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ROBUST SOCIO-ECONOMIC ANALYSES OF ENERGY TRANSITION SCENARIOS:

A MACROECONOMIC ANALYSIS FED BY A PARTICIPATIVE APPROACH

IRENA MODELING FORUM

26/03/2020

Climate Change Service
Federal Public Service Health,
Food chain safety and Environment

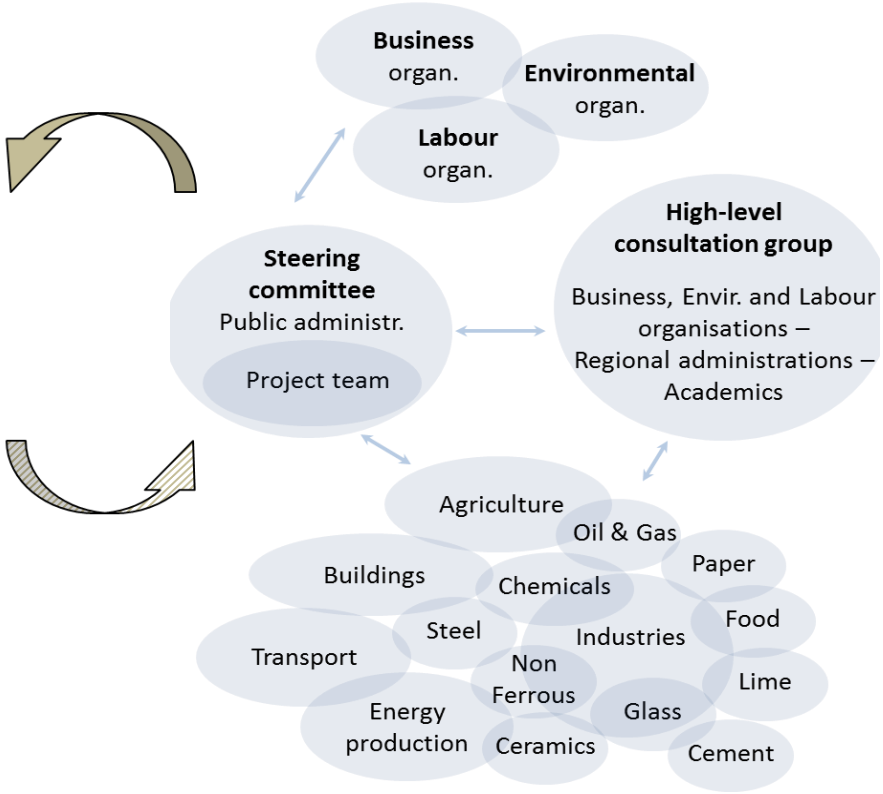
2050.be

TOWARDS A
LOW CARBON SOCIETY

PARTICIPATIVE SCENARIO BUILDING BASED ON CO-CONSTRUCTED ENERGY-ACCOUNTING MODEL

Originally based on UK 2050 calculator methdology (D. MacKay)

www.climatechange.be/2050

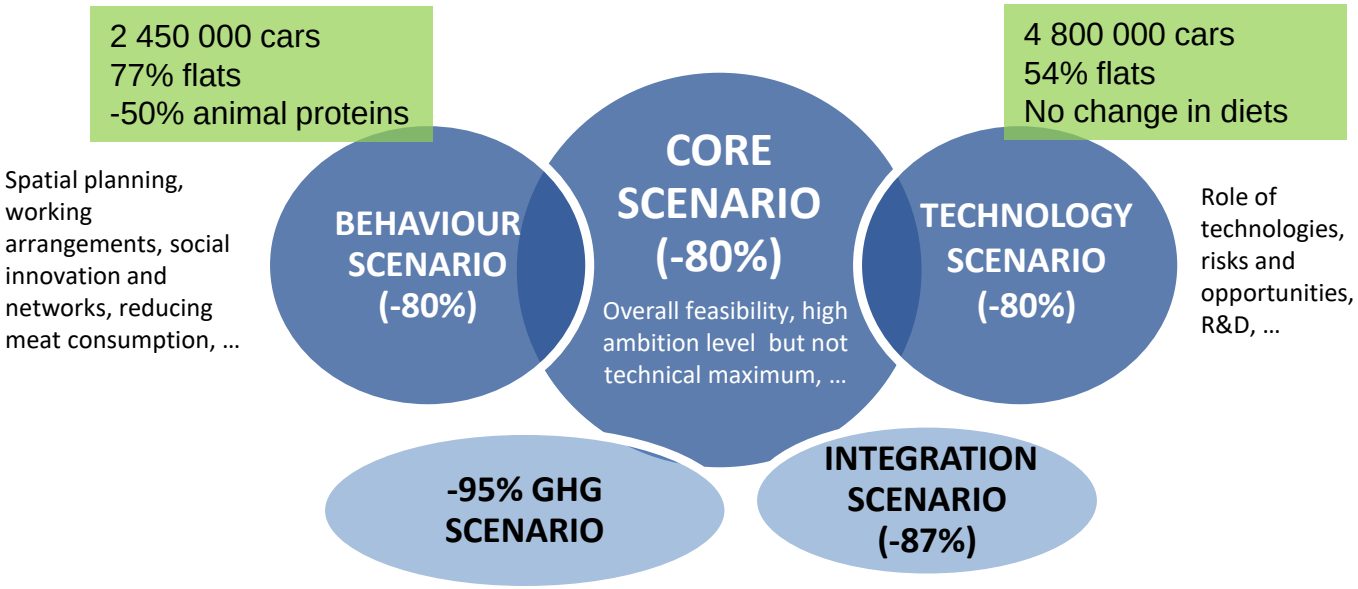


MUCH MORE CONTRASTING SCENARIOS THAN THOSE USUALLY PRODUCED BY TECHNICO-ECONOMIC MODELS

Limits of price-driven changes in **economic modeling**

Price-elasticities - Marginal changes - Non-market impacts - Static preferences - Co-benefits - …

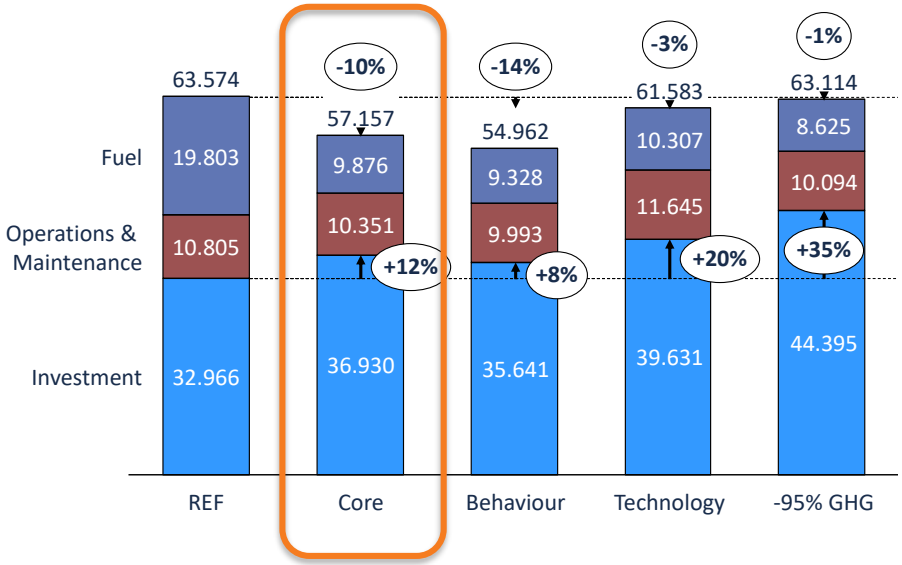
A set of 5 scenarios reaching 80 to 95% GHG emission reduction



Source: Belgium OPEERA model (Climact, VITO)

FEEDING A MACROECONOMETRIC MODEL OF THE BELGIAN ECONOMY

Average yealy costs 2010-50 (undiscounted, million EUR)



From 'bottum-up' energy accounting model

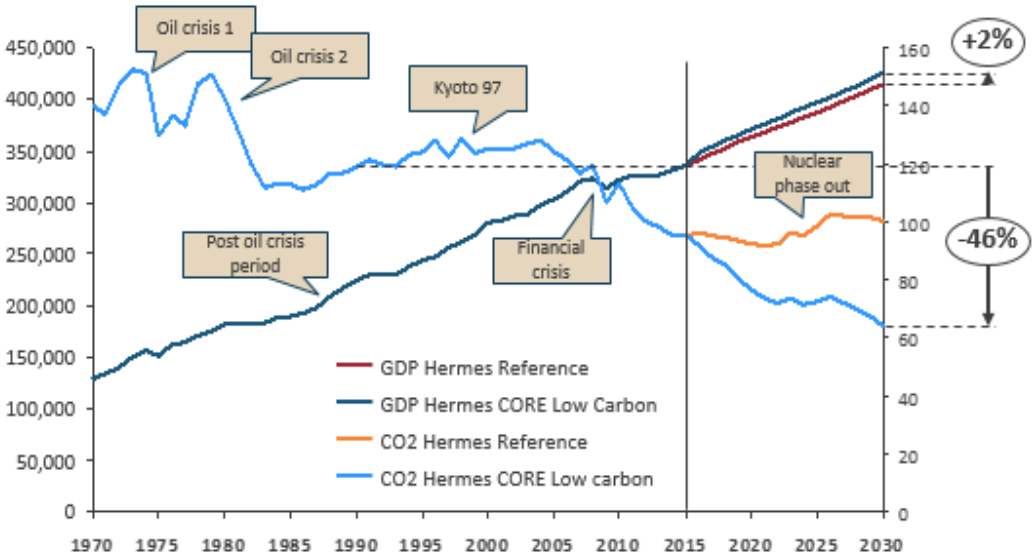
To 'top-down' macroeconometric model (HERMES)

	CAPEX and OPEX				FUEL EXPENDITURES			
	Transp.	Build.	Indus.	Power	Transp.	Build.	Indus.	Power
HOUSEHOLDS								
FIRMS								
Manufacturing	CAPEX and OPEX (+ or -)				Energy expenditures (-)			
Construction								
Communications								
Agriculture								
…								

FEEDING A MACROECONOMETRIC MODEL OF THE BELGIAN ECONOMY

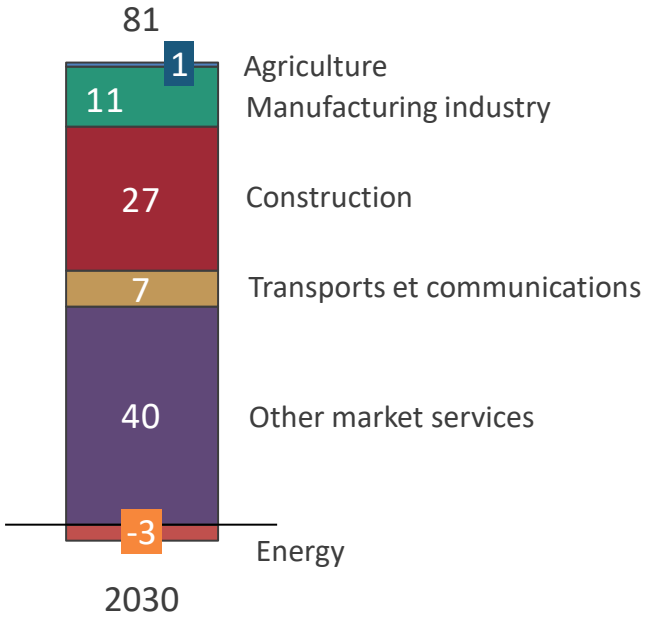
GDP and CO_2

(million € 2005 / million tons CO_2 in that year)



Jobs creation by economic sector in 2030

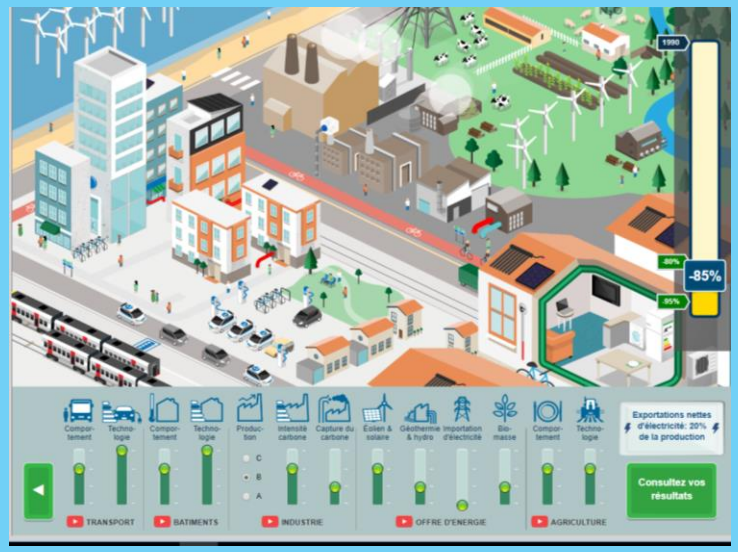
(Thousands of jobs in that year wrt Reference scenario)



THANK YOU !

References:

- www.climatechange.be/2050
- Berger, L, Th. Bréchet, J. Pestiaux and V. van Steenberghe (2020) “Case-study - The transition of Belgium towards a low carbon society: A macroeconomic analysis fed by a participative approach”, *Energy Strategy Reviews*, May.
- See also: www.my2050.be



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