

## **THOMAS STOERK**

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*Climate economist with over fifteen years of experience in climate policy-making (both monetary and fiscal authorities) and academic research. Excellent network across climate policy and academia. Core strengths include: deep knowledge in modelling of climate impacts; using mitigation cost modelling to drive climate policy choices in the real world; and distilling big picture, strategic insights directly for senior management.*

### **Current position:**

2025-present      Climate Advisor, Economics and Research Department, National Bank of Belgium  
*I act as personal climate advisor to Governor Pierre Wunsch and work on climate economics research. Moreover, as Co-chair of the NBB Climate Hub & NBB representative in the Euro-system Climate Change Forum, I provide strategic thinking on the NBB's climate priorities.*

### **Affiliations:**

2018-present      Visiting Fellow, Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science

2023-present      Guest Professor, Barcelona School of Economics

### **Past positions:**

2021-2024      Climate Economist, Economics and Research Department, National Bank of Belgium

2018-2021      Policy Officer, C1 Strategy and Economic Assessment, DG Climate Action, European Commission

2017-2018      High Meadows Post-Doctoral Economist, Office of the Chief Economist, Environmental Defense Fund

2011-2012      Short-term positions on environmental, climate, development and competition topics at GIZ Gesellschaft für Internationale Zusammenarbeit (Eschborn, Germany); Royal Government of Bhutan (Thimphu, Bhutan); European Commission (Brussels, Belgium)

### **Education:**

2013-2017      *Universitat Pompeu Fabra*  
PhD in Economics, *Distinction*

2014-2016      *London School of Economics and Political Science*  
EDP Student (European Doctoral Program)

2012-2013      *Universitat Pompeu Fabra*  
MRes in Economics

2010-2011      *Barcelona Graduate School of Economics*  
MSc in Economics

2006-2010      *Universitaet Tuebingen*  
BSc in International Economics

### **Research interests:**

Economics of Climate Change, Climate Policy Design, Macroeconomics of Climate Neutrality, Climate Finance, Integrated Assessment Modelling, Environmental Economics

### **Teaching experience (selected):**

#### *As Guest Professor*

2023 - present      The use of economics in climate policy (graduate), Barcelona School of Economics

2020 - 2023      Climate economics (graduate), Universitat Pompeu Fabra

2021 - 2023      Emissions trading and climate impacts (graduate), CEI International Affairs

#### *As Teaching Assistant*

2012-2013      Microeconometrics (graduate, in English), Barcelona School of Economics,

2010-2013      Micro- and Macroeconomics (undergraduate, in Spanish and Catalan), UPF

## **Publications:**

"[Searching for carbon leaks in multinational companies](#)" (2022), with Antoine Dechezleprêtre, Caterina Gennaioli, Ralf Martin and Mirabelle Muûls. *Journal of Environmental Economics and Management*, 112: 102601.

"[Economic impacts of tipping points in the climate system](#)" (2021), with Simon Dietz, James Rising and Gernot Wagner. *Proceedings of the National Academy of Sciences*, 118(34): e2103081118.

"[Turning the corner on US power sector CO<sub>2</sub> emissions - a 1990-2015 state level analysis](#)" (2019), with Kristina Mohlin, Alex Bi, Susanne Brooks and Jonathan Camuzeaux. *Environmental Research Letters*, 14(084049): 1-13.

"[China's national Carbon Emissions Trading Scheme: Lessons learned from the pilot emission trading schemes, academic literature, and known policy details](#)" (2019), with Daniel J. Dudek and Jia Yang. *Climate Policy*, 19(4): 472-486.

"[Policy Brief - Recommendations for Improving the Treatment of Risk and Uncertainty in Economic Estimates of Climate Impacts in the Sixth IPCC Assessment Report](#)" (2018), with Gernot Wagner and Bob Ward. *Review of Environmental Economics and Policy*, 12(2): 371-376. [[Media coverage](#)]

"[Statistical corruption on Beijing's air quality data has likely ended in 2012](#)" (2016). *Atmospheric Environment*, 127 (February 2016): 365-371.

"[From intention to action: Can nudges help consumers choose renewable energy?](#)" (2014), with Katharina Momsen. *Energy Policy*: 74 (2014), 376-382.

## **Working papers:**

"Effectiveness and cost of air pollution control in China" (2025), LSE Grantham Research Institute on Climate Change and the Environment Working Paper No. 273.

"Large economic benefits of global methane action" (2024), with Simon Dietz (LSE), James Rising (U Delaware), and Drew Shindell (Duke).

Climate policy is paying increasing attention to methane action, exemplified by the Global Methane Pledge of at least a 30% reduction in global methane emissions below the 2020 level by 2030. But research on the economic benefits of methane action is still sparse. In this paper, we seek to advance the literature by providing the first comprehensive assessment of the economic benefits of methane abatement, primarily via avoided climate change but also including air quality co-benefits. We do so using one of a new generation of social-cost Integrated Assessment Models, META, which couples a benchmark simple climate model from the climate science literature with comprehensive climate damages disaggregated to the national level, and includes a set of climate tipping points. Relative to current policies/trends, we estimate the Global Methane Pledge and continued methane abatement thereafter would avoid 0.13°C of warming in 2050. This may sound small, but it would be highly beneficial. It would reduce climate damages in 2050 from 3.5% of global GDP to 3.1%, equivalent to gross benefits of more than \$1trn per year in 2050. Using data on air quality co-benefits and abatement costs from the Global Methane Assessment, we estimate overall discounted net benefits of methane action of \$9.4-16.5trn, yielding a lower bound of more than six for the benefit-cost ratio of methane action. We provide evidence of how global methane action would improve equity, reducing climate damages relatively more in low-income than high-income countries. We quantify how methane action reduces tipping point intensity and tail risk with respect to climate damages. Our best estimate of the social cost of methane (SC-CH<sub>4</sub>), i.e., the marginal climate damage cost of methane, is \$7,327/tCH<sub>4</sub>, towards the top end of the range of estimates in the existing literature. We provide the first country-level estimates of the SC-CH<sub>4</sub>, which indicate that key economies such as the United States, the European Union, China and India would be motivated to act on methane at marginal abatement costs exceeding \$500/tCH<sub>4</sub> even if they took a parochial view of climate damages, only valuing damages within their own borders.

"Ratcheting up Paris" (2024), with Humberto Llavador (Universitat Pompeu Fabra) and John Roemer (Yale).

The Paris Agreement is designed to increase climate ambition gradually, through a process called 'ratcheting up'. What could the end result of ratcheting up the Paris Agreement be? We build a tractable integrated assessment model to show that there is room for unanimous agreement on a global carbon market. We show the existence of a decentralized general equilibrium in which all mitigation takes place via carbon pricing. Global carbon pricing revenue is redistributed to each country proportional to a country's marginal climate damages. In our quantitative assessment, we find that ratcheting up the Paris Agreement is possible for both temperature targets and the often-overlooked climate finance ambition. In equilibrium, global mean surface temperature increase is limited to 1.86°C, at an average carbon price of 137 USD/tCO<sub>2</sub>. Annual international financial flows of carbon pricing revenue would be at 0.7% of global GDP, about 20 times the climate finance ambition of the Paris Agreement.

"Charting a Course for Research on Industrial Decarbonization" (2024), with Kenneth Gillingham (Yale), Lint Barrage (ETH Zurich) *et al.* **R&R** at *Science* (Policy Forum).

"The effects of carbon pricing along the production network", with Mirabelle Muûls (Imperial College London) and Ralf Martin (Imperial College London), National Bank of Belgium Working Paper Research No. 467.

*Presented at 12/2023 NBER Conference "The Economics of Decarbonizing Industrial Production"*

### **Work in progress:**

"Energy Prices: A Key Determinant of Greenhouse Gas Abatement Costs Often Overlooked by Macroeconomists, with Pierre Wunsch (National Bank of Belgium).

### **Selected Policy Writings:**

"The macroeconomic aspects of climate neutrality – a European perspective" (2023), with Pierre Wunsch and Carine Swartenbroekx. *National Bank of Belgium Blog*.

"Do all roads lead to Paris? Climate change mitigation policies in the world's largest greenhouse gas emitters" (2023), with Flore De Sloover and Dennis Essers. *NBB Economic Review* 2023 No 6.

"Global unanimity agreement on the carbon budget" (2022), with Humberto Llavador and John Roemer. *Cuadernos Económicos de ICE* No 04. 2022/II.

"Towards the climate policy of 1.5°C climate change" (2019), with Tom Van Ierland. *EAERE Magazine*, n.5, Spring 2019.

"How China is cleaning up its air pollution faster than the post-Industrial UK" (2018), *Market Forces Blog*, Environmental Defense Fund, 18<sup>th</sup> May 2018.

"Why climate policy is good economic policy" (2017), *Market Forces Blog*, Environmental Defense Fund, 14<sup>th</sup> November 2017.

### **Professional activities:**

Keynotes	2024	"Climate economics: from fringe to mainstream", Barcelona School of Economics <i>11<sup>th</sup> BSE PhD Jamboree</i> , 9-10 May 2024
	2022	"The social cost of carbon, or: what has climate economics ever done for us?", Gent University <i>Research Days</i> , 23 May 2022.
Invited seminars	2025	New York University
	2024	Umweltbundesamt (=German EPA), ECSB Research Cluster on Climate Change, European Commission (ENER), Network for Greening the Financial System (Research Webinar)
	2023	Environmental Defense Fund, Resources for the Future
	2022	Hertie School, Environmental Defense Fund, Banco de España, Barcelona School of Economics
	2021	National Bank of Belgium, Mercator Research Institute on Global Commons and Climate Change, Virtual Seminar on Climate Economics, IMF (Research Seminar), European Central Bank
	2020	Universitat Autònoma de Barcelona (ICTA)
	2019	LSE (Grantham Workshop), University College Dublin (Earth Institute)
	2017	Universitat de Barcelona, DIW Berlin (Climate Policy), UMassAmherst (Resource Economics), Environmental Defense Fund, Frankfurt School, Toulouse School of Economics, U Hamburg
	2016	CREI (International Lunch), LSE (Grantham Workshop), UPF (LPD Breakfast), LSE (WiP Economics)
	2015 (and prior)	UPF (Applied Breakfast), LSE (Grantham Workshop), CREI (International Lunch) UPF (Applied Lunch), UPF (Student Seminar), UPF (Behavioural Breakfast)

Conferences	2025	FOSDEM 2025
	2024	EMEE 2024 (ETH Zurich), European University Institute workshop, EAERE2024, CEPR Paris Symposium
	2023	ASSA Annual Meeting (New Orleans), BEED (Brussels), EAERE (Limassol), NBER Conference "The Economics of Decarbonizing Industrial Production"
	2022	15 <sup>th</sup> Belgian Environmental Economics Day, EAERE (Rimini), Frontiers of Climate and Nature in Macroeconomics and Finance (Banque de France)
	2021	EAERE (Virtual Conference), First Technical Workshop of EUTL data users (GROW, European Commission)
	2020	AERE (Virtual Conference), EAERE (Virtual Conference)
	2019	EAERE (Manchester, Policy Sessions)
	2018	Interdisciplinary Ph.D. Workshop in Sustainable Development (Columbia U), WCERE (Gothenburg), FSR Climate Annual Conference (European University Institute)
	2017	Interdisciplinary Ph.D. Workshop in Sustainable Development (Columbia U), EAERE (Athens)
	2016	EDP Jamboree (UPF), EEA-ESEM (Geneva), China Economics Summer Institute (Hong Kong), SAEe Bilbao
	2015	EAERE (Helsinki), EAERE-FEEM-VIU Summer School (Venice), 1st IIASA-JRC Summer School (Poster), EDP Jamboree (LSE), FSR Climate Annual Conference (European University Institute)

Referee for Journal of the Association of Environmental and Resource Economists, Journal of Environmental Economics and Management, American Economic Journal: Economic Policy, Journal of Public Economics, Climatic Change, Nature Climate Change, Environmental and Resource Economics, Energy Economics, Review of Environmental Economics and Policy, Energy Policy, Resource and Energy Economics, Global Environmental Change, Global Sustainability, PLOS ONE, Science of the Total Environment, Journal of Cleaner Production, PNAS, Journal of Economic Behavior and Organization, Environmental Modeling & Assessment

Other service	2024	Member of Scientific Committee, “CEPR-NBB Joint Research Workshop on Reaching Net-Zero: Electricity Markets, Carbon Pricing, and Firms' Responses”
	2023	Member of Scientific Committee, “25 <sup>ème</sup> Congrès des économistes de langue française”
	2021	Member of Scientific Committee, “EU Conference on Modelling for Policy Support”
	2020	Co-facilitator in charge of adapting Paris School of Economics teaching series “Climate Change Economics” to European Commission (CLIMA) policy needs

**Selected climate economics discussions representing the National Bank of Belgium:**

2024/ September	Stephie Fried (San Francisco Fed), “Homework in Climate Economics: Household Production, Carbon Emissions, and Climate Policy”, AXA-CEPR Climate Change and the Environment Conference.
2023/ November	Gauthier Vermandel (Ecole Polytechnique), “Environmental Subsidies to Mitigate Net-Zero Transition Cost”, ESCB Research Cluster on Climate Change.
2023/ May	Anastasios Xepapadeas (U Bologna), “Monetary policy stabilization in a new Keynesian model under climate change”, Bundesbank Spring Conference 2023,

“Climate Change and Central Banks”.

- 2023/ March John Hassler (IIES), “Climate economics and climate policy”, NBB.
- 2022/ October Margherita Giuzio (ECB), “The macroeconomic implications of the insurance climate protection gap”, ESCB Research Cluster on Climate Change.
- 2022/ May Jean Pisani-Ferry (Sciences-Po / Bruegel / Peterson Institute), “Challenges for macroeconomic policy related to climate change”, NBB.

**Climate modelling input to selected European Commission climate policy packages:**

- 2021/ July Delivering the European Green Deal: “Fit for 55’ - delivering the EU’s 2030 climate target on the way to climate neutrality”
- 2020/ October Near-term methane action: “An EU strategy to reduce methane emissions”
- 2020/ September 2030 climate target plan: “Stepping up Europe’s 2030 climate ambition. Investing in a climate-neutral future for the benefit of our people”
- 2018/ November 2050 long-term strategy: “A Clean Planet for all A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy”

**Selected policy talks representing the European Commission:**

- 2021/ June “Air quality co-benefits in European Commission climate impact assessments”, *Policy Session at EAERE2021*, “Berlin”
- 2021/ March “Mitigation modelling: what is it, why do we use it, and why should circular economy experts care?”, *Circular Economy and Climate Modeling Knowledge Exchange Session*, organized by DG Environment, European Commission
- 2020/ November “Stepping up Europe’s 2030 Climate Ambition”, talk and discussion with *International Association of Oil & Gas Producers* (with Fabian Kreuzer)
- 2019/ November “Modelling of Mitigation Cost in the European Commission’s Long-Term Strategy for Climate Neutrality by 2050”, *Umweltbundesamt Workshop on Climate Economics*, Berlin
- 2019/ May “Economic Modelling in the European Commission’s Long-Term Strategy for Climate Neutrality by 2050”, *Workshop at University College London*, London

**Software and climate modelling:**

*User of:* Stata, Julia, Python, MS Excel

*Co-creator of “Model for Economic Tipping point Analysis (META)”:* META is a frontier second-generation climate-economy integrated assessment model that calculates the effect of tipping points on various climate damage metrics. META runs in Julia (via the MimiFramework), and my co-authors and I have released META under an open source licence: <https://github.com/openmodels/META>

**Languages:**

German (*native*), English (*fluent*), Spanish (*fluent*), Catalan (*fluent*), French (*fluent*)

**References:**

Available upon request.