the
Improved Analysis of Costs and Impacts of Mitigation Policies**

Transformations on the demand side:

Transport, buildings, industry,
efficiency

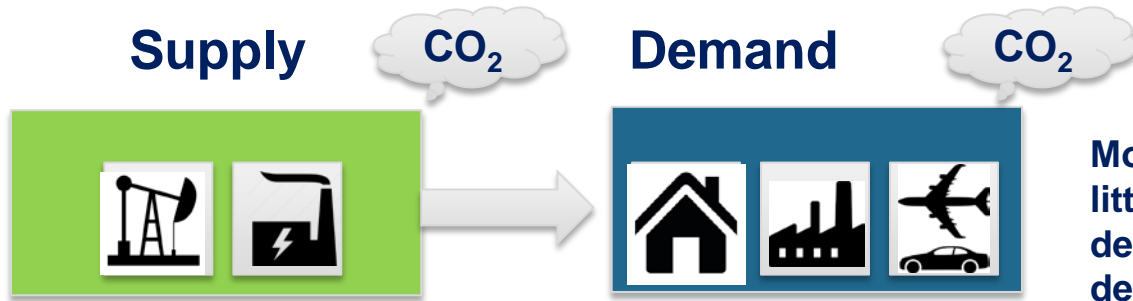
Brussels, 24 October 2016

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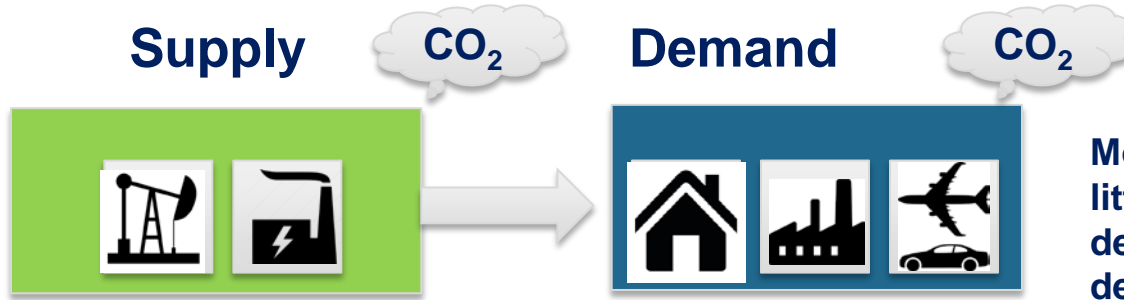
The research leading to these results has received funding from the European Union's Seventh Framework Programme [FP7/2007-2013] under grant agreement n° 308329

Importance of understanding energy demand trends

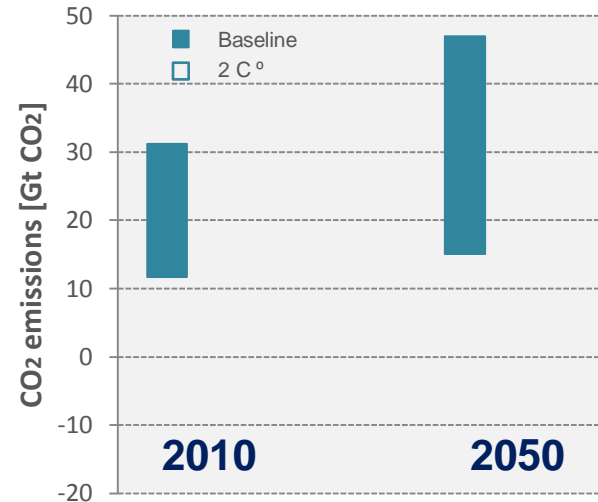
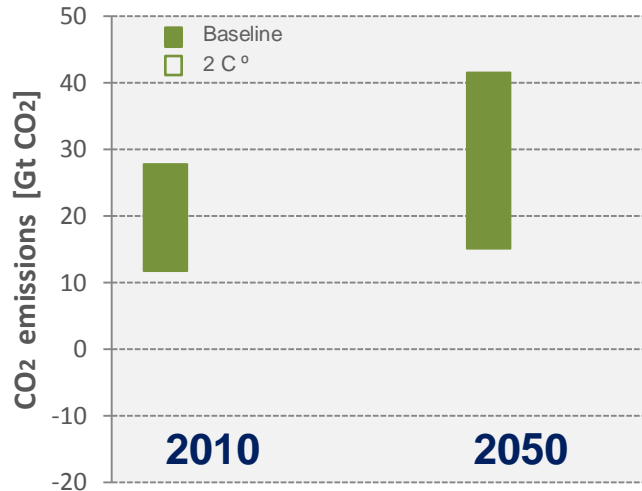


Most models have relatively little detail in energy demand, compared to great detail in energy supply.

Importance of understanding energy demand trends

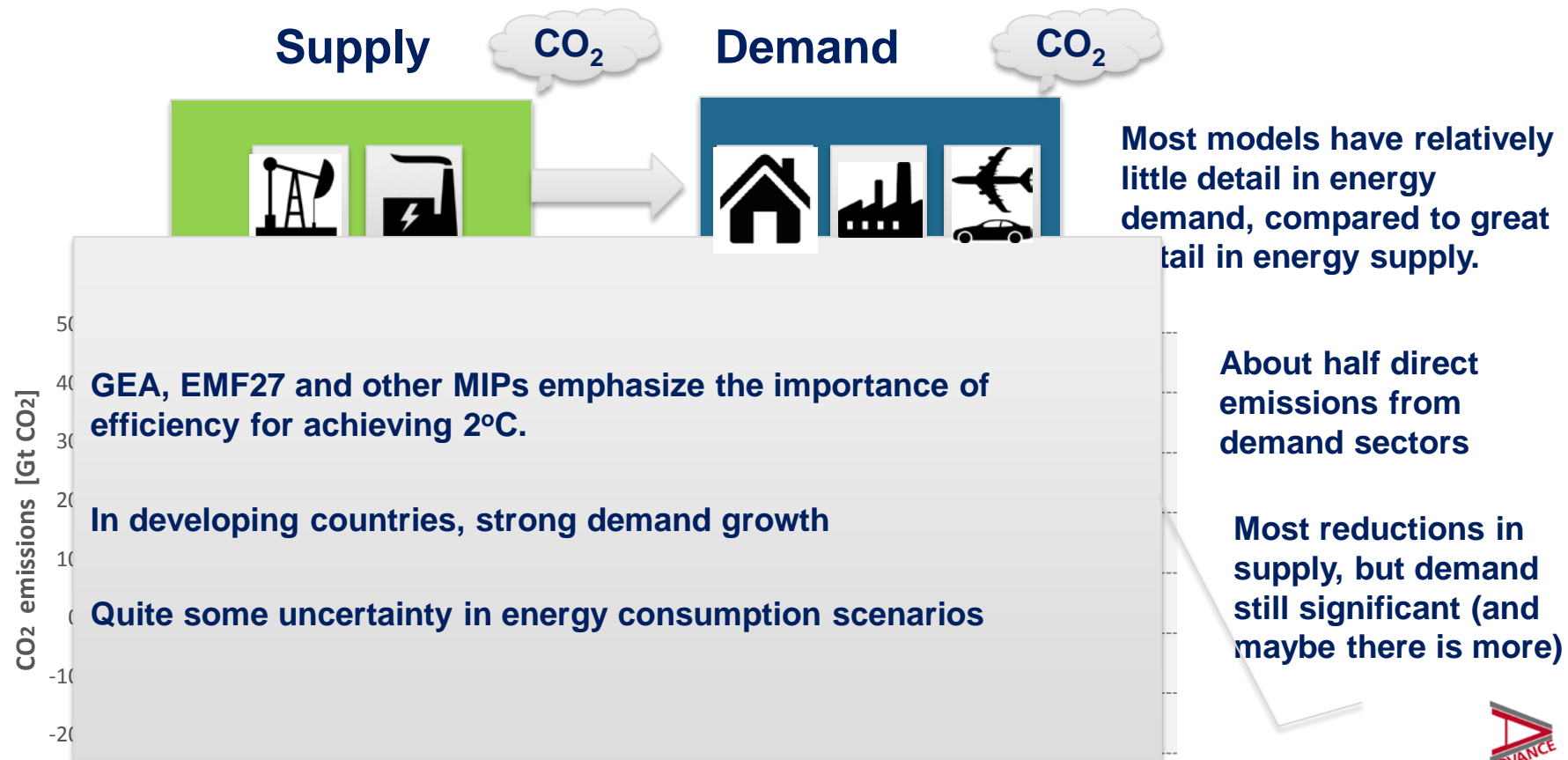


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About half direct emissions from demand sectors

Importance of understanding energy demand trends



Demand side transformations: Residential, Industry and Buildings

ADVANCE



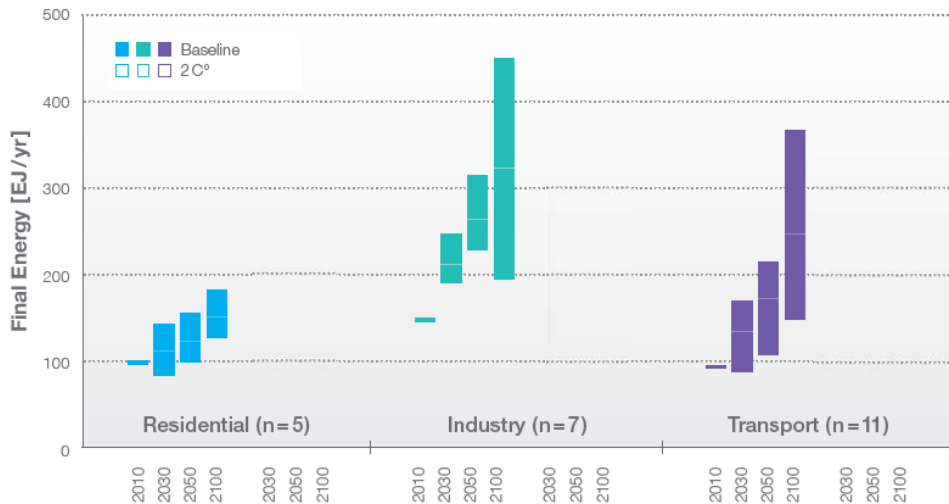
Model improvement
Better understanding
model behaviour

Demand

CO₂



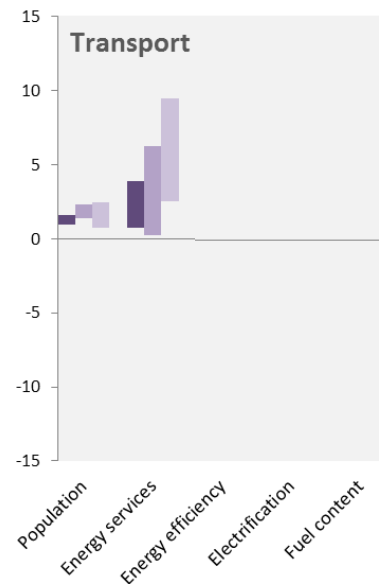
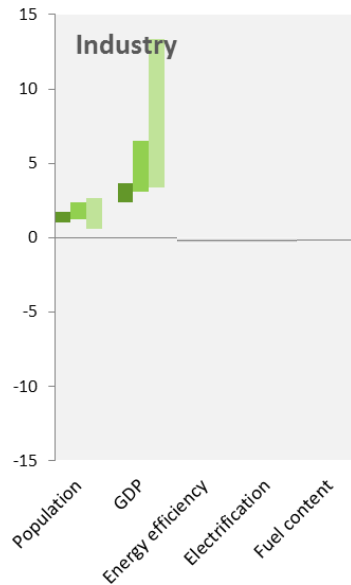
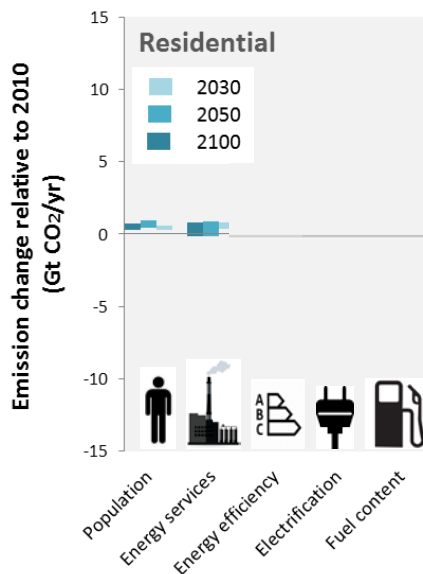
Demand side transformations: Residential, Industry and Buildings



- Economic and population growth lead to increased demand for energy services.
- Energy demand in industry and transport is projected to more than double.
- Energy demand reduction in all three sector needed to reach a 2 degree target.

Demand side transformations: Residential, Industry and Buildings

Different factors determine future change in emissions



 Population growth

 Activity

 Efficiency improvement

 Electrification

 Fuel switch



Lessons learned

- Introduction of efficiency, electrification and low carbon fuel use essential to low carbon transitions
- Models show different pathways and opportunities for mitigation
- In addition to technology, also behavioral change very important.
- Energy-services are not really influenced by price instruments, other policies affecting energy services could complement technology transition



Thanks!

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