

7<sup>th</sup> European Environmental Evaluators Network Forum

# How ex-ante policy evaluation can help make wiser investments

Using quantitative modelling to make the case for action

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# Introduction

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“Good modelling involves the combination of best econometric practice, coherent economic theory and knowledge of data. Inevitably conflicts can arise between these three factors, and the modeller will need to exercise judgement in the weight that is attached to the econometric evidence, its consistency with theory and the requirement to model properly the time series observations”

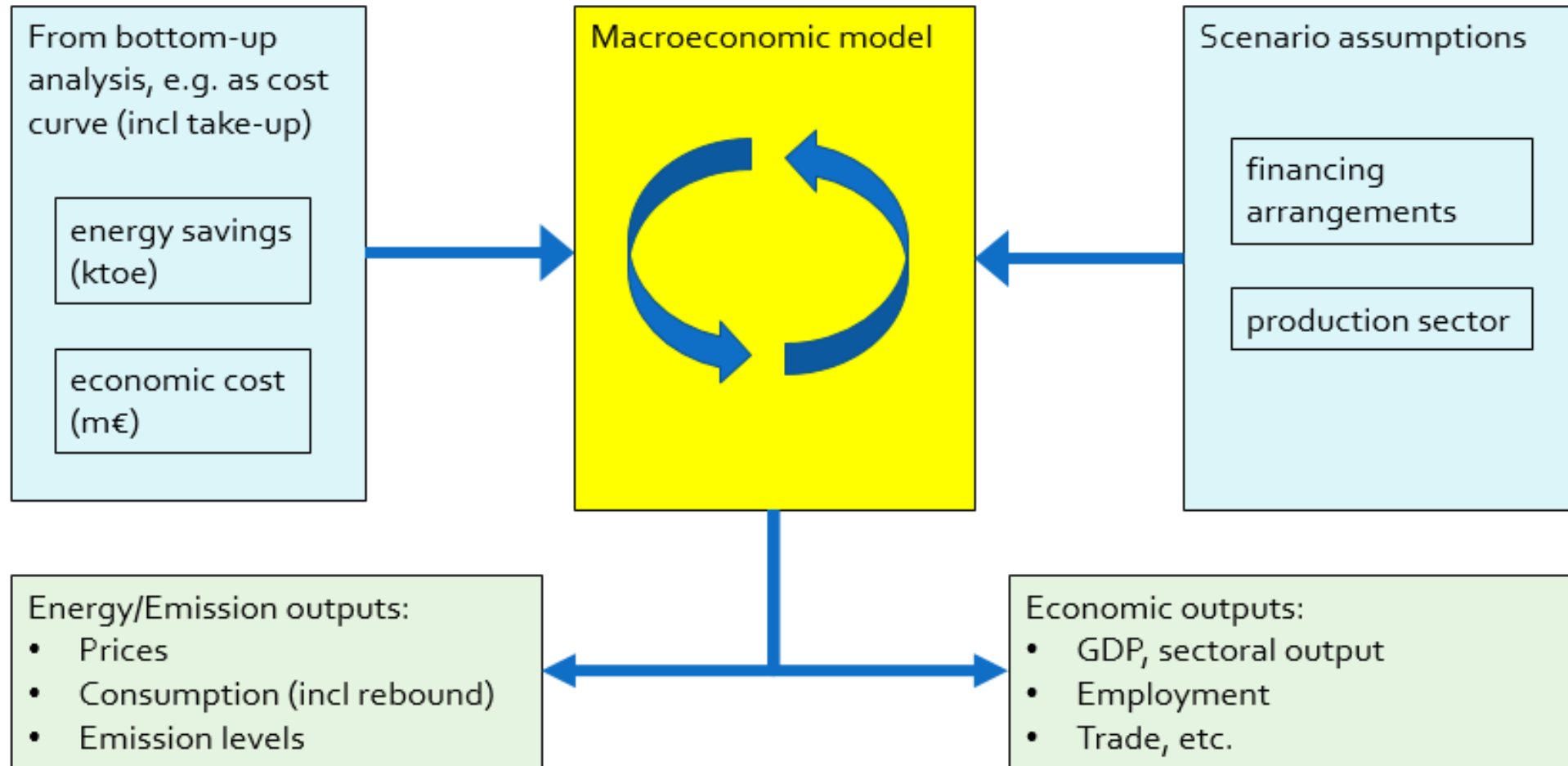
Sean Holly (2013)

# Overview

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- What can a macroeconomic model tell you?
- The role of modelling in policy evaluation
- How macro modelling can support investment decisions
- An example – the NCE 2018 Global Commission Report

# What can a macroeconomic model tell you?



## What is E3ME?

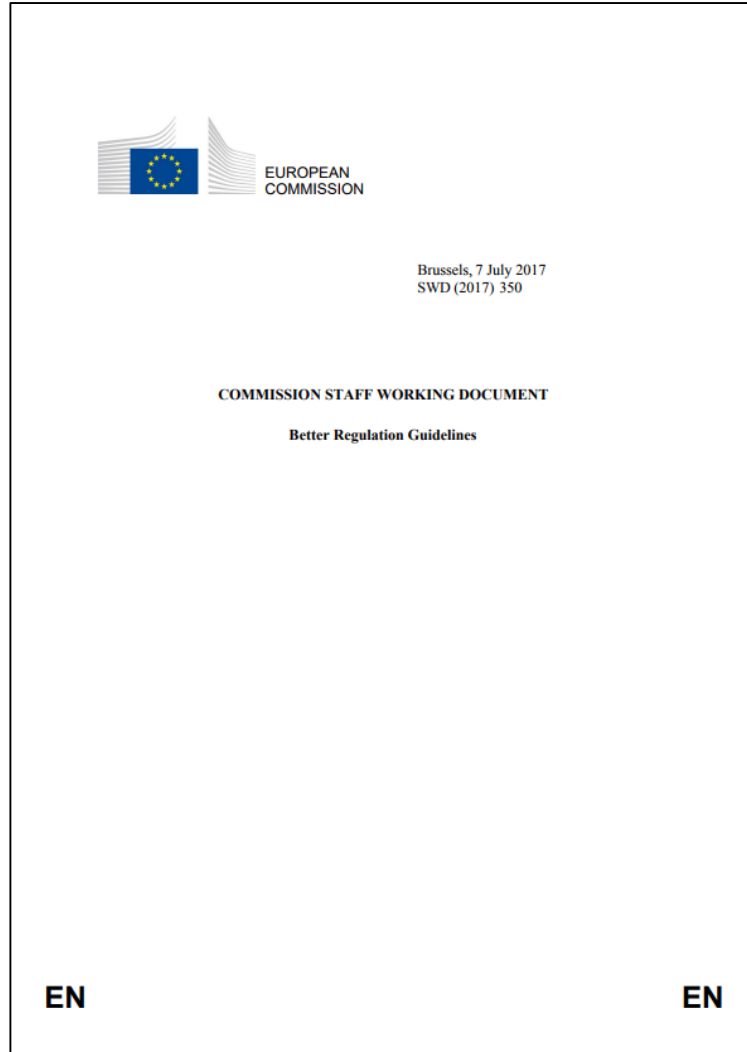
A computer-based global model for the economy, energy and environment, covering 59 regions

The model consists of collections of econometric behavioural equations and accounting identities

Based on an accounting framework and designed for projections for business and policy analysis

# What is an 'Impact Assessment'?

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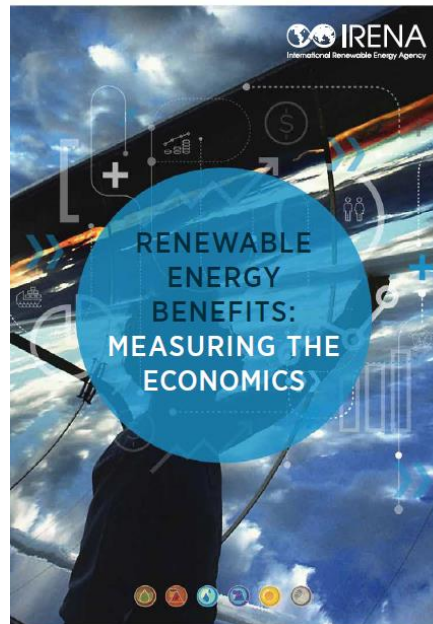
- All new European policy must follow a strict set of rules
- One of these rules is that the impacts of potential policy options must be quantified
- Policy officers are pushed towards modelling approaches that cover the whole economy

# Example research questions

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- Economic impacts of renewables deployment
- Economic impacts of the take-up of low carbon vehicles

[http://www.irena.org/DocumentDownloads/Publications/IRENA\\_Measuring-the-Economics\\_2016.pdf](http://www.irena.org/DocumentDownloads/Publications/IRENA_Measuring-the-Economics_2016.pdf)

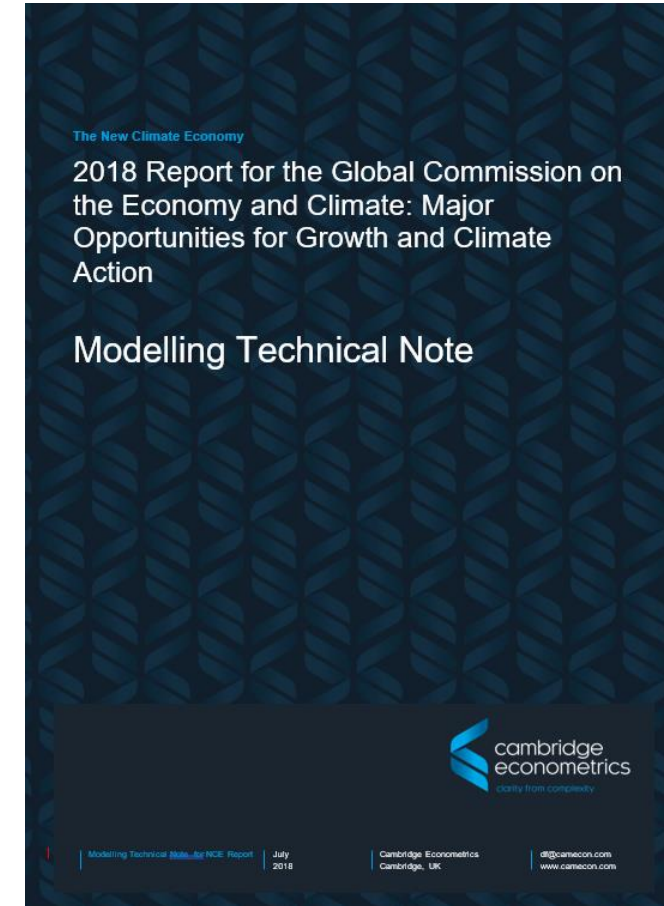
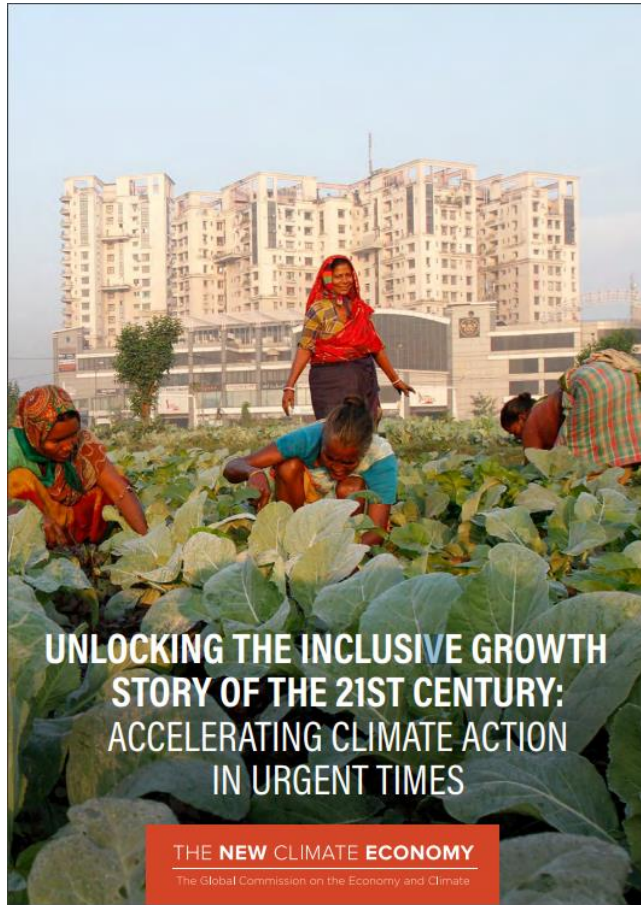


<https://www.camecon.com/how/our-work/fuelling-europes-future/>



# The NCE 2018 Report

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# Modelled scenarios

Sector	Name	Focus	Horizon
Cities	S1a Urban Retrofits	Buildings: heating system retrofits and improved efficiency of new buildings	2040
	S1b Urban densification	Reduced heating requirements for households and fuel consumption for transport	2040
	S2 Promoting EVs	Transport sector: accelerated deployment of electric vehicles, and Power generation: more renewables	2040
Energy	S3 Carbon pricing and energy reforms	Power generation: removal of fossil fuel subsidies, introduction of a carbon price globally, feed-in-tariffs	2040
	S4 Reducing energy waste	As S1 plus reducing energy waste across all sectors of the economy	2040
Industry/ Innovation	S5 Innovation and industrial efficiency	Industrial innovations and a drive to a low carbon transition and more efficiency in industrial processes	2040
'Combined'	S1-S5 Clean Energy Systems	Includes all of the above	2050

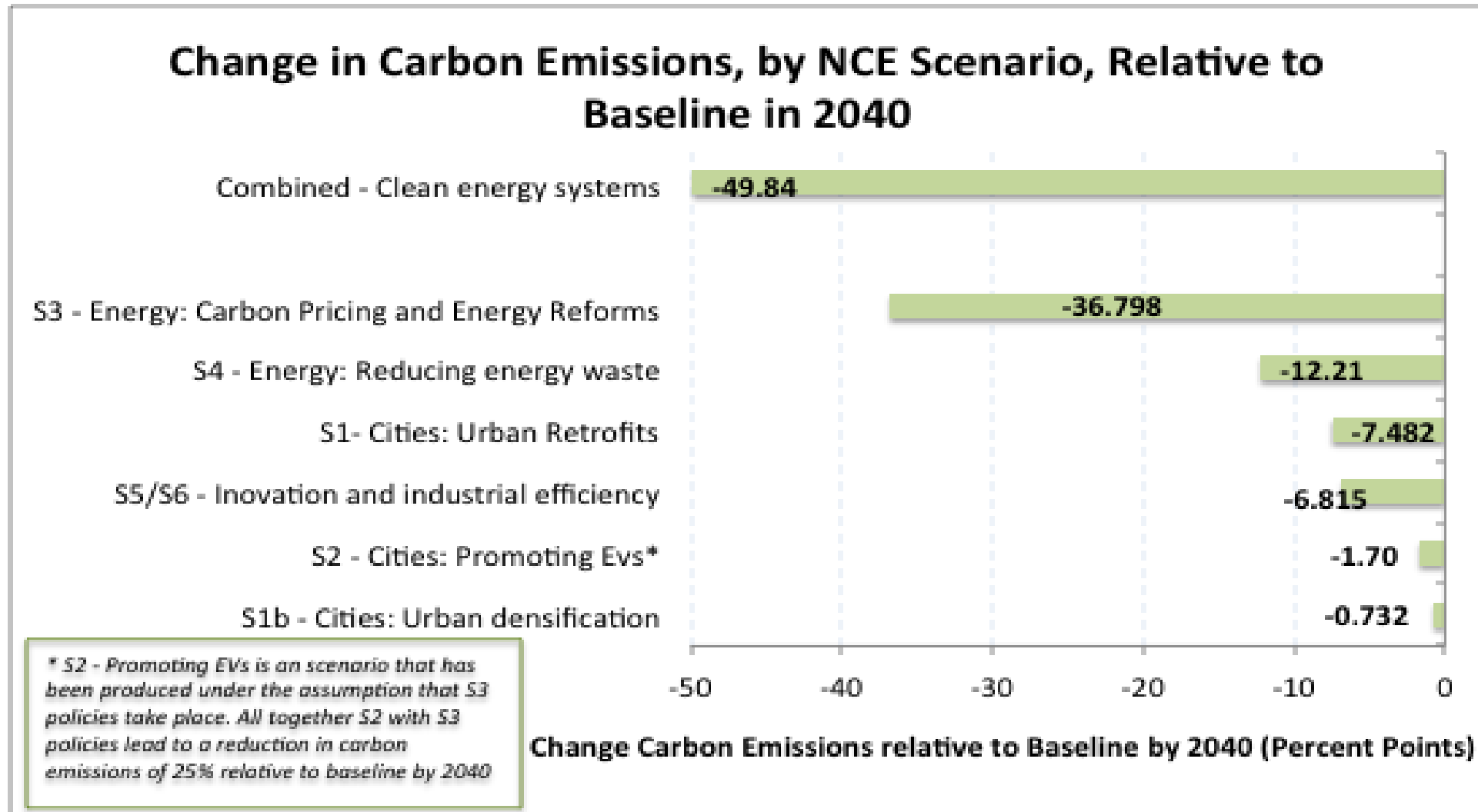
# Key messages

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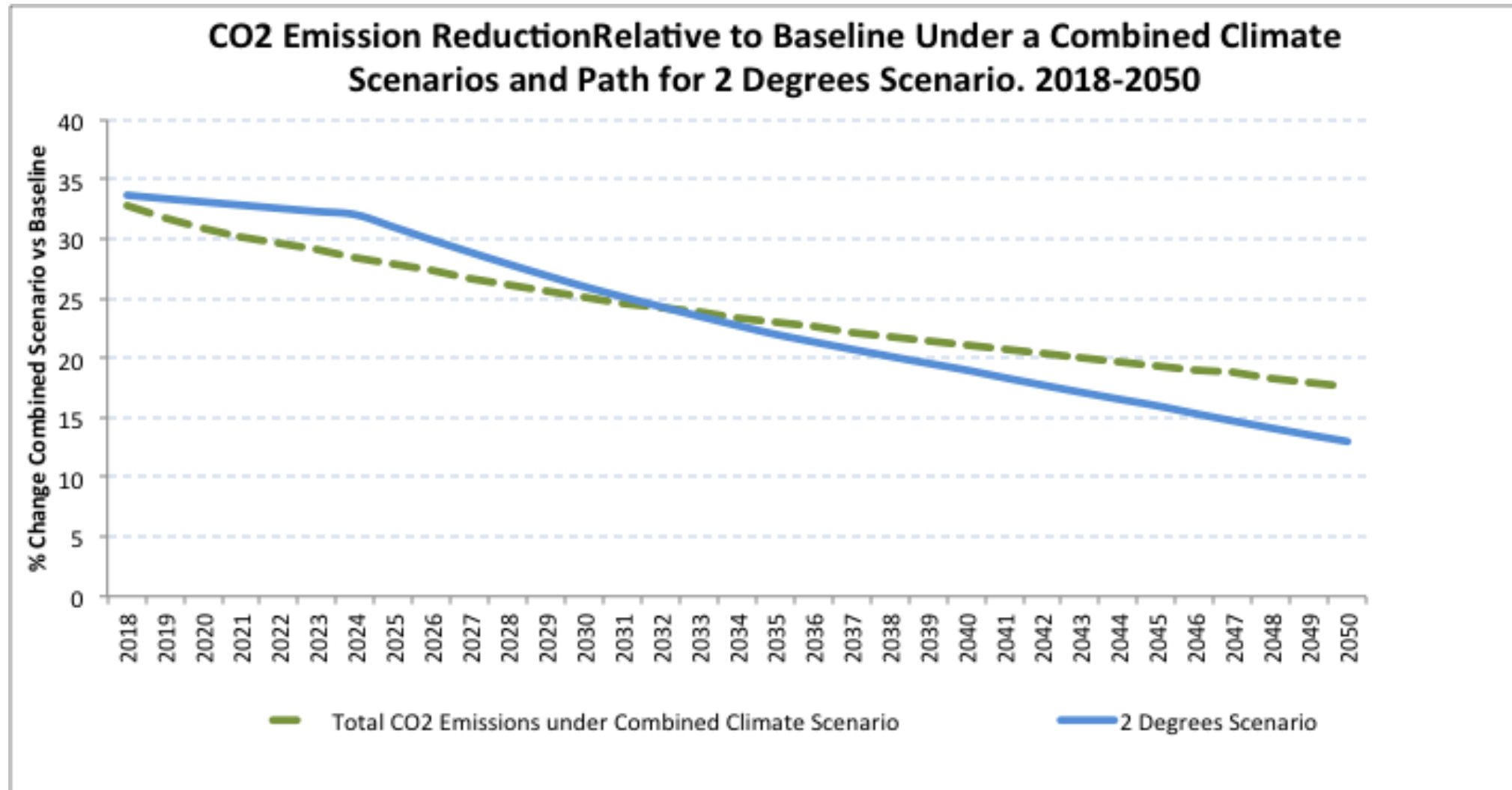
- Implementing a broad range of policy measures across sectors could reduce emissions substantially
- Bold action on climate could deliver US\$26 trillion in economic benefits - such as creating new jobs and providing better health outcomes - to 2030 (cumulative) compared with business-as-usual.
- Action is already underway...
- ... but there is urgent need for acceleration



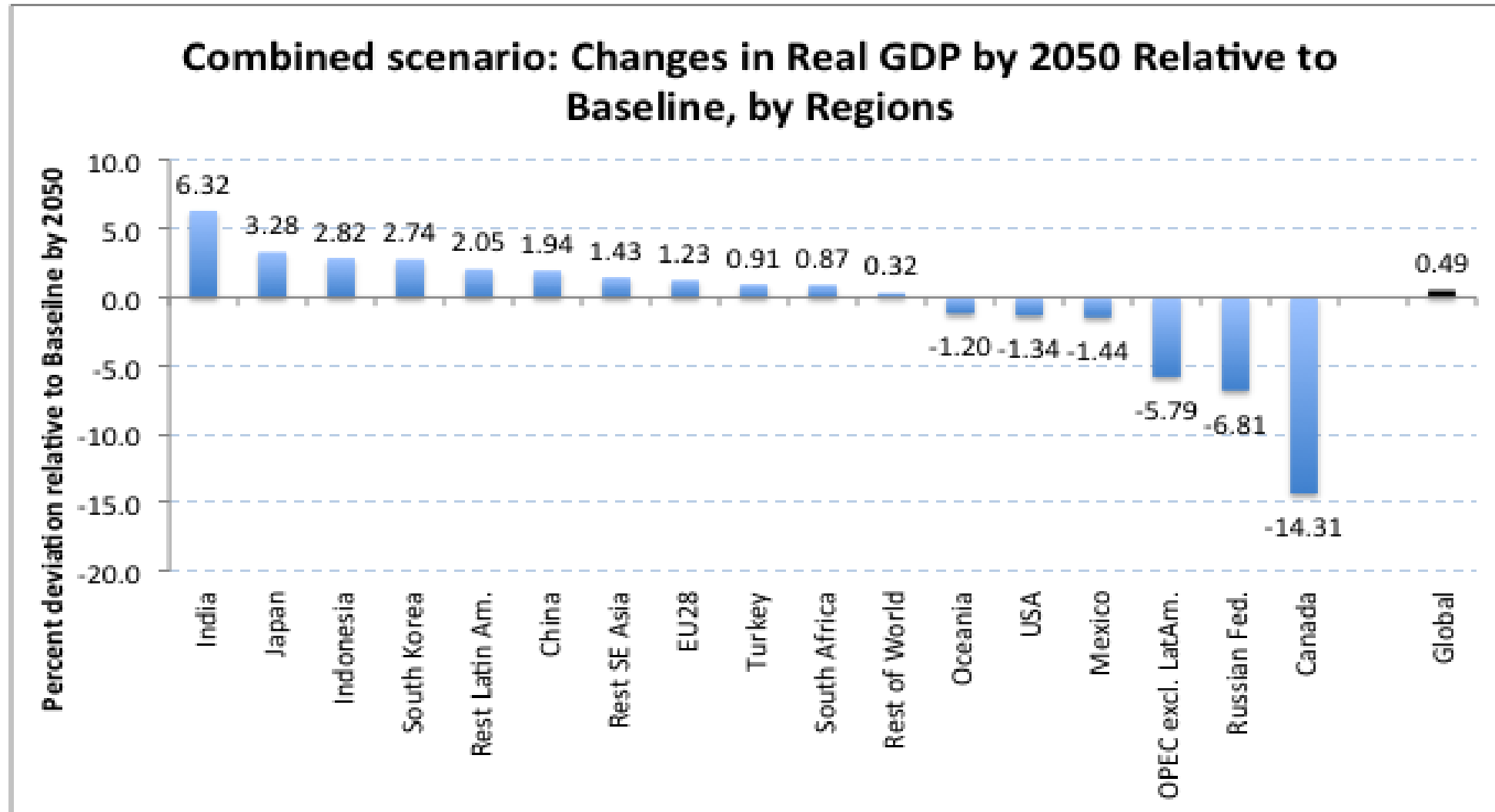
# Applying macro models can give insight into environmental impacts...



...how they align against stated targets...



...as well as economic impacts



# Conclusions

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- Macro models, and therefore modelled ex-ante evaluations, can provide insights...
- ...but are not a 'golden bullet'
  - methodology heavily influences the results reported in the models
- Such models can aid the development of policy, and help investors to make informed decisions